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PROCEEDINGS

1st International Congress on Psychological Trauma: Prenatal, Perinatal & Postnatal Aspects (PTPPPA 2015)

Editors

Grigori Brekhman
Mirjana Sovilj
Dejan Raković

Belgrade, Crowne Plaza
15-16 May, 2015

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Kid Desirable

Music V. Shainsky
Words-Remake by Katia Brekhman

1. Kid Desirable - everybody loves it!
Unique and unrepeatable,
Unique and inimitable,
Unique and favorable kid.

Chorus
Happy kids are able to learn,
To make friends, and enjoy themselves!
Where the kid is desirable,
Good are moms and dads!

2. How important and necessary to have friends
To discuss vital themes with them
To get kids born without traumas
To enjoy fully their lives!

Chorus
Happy kids are able to learn,
To make friends, and enjoy themselves!
There should not be the world
With unnecessary kids...
We all are responsible for this,
To have happy kids!

Ребенок Желанный

Муз. - Владимира Шаинского,
Римейк - Кати Брехман

1. Ребенок Желанный - Он всеми любим!
Единственный в мире и не повторим,
Единственный, неповторимый,
Единственный, очень любимый.

Счастливые дети умеют учиться,
Умеют дружить, от души веселиться!
А там, где ребенок желанный,
Хорошие папы и мамы!

2. Как важно и нужно друзей повстречать
И темы насущные здесь обсуждать
Без травмы, чтоб дети рождались
И жизнью своей наслаждались!

Счастливые дети умеют учиться,
Умеют дружить, от души веселиться!
Ведь так не должно быть на свете
Чтоб были ненужными дети…
Мы с вами за это в ответе,
Чтоб были счастливыми дети!

PREFACE

The First International Congress "Psychological Trauma: Prenatal, Perinatal & Postnatal aspects (PTPPPA 2015)" was successfully held in Belgrade, Serbia, during 15-17 May 2015. This Congress was organized by Life Activities Advancement Center – Serbia, The Institute for Experimental Phonetics and Speech Pathology – Serbia, and The International Society of Pre- and Perinatal Psychology and Medicine – Germany. The Congress was organized under the auspices of Ministry of Education, Science and Technological Development – Republic of Serbia, Association for Prenatal and Perinatal Psychology and Health – USA, Cosmoanelixis, Prenatal & Life Sciences – Greece, and DRF Fund for Promoting Holistic Research and Ecology of Consciousness – Serbia.

We kindly acknowledge all of them, and also our Scientific Committee, Organizing Committee, and Secretariat – and particularly all our participants who have presented fifteen plenary lectures, nineteen oral presentations, nine poster presentations, and three workshops.

It was the first Congress devoted to the comparative analysis of prenatal, perinatal and postnatal psychological traumas and their interaction. The aim of the Congress was to summarize modern knowledge in biology, medicine, psychology, including prenatal and postnatal phases of life, and other natural sciences, in order to give the impulse for the intensification of research of psychological traumas and their consequences. This is necessary for better understanding of these phenomena and providing opportunity to find the more effective approaches and techniques of their diagnostics, therapy and prophylaxis.

A special attention was given to: (i) Possibilities of diagnostics of prenatal, perinatal, and postnatal psychological traumas – separately and/or by their combination, (ii) Therapy of patients with such psychological traumas, (iii) Trans-generation passing of such psychological traumas, (iv) Eliminating or reducing the impact of distorted information on psychosomatic condition and functioning of a person, and (v) Topicality of prophylactics of prenatal, perinatal, and postnatal traumas, in which the whole humankind should be involved.

The presentations included Theoretical aspects of consciousness, thinking, and psychological traumas (Part I), Prenatal and perinatal aspects of psychological traumas and their treatments (Part II), and Ways of diagnostics, treatment, and prevention of psychological traumas in general (Part III). All presentations even different in contents were quite interesting, providing new information and new fresh ideas. So, participants of the Congress (psychologists and psychotherapists, obstetricians-gynecologists and other physicians, biophysicists and engineers, and other specialists) have estimated this forum as a very successful event.

The three intriguing workshops were also presented: (i) Tashaev's on Relief in Psychological and Psychosomatic Traumas by Means of Body Discomfort Personification, (ii) Gouni's on Applying the Salutogenic Principles in the field of Prenatal Psychology or How Can Our Children Live a Better Quality of Life, and (iii) J&T Turners' on substantiation of the Whole-Self Prebirth Psychodiagnostics and an interpretation of the efficacy of the Whole-Self Prebirth Psychology, Psychotherapy, Philosophy and Education in human relationships.

Globally, the conclusions of presented papers provided the following message: (i) For understanding development of human consciousness, communication, behaviour and learning, we must apply a holistic approach from the prenatal period, from preconception, because a man is a unique expression of trans-generational characteristics of his ancestors and interactions with closer and wider environment; (ii) If in considering development of communication and behaviour we do not perceive this fact, we might consequently come into a situation of not being able to have substantial insight into our own situation and behaviour, and even less of the others; (iii) Experts who

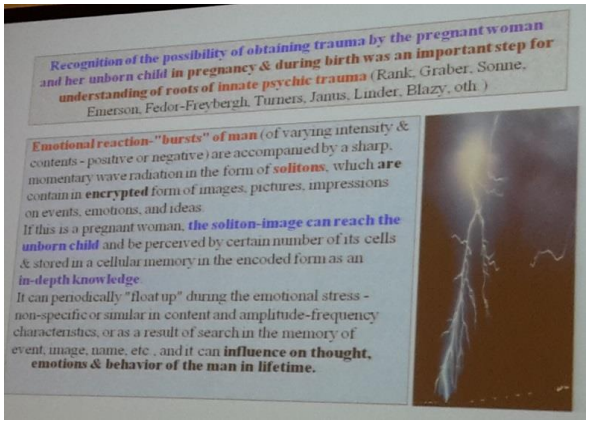
deal with child development, upbringing and education, should complement their knowledge with the art of composing and interpreting genealogic tree (somatic, psychological, spiritual), thus gaining holistic insight into the complete development of a person from the moment of conception, and being adequately prepared to support young generations properly.

We look forward to organizing our next Congress on this exciting and important field soon.

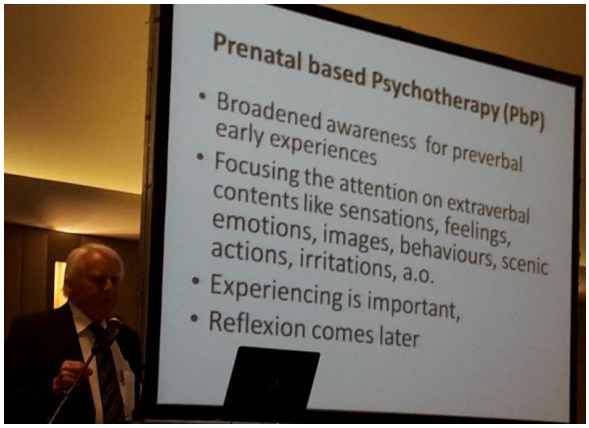
Editors

CONGRESS REPORT TO ISPPM AND APPPAH
By Dr. Rupert Linder, Past President of ISPPM

I want to describe to you some impressions of the Prenatal Trauma Congress from May 2015 in Belgrade. It was organized by our most appreciated old friend Grigori Brekhman together with Mirjana Sovilj and Dejan Rakovic from Belgrade. The atmosphere of the place was lovely – a recently new build comfortable Hotel adjacent to the Sava river – a little above its flowing into the Danube. Although the issue of prenatal trauma certainly is no light fare, it got better digestable by the friendliness of the organizing staff and the lot of experienced older and young presenters from the impressingly busy Institute for Experimental Phonetics and Speech Pathology in Belgrade. There have been friendly connections since decades with the ISPPM and some meetings earlier in Heidelberg.

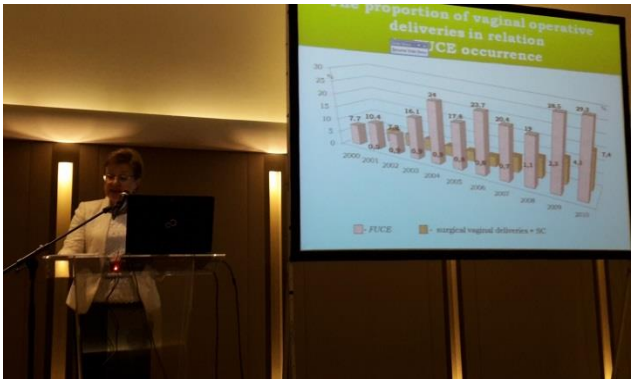


I can describe here just a few of the many impressions. **Grigori Brekhman** was opening the session with his remarks on PREREQUISITES FOR THE DEVELOPMENT OF THE DOCTRINE OF PSYCHOLOGICAL / MENTAL TRAUMA. Originating from 'quasi consciousness of every living cell' he was mentioning the EINSTEIN dualism of matter and the wave genetics of Gurvich and Garyaev. From even mothers social and ecological environment deep imprints are going over to the unborn and can impair their later mental and physical health. This can be reinforced by actual difficult prenatal conditions. It may cause deeply negative impacts on stress coping and higher vulnerability for receiving mental traumas in later lifetime.



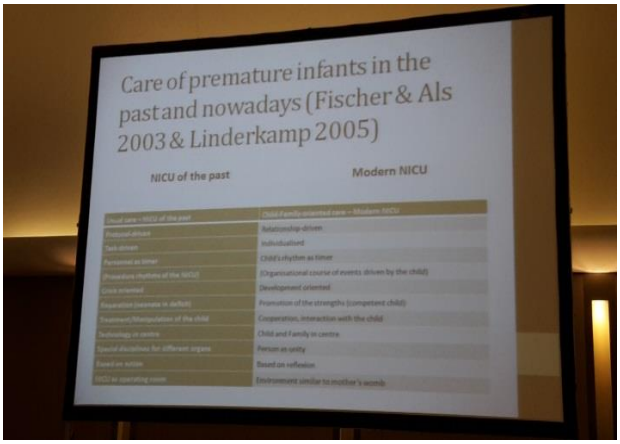
Ludwig Janus was figuring out the necessities for practical psychotherapy. By formulating a Prenatally Based Psychotherapy (PBP) he was claiming an awareness for preverbal early experiences, attention on extra verbal sign like sensations, feelings, emotions, images, behaviors, scenic actions and others. Experiencing comes before reflection. **Jon and Troya Turner** were describing their practice of transpersonal Whole-Self Prebirth Psychology. The energetic psychic trauma communication is precisely the key to their evolutionary integrative medicine hypothesis and practical healing.

Shamil Tashaev from St. Petersburg was describing his work with prenatal and early postnatal trauma: In impressing video examples he was showing the formatting and processing of such information during his ***age regression*** when the patient is fully awake. This allows neutralizing the effects of prenatal and early postnatal trauma in adult life. **Rupert Linder** described his work with pregnant women to prevent somatic and psychological disturbances. Complications can be strongly reduced. It is always important to have the pre- and perinatal violations of the mothers in focus and to help them (and sometimes also their partners) into equilibrium with much lower stress levels. **Kostas Kafkalides** from Athens was demonstrating an impressing dialogue about personal traumatic memories on sperm cell level. Besides giving an introduction into the methodology of Dr. Athanasios Kafkalides he gave this very personal testimony where he relived a traumatic experience at pre-conception stage, a pre-conception rejection, due to my mother's fear about being left pregnant risking her life after a previously almost deadly labor giving birth to his older brother.



Larisa Nazarenko from Ukraine gave a very clear description of 'Fetal Umbilical Cord Entanglement (FUCE) as Stress Associated Phenomenon'. The problem of FUCE is multiplied by difficult social and psychological background! **Helga Blazy** from Cologne was describing Transgenerational Problems in Childbirth. Her background is wide experience of Hidas' and Raffaj's Bonding Analysis (http://www.schroth-apv.com/PrenatalBondingBA.html) and is including the abortion survivors' situation even of the ancestors of the pregnant mother.

Dragana Dordevic was presenting a method for preventing damage from preterm babies, which she got to know at Otwin Linderkamp in Heidelberg. A remarkable change has been achieved from 2003 on in developing modern NICUs to a child – family – oriented care system, urgently necessary for these young little people.

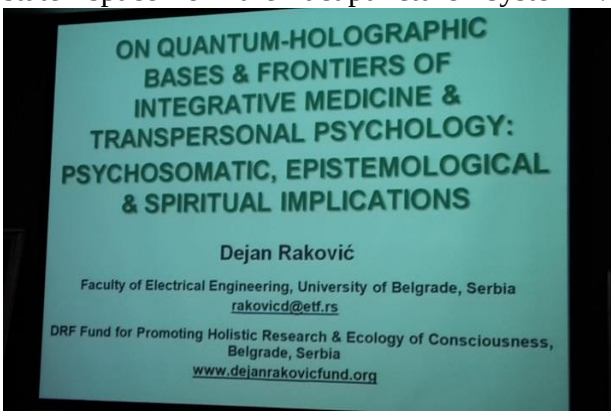


(individual and collective) consciousness – with significant global psychosomatic implications. Thus the role of each individual becomes important in caring for the collective mental environment. It was amazing to hear, how many members work together worldwide on a high academic level on these questions.

Mirjana Sovilj pointed out the results of her studies showing the connection of trans-generational and transpersonal (Grandmother-

Again: I was impressed by the active and interested lecturers and participants. It was a joy to meet so many friendly and competent people. There was a lovely boat trip at night enjoying the night skyline of this old and historic town and a delicious dinner right aside the shore of the Danube. The town itself shows itself busy and going forward with a lot of young people, galleries of modern art and blasting from music of all kinds on a high level. Thanks to all who were working on this!

On Saturday **Olga Gouni** was pointing out the parallelity that the same Eternal Universal laws that govern Cosmos are to be found at work behind our Human Life Dynamics and how new attitudes give chances to heal traumata. **Dejan Rakovic** was describing that all the holistic acupuncture-based and consciousness-based approaches and techniques can be treated as quantum-informational therapies, by imposing new healing boundary conditions in the energy state space of the acupuncture system /



Mother-child) informations through question-naires, drawings, monitoring emotional states of pregnant women and prenatal reactions of the unborn to sound. This was done with emphasis on reactivity direction and a longitudinally overview of reactivity changes using a follow up period of 10 years. She was demanding an integrated knowledge from different scientific areas: obstetrics, prenatal psychology, special education, pedagogy, developmental psychology, pediatrics, psycho-physiology etc. All their efforts should be directed towards prevention of prenatal, perinatal and postnatal trauma.

I put in two posters, the program and abstracts of the congress and a few more pictures under this link https://app.box.com/s/opqd9zh7hvvuq5sqqsgylubry65zrapw

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CONTENTS

PART I. THEORETICAL ASPECTS OF CONSCIOUSNESS, THINKING, AND PSYCHOLOGICAL TRAUMAS

MODERN PREREQUISITES FOR THE DEVELOPMENT OF THE DOCTRINE OF PSYCHIC TRAUMA

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Abstract. The concept of dualism of matter, wave genetics, and phenomenon of cellular emissions support the idea of wave-particle condition and functioning of genome, cells, organism, man. In a multicellular organism both the nervous and somatic cells have quasi-consciousness and include biological and quasi-psychic information. According to the law of duplicated systems the regulators of human functioning are both nervous system and acupuncture system operating in the commonwealth. Recognition of wave operation of human opens the approaches to the study and knowledge of such items as the conscious and unconsciousness, thinking and memory, the exchange of information within the body, between the person and surrounding social and ecological environment. This also brings us closer to understanding the mechanisms of wave information exchange between mother and her prenatal child, the epigenetic mechanisms of the psychosomatic health. Sometimes these processes lead to/or accompany of illness.

Keywords: *Quasi-Consciousness, Genes, Acupuncture System, Wave Information, Mother-Unborn Child, Prenatal Mental / Psychological Trauma*

INTRODUCTION

On May 15-16, 2015 in Belgrade, Serbia, *1st International Congress on Psychological Trauma: Prenatal, Perinatal & Postnatal Aspects (PTPPPA2015)* successfully held.

Why a Psychic Trauma? History of psychic trauma is a very dramatic. Van der Kolk wrote [1]: "In times of major wars psychiatrists recognize the mass psychic trauma, whereas in the intervals between the wars rejected the possibility of psychic injury … owing to social, historical or political conditions. Meanwhile, the researchers found no difference in the effects of exposure to injury during the war or as a result of extreme events of life (domestic violence or abuse) and so on". The interest in psychic trauma (PT) as a source of human mental disorders has began at the late 19th - early 20th century with the advent of the crisis psychology and psychiatry in process of it formation as an independent clinical discipline. Leading psychiatrists of the time - Breuer, Charcot, Janet, et al. - have found that (psychic) injury is the main cause of neurosis, and they successfully have used in their medical practice – the hypnotherapy techniques. Classical psychoanalysis, led by its founder Sigmund Freud, went from hypnosis, but continued to develop the idea of the value of traumatic effects suffered by a person in childhood as the cause of neuroses and neurosis-like states, and used this knowledge in the treatment of patients with neuroses. Regarding psychosis, the endogenous theory that explains their appearance by heredity and hormonal changes in the body is a dominant.

Mankind has come a long way of its evolution and came in the 21st century without understanding the laws of his thinking and memory. This long journey was accompanied by numerous injuries many persons or even separate communities. They formed the "vicious circle" of psychic trauma in human society.

Recognition of Post-Traumatic Stress Disorder (PTSD) (it was including in DSM-IV only at 1980) was a very significant step forward, because this affirmed the possibility of psychic trauma. However, researchers directed their attention to the study of PTSD, while the very important questions of origin and development of injury remained outside their interest and knowledge. We still do not know the answer on many basic questions:

1. How traumatic events are perceived? By what mechanisms? By what structures and in which order?

2. Does the brain perceive and respond to a traumatic event in isolation, or do other structures (which?) are also involved in this. What is their relationship?

3. What are the mechanisms for settling the injury in human memory and its periodic revival?

4. What are the mechanisms of the man's unconscious from which depend his character, thinking and behavior?

5. Does the age of a person at receiving injuries is significant for their perception and development subsequently?

6. Is the modern philosophy and technology of escort during pregnancy and delivery optimal for unborn child and his pregnant mother for their protecting against trauma?

7. How do mental traumas received before and after birth interact in lifetime of person?

8. What determines the variety of clinical manifestations of trauma received in prenatal and postnatal stages of life?

9. Is differential diagnosis between prenatal and postnatal traumas possible and needed or not?

10. What are the treatments of prenatal and postnatal traumas most appropriate, when they are in man separate, and when they are combined?

11. How urgent should be the help to prevent unnecessary heavy and long-term effects?

12. How could we defend a child from receiving an injury before or after birth?

13. What knowledge the humanity and its individual representatives must be equipped with, in order to their posterity be less traumatized?

14. What knowledge the humanity and every generation should be equipped with, in order to clean themselves from the previous generations' injuries?

15. Will each injury be a harmful to humans? Maybe there are the injuries that benefit and contribute to the development of man and his talents?

16. It is not clear the definition bellow:

For us, doctors, the word "Trauma" is a physical damage of body by the external factors. And what does it mean the "psychic trauma", or "psychological trauma", or "psychiatric trauma", or "mental trauma", or "trauma"? They are the same or between them are any differences? Specialists on the basis of their clinical observations found it useful to separate some concepts. In Internet you can find for example:

Psychological trauma is a shock, experience much interaction between man and the world, such as humiliation, threats to life and health. In this case, *disorders of the psyche - no, a person remain an opportunity to be adequately and successfully adapt to the environment*.[1]

Psychic trauma is seen as an emotional shock or distress situation that makes an indelible impression, stored in the unconscious. It leads to a marked *disruption of the normal functioning of the psyche: the person ceases to recognize loved ones, floating attention, it is a strange, gaps in memory, thinking becomes confused*[2].

Trauma is an emotional response to a terrible event like an accident, rape or natural disaster. Immediately after the event, shock and denial are typical. Longer term reactions include *unpredictable emotions, flashbacks, strained relationships and even physical symptoms like headaches or nausea.* While these feelings are normal, some people have difficulty moving on with their lives[3]. In this paper I will use the term "psychic trauma" because I will discuss the

[1] http://medical-dictionary.thefreedictionary.com/psychic+trauma
[2] http://www.medicinenet.com/script/main/art.asp?articlekey=20130
[3] American Psychological Association. http://apa.org/topics/trauma/index.aspx

fundamental questions of origin and formation of this phenomenon without taking into account its degree, so for the sake of brevity.

As it often happens in medicine: Starting to study disease of an organ, scientists suddenly have faced the fact that they know a little about the functioning of the organ in the absence of disease. The term "psychic trauma" implies that the ***brain*** received the trauma. Coming to the idea of psychic trauma, it was necessary to find out what is the current understanding of brain function, and particularly its psychic function, the processes of thinking and memory?

Human brain. Today, no one doubts that the human brain, including milliard neurons, regulates and coordinates all the vital functions of the organism. Besides this, the brain is associated with process of thinking, feelings, emotions, and behavior. That is, we could affirm that human brain performs both biological and psychological functions.

Thanks to modern methods of investigation (electroencephalography (EEG), magnetic resonance method of imaging (MRI), positron emission tomography (PET), the method of implanted electrodes, genetic, psychological, and other) scientists have discovered or guessed what the areas of the brain are responsible for what.

The frontal lobe of the cerebral cortex controls the speech, abstract thinking, judgment, planning, control and execution of movements. *The parietal lobe* of the cerebral cortex controls the somato-sensory function, *the occipital lobe* of the cerebral cortex controls the visual function, and *the temporal lobe* of the cerebral cortex controls the auditory function. *The thalamus* sends signals from the senses organs: visual, auditory, tactile, sense of balance. *The hypothalamus*, interacting with the limbic system, controls the endocrine system, organizes the adaptive responses, and regulates the basic skills of individual behavior related to the survival of species: fighting, eating, rescuing by flight, searching for marriage partner. *The limbic system* is associated with memory, sense of smell, emotions and motivation. *The hippocampus* plays an important role in storing new information. *Midbrain* controls the movements of the eye, and coordination. *Reticular activating system* is a system of neurons, which plays an important role in the processes of consciousness. *Central gray* matter of the brain is associated with the adaptive behavior of the individual. Hind-brain is responsible for switching contra-lateral nerves. With some confidence scholars argue that the amygdaloid, hippocampal, hypothalamus, the prefrontal cortex, and even cerebellum – are involved in the processes of response and regulation, in the implementation both physiological functions, and thought processes.

Research discovered some mechanisms of the neurons function and their interaction. They found that the brain neurons function by using so called ***neurotransmitters*** (NTs). These chemical transmitters are highlighted by neuron into the synapse (the junction to other neuron). There NTs are interacting with specific receptors of another neuron and change the functional state of the postsynaptic cell. Neurotransmitters are divided into *neurotransmitters* and *neuromodulators.* Neurotransmitters transmit nerve impulses directly and neuromodulators modify the action of neurotransmitters. NTs include: *Acetylcholine* (possibly involved in memory processes); *Catecholamines* (*Dopamine*, associated with regulation of movement, attention, and learning, *Adrenaline*, associated with the emotions of fear, and suspicion, and *Norepinephrine*, associated with the emotions of anger and rage); *Indolyl-alkyl-amines* (*Serotonin*, associated with regulation of awakening, sleeping, and mood, *Neurosteroids* (endorphins, enkephalins), related to the emotions of pleasure, *GABA* (γ-aminobutyric acid), the major inhibitory neurotransmitter of human CNS which affects the mechanisms of learning and memory). Neuromodulators are the same amino-acids, but usually act more locally – in certain areas of the brain, and contributes the additional variations, which enriches the physiological

state of the neurons. In general, the multiplicity of *neurotransmitters* and diversity of their activities are combining the individual neurons into the integral brain for the successful implementation of all its diverse and vital functions [2].

Discovering a ***gene c-fos***, which is associated with learning, was next step of neuroscientists [3]. Progress has been achieved, but neurophysiologists again were forced to admit that they do not know the mechanisms of gene activation, as well as how the nerve cell works.

Karl Pribram [4] attempted to give answer on this question. Exploring the holographic principle of brain functioning, he suggested the wave nature of the interaction of nerve cells. He admitted first that the brain converts the contents of memory in language interference wave forms, and explained our ability to transfer skills from one body's part to another. But this hypothesis has not received supporting.

Despite the enormous amount of the brain researchers in various countries of the world, in spite of "the Decade of Brain" at the end of 20th century and "Weeks of Brain" every year – the neuroscientists remain in status of uncertainty, regarding the mental functions of the brain. "… the problem of correlation between brain and mind – one of the most exciting challenges ... but from a philosophical point of view, it is not known whether it is possible in principle to solve it. Have we in principle the opportunity to explore the brain to fully understand that it happens?" – says the neurophysiologist S. Medvedev[4]. "Even now, when we know so much about the human brain, we are, apparently, still very far from understanding the physiological mechanisms of many mental functions…. In particular this applies to mental processes such as thinking, perception of the world, memory, and many other" – wrote other neurophysiologist V. Shulgovsky[5].

From this perspective, the statement: *"The brain is not the producer of thought, but only its acceptor…"* remains valid. This idea first was put forward at the beginning of the 20th century by the English neurophysiologist, Nobel laureate Charles Sherrington [5], who studied the function of neurons. This idea was supported by the Australian neurophysiologist, also a Nobel laureate, John Eccles [6], and by the American neurosurgeon Wilder Penfield [7] and in the future by American psychiatrist Stanislaw Grof [8] and psychologist David Chamberlain [9], and Russian neurophysiologist Natalya Bekhtereva [10].

Modern research of brain with MRI unexpectedly brought to us "…*strong evidence that schizophrenia is not just one brain disorder*." [11]

Why scientists doubt that the function of thinking and memory belongs only to the brain? Which other structures are involved in this process, and perhaps in the appearance of psychic trauma? What we know about the psychic trauma except the various manifestations of its consequences in the form of PTSD? What do we know about the mechanisms of formation of psychic trauma? Might be the modern state of science and knowledge will help us in understanding of this process in order to change the approaches for liberation of the man from the effects of trauma and its prevention?

Maybe we should look more broadly and consider firstly phenomena of consciousness, thinking and memory, as our knowledge about them is still very limited. Meanwhile if we take into account the research that brought the proofs in this direction, the data summarized in the form of conceptions or postulates – we could discuss today the serious prerequisites for the development of the considered bellow ***doctrine of psychic trauma***.

[4] http://www.nkj.ru/news/21648/

[5] http://www.booksmed.com/fiziologiya/994-osnovy-nejrofiziologii-shulgovskij-uchebnoe.html

1. Corpuscular-wave status of genes. In accordance with the concepts of ***dualism of matter*** (Einstein [12], Bohr [13], de Broglie [14]), ***wave genetics*** (Gurvich [15], Lyubishchev [16], Beklemishev [17], Burr [18], Kandzhen [19,20], Garyaev [21-23]), and phenomenon of ***cellular emissions***[6] (Kaznacheev et al [24-26], Belousov et al [27]) – we could consider the corpuscular-wave state of genes, and also the cells and their subcellular components, the tissues, organs, systems of a human. Such view gives us the understanding how these elements provide a constant exchange of the wave information within organism, and probably between people and the natural environment.

2. Consciousness in the genes. The acceptance of the *wave-particle status of genes* gave us the opportunity to more easily understand and to take into consideration data and opinion of scientists that "Isomorphism, neural crest, placode, identified in all vertebrates, is a manifestation of consciousness, which is carried by genes…" and their conclusion: *„Consciousness is in the genes…"* (Huang et al [28], Park, Saint-Jeannet [29], Feinberg & Mallatt [30]).

Earlier the geneticists considered the results of their experiments from the position of quantum physics and did conclusion that genome has ***a quasi-consciousness*** and can be ***quantum-nonlocal***, i.e. its regulatory wave information recorded at the level of polarization of its photons, is non-locally (everywhere, in zero time) transmitted over the entire space of the biosystem, using code parameters, which provide the ***inertialess information contact*** between billions cells of our body [21,22,31,32]).

3. Epigenetic mechanisms. The discovery of *epigenetic mechanisms* of carrying out of information into genome showed the possibility of changes in the content and function of the genome, and therefore ***cells*** as well. It showed also the ways of introducing into the genome (and hence in cells) not only biological, but also psychic information (or better to say, ***encoded quasi-psychic information***). The new information is fixed in the genetic memory for some time.

Epigenetics[7] changed our view at genes and genome in whole as somewhat fixed and somnolent structures. In fact, they are *constantly operating structures,* like the heart, lungs, intestines, brain. If we take into account the modern concept of wave-particle states of genes [21,22,31,32], the idea of a ***permanent functioning of genes*** is even more visible.

An example of the high epigenetic activity of the genome is the appearance, from the primary fertilized egg (zygote), the various types of cells forming the body of the embryo-fetus. Among them are: nervous, muscular, epithelial, endothelial, and other cells organized into separate organs. This specialization of cells is achieved by activating certain genes in them [33].

In the case of changes of external socio-environmental conditions, which provoke emotional distress, the epigenetic mechanisms such as DNA methylation and histone deacetylation without disrupting the DNA sequence may be included. Such epigenetic changes can be saved in a number of mitotic divisions of somatic cells and even can be transmitted to the next generation, but in the absence of further confirmation they are eliminated. Emotional stress causes a shortening of the tips of chromosomes - telomeres, which is associated with the processes of cellular aging and reducing of life [34].

The most vulnerable period for genetic reactions is a prenatal stage of development when there is an intensive division and specialization of cells during the formation of the human. External adverse effects, emotional distress over a long period of time, have an impact on the structure of genes, provoking the epigenetic processes. These changes affect the physical and

[6] Researchers found the spontaneous ultra-weak emission of cellular cultures (fibroblasts, cardiomyocytes, etc.), developing eggs, and even embryos (Kaznacheev e.a. 1973, 1981,1985; Belousov e.a. 2004).
[7] Epigenetics is a scientific direction of the regulating mechanisms of gene activity.

mental health of man. For example, it is revealed a change in telomere length of 9-years-old boys from dysfunctional families [35].

In severe cases of distress the violation of DNA sequences of mutation type may occur, accompanied by severe mental and physical health disorders and manifested by various psychological and psychosomatic syndromes. The origins of these disorders in children were found in their prenatal stage of development [35,36].

Thus, genome as a whole is a *constantly* functioning wave-particle substance carrying the huge amount of bits of information of biological and quasi-psychological properties. In diverse moments of life the different genes manifest *constantly* their active-passive status.

4. Cellular memory. Primary (biological and quasi-psychic) information that came from father (sperm) and from the mother (egg) in the genes of embryo cells is stored initially. It is involved in the formation and initial function of the organs and embryo in whole. The embryo-fetus, by the active participation of the mother and her environment begins to accumulate its own information. This accumulation goes in two ways: with substances entering into the cell, and by the wave-like way. The incoming wave information primarily affects genes. Between genes and the elements of the cell there is a constant exchange of information. So, all elements of cell are involved in the process of information accumulation and storage, they are able to update and transmit it to other cells. From this perspective, it is logical to speak about *cellular memory*. It allows us to put some postulates[8].

Postulate 1. *Every living cell has quasi-consciousness, which ensures its survival and reproduction.*

For example, this quality possesses even single-celled amoeba having nucleus, cytoplasm with organelles, and plasmolemma. It has a response to irritation, which provides it to find food and protection, and asexual reproduction by means of binary fission as well [37]. We would say that the amoeba does not have psyche, but it has a quasi-consciousness and certain memory, which includes biological and quasi-psychic knowledge, and it transfers this to two daughter cells during dividing.

The cells of multicellular organism have similar quasi-knowledge (metabolism, defense, reproduction), although the interaction between cells is much more complicated. They provide not only the survival of their own, but neighboring cells, and eventually – the survival of the whole organism. This requires their more complex knowledge and skills, which also include the specific functions for the organism (cells of skin, liver, heart, etc.). What structures are involved in this process? Today, no one doubts that genes contain these data.

But whether genes of somatic cells contain the psychic information too?

Human cells which include genes with huge amount of information coming from parents also exhibit quasi-consciousness: each of them is involved in metabolic processes that support the life, if necessary – protects, propagate itself regularly, and promptly includes a mechanism of apoptosis - dying. So, renewal period of skin cells - 14 days, for erythrocytes - 120 days, etc.

In the context of a complex multicellular organism the functioning of the single cell is not so noticeable. Meanwhile if we consider their joint activities at the level of tissues and organs that perform a variety of biological functions – there are clearly visible *specific features* of a particular type of cells and organs: absorption, transfer of nutrients and metabolic products from one cell to another, the secretions of hormones, enzymes production, the defense, maturation and renewal that occur with varying frequency and speed, the motor activity, carrying out with diverse rhythms

[8] Postulate is a statement that is accepted as being true and that is used as the basis of a theory, argument, etc. (http://www.learnersdictionary.com/definition/postulate)

(heart, lung, intestinal peristalsis, etc). It can be assumed that diverse cellular rhythms are a genetic memory, and not the result of permanent nerve stimulation. Proof of this is the contractions of muscle fibers of the myometrium isolated from uterus (GA Savitsky).

Postulate 2. *Cells of the organism include both biological and quasi-psychic information.*

The supporting evidences are phenomenon of the emergence of new qualities of character by recipients after organ transplants (kidney, heart, etc.) [38], and phenomenon of fully saved memory after removing most of the damaged brain [39].

Postulate 3*. Quasi-psychic information is included in the nerve cells of brain as well as in somatic cells of the human body.*

"The link between *mental and physical spheres is immanent, i.e. continuous.* Like the development of the embryo soma, and in parallel with this, develops the mental sphere" [40][9].

5. The wave-like human functioning. During 20th century researchers have found the radiation of different live objects. Gurvich [41,42] discovered the mitogenetic radiation in the ultraviolet range of extremely low intensity (spectral range of 190-330 nm, from tens to 300 photons / s cm^2), and he believed that it reflects the vital functions of chromosomes. Burr [18] has found out the axis of electrical polarization both in fertilized and unfertilized ovules, i.e. they have ability to generate electromagnetic energy. The spontaneous ultra-weak emission was found in cellular cultures (fibroblasts, cardiomyocytes, etc.), in the developing eggs, and even in embryos [24-27].

More recently, we have been talking about the electromagnetic radiation inherent for man, which provides a constant energy information exchange within the body and between people. Meanwhile, research conducted at the Institute of Radio Engineering and Electronics of Russian Academy of Sciences showed that the spectrum of human radiation is not so monotonous and includes the following types of radiation and signals.

1. *Infrared thermal radiation* – carries information about blood flow in the skin, which provides thermal regulation of the body;

2. *Radio thermal radiation* – reflects the functional dynamics of temperature and metabolism and blood flow in the internal organs and muscles;

3. *Infrasound signals* – arise when muscles and internal organs are working.

4. *High-frequency acoustic signals* (noise character) – reflect the function on molecular and cellular levels.

5. *Low-frequency electric field* – from 0 to 1 kHz is linked to transmembrane electrochemical potentials that reflect functioning of the heart, brain, stomach, and others organs.

6. *The magnetic fields* – are generated by the sources of bioelectric activity of brain, heart, nerves and muscles.

7. *Chemiluminescence* – characterizes tissue oxygenation and the level of antioxidants found in the optical, near infrared and near ultraviolet range. It is due by occurring biochemical reactions that control the pace of these processes [43].

As one can see, all these types of radiation are carriers of information regarding functioning of the person, his organs, and the state of his metabolism. Wave amplitudes of separate cells form the common specific resonance frequency of the organ. Each organ of organism has own specific EM frequency: heart - 1 Hz, brain - 5-40 Hz, in conditions of stress or diseases - 0.5-70 Hz. Doctors use the investigations of some radiations in their practice. For example, in Fig. 1 I present one fragment of my research: the electroencephalography (EEG)

[9] AG Gurvich Chapter "Embryogenesis of psychic" in his book "Principles of analytical biology and theory of cellular fields "(first published in 1944).

showed changing of electrical activity of brain of patients with uterine fibroids that was in condition of emotional distress. You can see how frequencies of electrical activity of the brain are changed after the treatment (psychotherapy + electroanalgesia) [44,45].

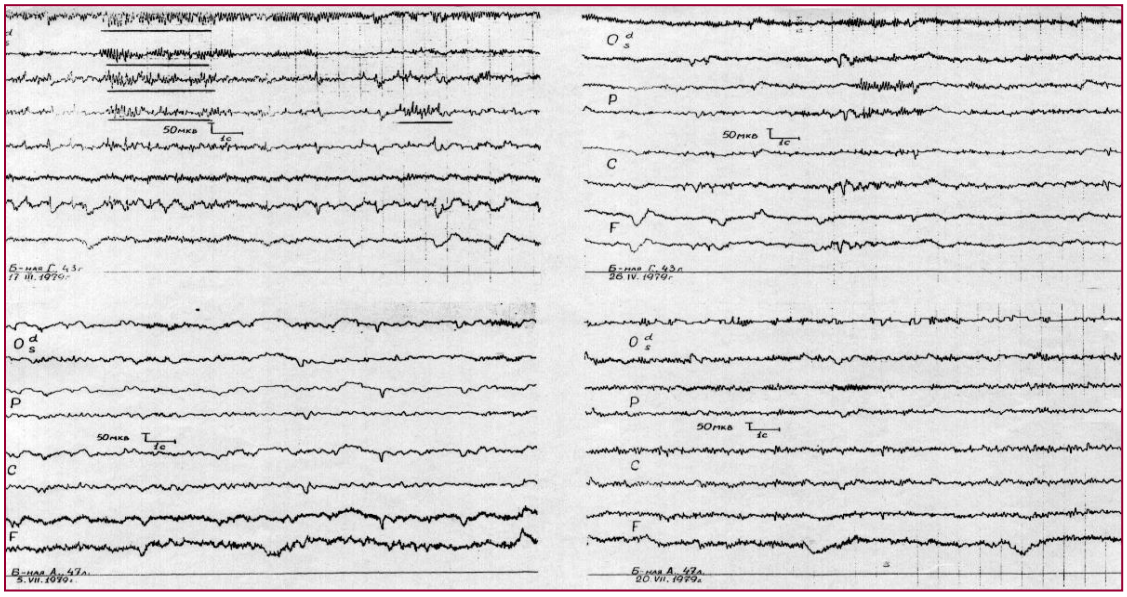

Figure 1. Electroencephalograms of: A) Patient G., 43 years, uterine fibroid, in condition of emotional distress (left) the amplitude of alpha-rhythm enhanced and interrupted with sharp bits which are recorded primarily in the posterior regions of the brain; after treatment, and reduction of the state of stress (right), we noted a significant decreasing in the amplitude and frequency of acute waves, although slight increasing of frequency of poly-frequency of beta-activity is preserved. B) Patient A., 47 years, uterine fibroid, in condition of emotional distress (left); at EEG is dominated the rough polymorphic delta-activity, which is combined with a low-amplitude grouped alpha-oscillations; after treatment (right) we noted the disappearance of the delta-activity, normalization of alpha-rhythm, but it is still not regular and does not have even a clear zone differences.

We could suppose that this wave information is delivered to all cells of the body and influences on their function, metabolism and so on. In the same time other organs radiate their wave information that forms the many-voiced chorus (in frame of the specific amplitude-frequency characteristics) in the man. No one cell is isolated from the others – each of them can destroy the polyphonic harmony of the man.

We could consider this idea from the position of ***concept of the ether-wave transfer of information*** put forward by Prof. VA Etkin (2014)[10]. The concept consists in affirming possibility of transferring of the *amplitude-frequency "portrait"* (spectrum) of the substance by ether to any distances without significant distortion due to absence of dissipation. This concept is based on the understanding that the ether is a unique environment that interacts with matter by converting its energy into energy of oscillation of its density, and as a pervasive medium without friction is capable of carrying radiation at any distance, through any obstacles, and to a considerable depth. From this position the bringing in man the harmonized information by the energo-informational methods (acupuncture or specific devices) is theoretically substantiated.

[10] Etkin VA The ethereal nature of all interactions 2014
http://www.etkin.iri-as.org/napravlen/01klas/united_nature.pdf

If we consider the wave functioning of human we need to suggest how this process is controlled, by what structures.

6. Acupuncture system (APS). APS is a system of nerveless (wave) regulation of all functions of the organism. Its morphological substrate is ***intercellular gap junctions*** (IGJ) which provide ***nerveless transmission*** of information by passing of ***wave energy information***, which allows all cells of the body in the same time to obtain information about each of them and the man as a whole. It is associated with perception and transfer, and expresses the inverse adaptive response of man [46,47].

APS begins to develop from eight-cellular status of embryo and in subsequent with developing of nervous system begins the constant constructive interaction with it.

One example of such interaction: Since the beginning of the pregnancy in the uterus increases the number of nerve fibers, but with closer to the labor their destruction takes place, which leads to a sharp denervation of the uterus to the time of delivery [48,49]. During pregnancy the increasing expression of genes coding for a protein of IGJ-connexin 43 in the myometrium has found. By the time of delivery the number of IGJ in the myometrium increases sharply [50,51]. However, 24 hours after the birth their number decreases sharply, sometimes to the extent that the applicable research methods are not always possible to detect of them [52].

The implications of this adjustment is that the uterine APS provides instant information to its myocytes and facilitates the rhythm of labor, on the other hand, according to Baksheev – denervation of uterus prevents the flow of pain impulses in the central nervous system.

Emotional distress – sudden and powerful – is accompanied by a powerful wave emission, organized into ***solitons,*** that can block the movement of ***qi energy*** through the APS and thus block the function of the APS. It manifests itself by different clinical pictures, diverse symptoms.

The blockade of maternal APS during pregnancy and birth affects also on the fetal APS and this breaks a tie between mother and child and creates conditions for forming *of* ***prenatal psychic trauma***.

For example, sudden emotional distress of mother can break the tie with her unborn child and create his breech presentation. Specialists can return of child into cephalic presentation by acupuncture in point BL67 and by psychotherapy as well [53].

In severe cases of distress may occur violation of DNA sequences - mutation - severe damage to the genome, accompanied by severe mental and physical health, which is manifested by various psychosomatic and psychological syndromes and illnesses right up to schizophrenia [54].

7. Biofield. Biofield is smooth-running (by the APS) wave space. It is ever-present and functioning of the human, which contains information about the man, his past and present. The *biofield* is formed by superposing the frequency-amplitude characteristics of waves of the molecules, subcellular components and cells, tissues, organs, forming a specific resonant frequency of the person.

Postulate 4. *Man has always the excited wave field. It is created by a permanent metabolism as a source of life. Life and metabolism is an unconsciousness genetic knowledge. The metabolism is associated with the needs of the air, food, water, physical activity, as well as by the functioning of all the organs which involved in regulating metabolism.*

Wave information "cloud" (the wave-particle field) as a product of the functioning of living cells *permeates and envelops* the person and includes knowledge of its physical (somatic) and mental components, and contains a large amount of encoded information as a man's quasi-consciousness. It aims to find livelihoods and ways of protection, and at a certain stage – to find

a sexual partner. Or else: to find the conditions and resources to meet the biological needs, and then the psychological and social needs of the person as well.

The biofield is *always dynamic* and connected with the *surrounding energy-information field.*

8. The unconscious of man. The content of memory of both genes and cells in whole, and *biofield* as wave component of them, include *unconscious of man,* and seems to be related to such manifestations of unconscious as an *intuition and vision without eyes* [55].

The person's unconscious includes information obtained: a) From parents by their germ cells; b) During own prenatal and perinatal development; we can suppose that the images, pictures, ideas from the unconscious pregnant mother may periodically emerge from her memory – in reality or in a dream – and provides the memory of the unborn child, which is later reflected in his thinking and behavior. c) At any stage of life after birth.

9. **Person.** The described above positions support the conception that *person* can be considered as a *wave-particle energy-informational psychosomatic* system [56].

10. Prenatal psychology. This is the new aspect for understanding of receiving & perceiving of information. As Colter writes: "…here, in the womb bathed in the fluid distillate of parental anxieties, hopes, ambivalence and fears – the basic shape of the personality is laid down. …Our developing mind absorbs unconsciously without question everything that comes to it" [57].

Recognition of the possibility of obtaining trauma by the pregnant woman and her unborn child in pregnancy & during birth was an important step for understanding of roots of prenatal psychic trauma [58-69]).

11. Conception of wave information exchange. The conception of the multiple-level coordinated action between the pregnant mother and her unborn child gives us the opportunity to understand how the information from mother, even her thoughts and emotions, get to her unborn child. Our research found the changing of mother's emotions after stimulation her by music is accompanied by ***instantly*** changing heart rate of unborn child [70-72]. This conception is important for understanding the ways of forming of the fetal psychic-emotional trauma. It becomes apparent much more after birth in the form of psychological & psychosomatic problems.

Emotional "bursts" (reaction) of man (of varying intensity and contents – positive or negative) are accompanied by a sharp, momentary wave radiation in the form of **solitons**, which contain in encrypted form the images, pictures, impressions about events, emotions, and ideas. We can assume that such "charged" information [66] affects at genome and gives impulse for epigenetic mechanisms which control processes of memory. If this is a pregnant woman, the ***soliton-image can reach the unborn child*** and be perceived by a certain number of its cells (perhaps first of all their **genes**) and stored in a ***cellular memory*** in the form of ***in-depth knowledge***. It can "float up" in a situation of emotional stress, produced by external situations, which is similar in contents and amplitude-frequency characteristics, or as a result of stress created by man when he wants to remember the event, image, name, which he met earlier and he begin to search it in his memory. In one case, maternal stress is the way to the formation of talent, in the other case – way to impair mental and/or physical health. Sometimes women are impressionable, excitable, not managing their psycho-emotional state – their emotions and thoughts can be mixed. In such situations the formation of talent in their child runs parallel with mental deviation (for example S. Dali, Van Gogh, etc.).

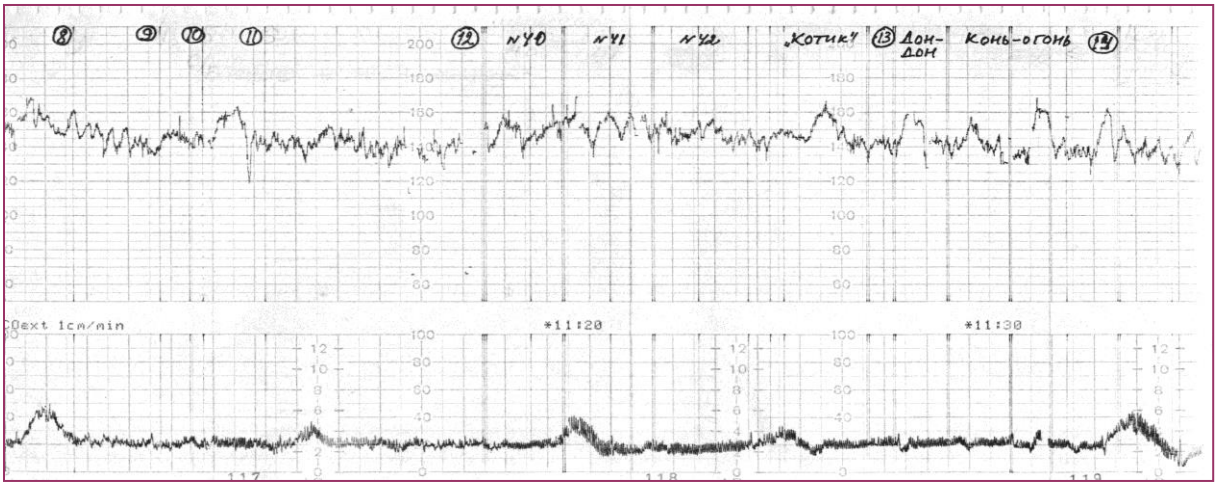

Figure 2. The changing of mother's emotions after her stimulation by music instantly changes the Heart Rate of Prenatal Child (Brekhman [70-72])

The complexity and specificity of wave exchange is that a) each of them (mother & unborn child) has its own information exchange within a body, b) simultaneously inter-organism exchange occurs, in which the cells and organs of the mother and child share information at specific frequencies, since conception; c) contents of information can be maternal thought and emotions, d) at the same time the mother and unborn child communicate with the surrounding social and natural environment [73].

12. Transgenerational transmission of information. In the recent decades, researchers have begun to focus on study of transgenerational transmission of information from ancestors to descendants[11]. The impulse for this gave the children and grandchildren of people who survived the Holocaust, World Wars and other massive, with related traumatic events today which does not seem to have a tendency to stop. From this perspective, an increase in the frequency of mental disorders among the members of society in different countries, in addition to the impact of socio-environmental conditions, could be regarded as the result of inheritance trauma. We could say that it formed the "vicious circle" of psychic trauma, passed on from generation to generation. It also contributed to the severity of the ongoing debate about the ***evolution*** of mankind, bearing elements of ***involution***?

13. Risk factors of obtaining of prenatal psychic trauma.

a) The psychological features of pregnant woman. Recognition of the possibility of obtaining mental trauma by the child during prenatal and perinatal stage of development is important for discussing of the issue. That is why researchers give attention to psychological features of pregnant woman. They found the increased anxiety, fears and other peculiarities in women with different complications of pregnancy and labor: breech presentation, encircling of umbilical cord, etc. [53,74]. Psychoanalytics, and psychotherapists have found in memory of their patients the traces of rejecting pregnancy/child, rejection of the child on his sex before birth, and others stressful circumstances [61,62]. They may periodically emerge from the unconscious of pregnant mother – in reality or in the form of dreams – and find themselves in the memory of unborn baby that later, after birth, in lifetime, reflects in thinking and behavior of human.

[11] Transgenerational trauma http://en.wikipedia.org/wiki/Transgenerational_trauma

b) Social environment as the stressful factors. It would be unwise to place all the blame on the woman for her child's injury. Part of the responsibility for this must take the ***social environment*** – from the nuclear family to the state, which exerts its sometimes negative impact on the mother, and on her unborn child. It involves the participation of ***society*** (or certain parts of it) in the occurrence of stressful circumstances, such as: domestic violence, problems with older children, conflicts with members of the extended family, the labor collective, economic, ideological, social policy of state, war, terror, and so on. This can be during the interaction with people who have different personal characteristics, psychologically illiterate, another mentality, with hypertrophied unconscious motives: envy, desire for leadership, inclination to depression or aggression, etc., who create and accompany a state of stress, of varying duration and intensity [73,75].

c) Ecological environment as a stressful factor. A risk factor for mental trauma can be environmental factors (earthquake, flood, tsunami, volcanic eruption), which directly or indirectly has an impact on a person or group of people. The evidence is provided about the effect of solar activity on the frequency of mental disorders of inhabitants of the Earth [76], as well as on the function of the reproductive system, and frequency of cancer of genital organs [77]. The connection between the state of solar activity, psychological characteristics of pregnant women and the frequency of fetal cord entanglement are found by Nazarenko et al [74]. Consequences of it can be in some peculiar psychological characteristics (fear of snakes, breakdown in communication in society) [78].

d) Trauma associated with reproductive function. These factors can be traumatic circumstances of pregnancy: preceding infertility, IVF, surrogacy, the attitude of woman and her surrounding to pregnancy and its complications, the conscious or unconscious rejection of pregnancy, "the ban on pregnancy," unwanted pregnancy, the threat of interrupting of pregnancy, fear of childbirth, negative information not associated with pregnancy, domestic violence, and so on.

At birth it can be: modern technology of delivery – induction of labor, prolonged monitoring, cesarean section on demand, the method of anesthesia, formal attitude of the staff, etc. It has been called "obstetric aggression" [79].

The consequences of traumas. Researchers discovered the roots of traumas in the prenatal and perinatal periods of human development. The consequences of prenatal trauma are amazingly diverse and their degree of severity is rather wide – from the easy to the level of disability. Among them: Fears, phobias, undesirable syndrome, autism and range of autistic disorders, ADHD syndrome, the tendency to depression, neurosis and neurosis-like states, psychopathies, tendency to: schizophrenia, bipolar disorders, sexual disorders, aggression and self-aggression, violence, psychosomatic diseases and disorders of skin, respiratory, circulatory, digestive systems, disorders of language, speech and communication.

Findeisen [80] has found a number of patterns of prenatal traumas. They were usually a multiple, displace stronger and deeper, and them was harder to smooth away. In addressing the threat posed by prenatal and perinatal trauma, this experience is cleaved, and the person starts to live with the false "I". Prenatal and perinatal traumas retain the painful memories that affect the intellectual, emotional and social development of people throughout their later life. Exemption from such traumatic memories is difficult, but possible. Any psychotherapy which does not pay attention to prenatal and perinatal traumatic experiences, is insolvent or, at best, as a compromise involves the result of false or limited "I".

DISCUSSION

If we would take into account the presented materials we will be nearest to understanding of *consciousness, thinking and memory*, and *psychic trauma* as well, and we could consider some positions.

Human consciousness is the continuing operation of the particle-wave field, which includes the contents of encoded cell-genetic memory associated with life-essential metabolic processes, and constantly incoming information from the external and the internal world of man.[12]

Thinking resembles the process of radio operating on closed oscillation circuit. Against this background, human thinking is carried out periodically on the open oscillatory circuit in which a person is an antenna that receives information through vision, hearing and other senses. In this case, the brain works in several ways: encode information in the form of amplitude-frequency waves and directs it to the nervous and somatic cells that capture and use it while constantly functioning genes retain demand. If required, reverse processes operate in which the brain converts and decodes the amplitude-frequency wave into meaningful characters. Just as we rotate the handle radio to find the stations associated with a certain frequency, the brainwave frequency sounding holds the body's cells to find the resonant response on the part of cells where the necessary information is stored in the form of a corresponding frequency band.[13]

Memory is human functioning, including epigenetic mechanisms for storing of encoded information in genes of nervous and/or somatic cells and periodic (by needs) release of transformed and processed information in the appropriate areas of the brain into understandable to us symbols.[14]

Psychological trauma is multifactor event with numerous consequences and manifestations. It is the inadequate response on perception of external or internal information which is real threat to the life or personal integrity of a person, his innate and brought up ideas about the world and about himself.

CONCLUSION

The concept of dualism of matter, wave genetics, and phenomenon of cellular emissions support the idea of wave-particle condition and functioning of genome, cells, organism, and man in whole. In a multicellular organism both the nervous and somatic cells have quasi-consciousness and include biological and quasi-psychic information. According to the law of duplicated systems the regulators of human functioning are both nervous system and acupuncture system operating in the commonwealth. Recognition of wave operation of human opens the approaches to the study and knowledge of such items as the conscious and unconsciousness, thinking and memory, the exchange of information within the body, between the person and surrounding social and ecological environment. This also brings us closer to understanding the mechanisms of wave information exchange between mother and her prenatal child, the

[12] **Consciousness** is the quality or state of awareness, or, of being aware of an external object or something within oneself. (Stanford Encyclopedia of Philosophy, 2004). Consciousness : the condition of being conscious : the normal state of being awake and able to understand what is happening around you (Merriam-Webster Dictionary, 2012).

[13] **Thinking** is the action of using your mind to produce ideas, decisions, memories, etc. (Merriam Webster Dictionary).

[14] **Memory** is the process in which information is encoded, stored, and retrieved. http://en.wikipedia.org/wiki/Memory.

epigenetic mechanisms of the psychosomatic health. Sometimes these processes lead and accompany of illness.

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HOW PRENATAL PSYCHIC TRAUMA AND COMMUNICATION WORKS IN WHOLE-SELF PREBIRTH PSYCHOLOGY

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Abstract. My Whole-Self is the totality of me which knows everything my consciousness has ever experienced. This paper discusses the Whole-Self Prebirth Psychology hypothesis as to how psychic trauma is communicated between the consciousness of mother and her unborn baby as a process of human evolution. In the 1970s , Whole-Self Prebirth Psychology discovered and developed the model that when mother has a trauma during her pregnancy, her baby is born with precisely the same charged feelings, emotions and thoughts mother experienced going through trauma, circumstances and/or situations.

Keywords**:** *Evolution, Darwin, Wallace, Plato, Aristotle, DNA, Emotional DNA, Whole-Self Prebirth Psychology, G.I. Brekhman Corpuscular-wave Duality of Matter, Prebirth Psychic Trauma, Prebirth Psychic Communication.*

Keynote: The Whole-Self Prebirth Model has the potential to change the course of human evolution!
Dr. med. Ludwig Janus, Past President of ISPPM and Deputy Chief Editor *International Journal of Prenatal and Perinatal Psychology and Medicine*

Simply stated, one of the most important evolutionary discoveries which Whole-Self Prebirth Psychology has demonstrated, can be spoken in the first person:

> ***Not only am I the synthesis of my parent's genetic DNA coding which gave me my physical characteristics, I am also the synthesis of their energetically charged thoughts and emotions during their pregnancies which gave me my mental and emotional characteristics: my Whole-Self emotional DNA© (W-S eDNA©).***

The diagnostic ***Whole-Self Prebirth Analysis Matrix©*** helps me to discover the innate non-conscious source of: ***my most frequently felt reactive feelings; my most frequently made diminishing self-judgments; and my most frequently made diminishing decisions in my life.*** Attention is given to how these patterns can result in disease. Case Histories give substantiation of Whole-Self Prebirth Analysis Matrix Psycho-diagnostics and an interpretation of the efficacy of Whole-Self Prebirth Psychology, Psychotherapy, Philosophy and Education in Human Evolution.

Where and How Does Consciousness Begin For Each Human Being?

Whole-Self Prebirth Psychology hypothesizes that, in the 1st person, my consciousness is energetically attracted to the vibrational information Mother emits through the cells of her DNA, her mental thoughts, her emotional expressions but most effectively her bio-energetic field - her life force animating her body. Tens of thousands of participants in the Whole-Self Prebirth Analysis Matrix W-S PAM© Questionnaire:

Before conception, described seeing Mother from above or near her head or body;

After conception, they described being inside her aura or bio-energetic field - sensing Mother's thoughts, and feelings; learning how those thoughts and feelings are becoming their own. ***Not one person said they sensed ever being inside her body!***

My consciousness, in the 1st person, is energetically attracted to my Mother and Father simply by their spoken, or, even unspoken desires to have a baby. In the last half of the 20th Century, researchers, including Dr. David Chamberlain, working in Prenatal and Perinatal Psychology Practices found verifiable evidence of memories experienced by Prenatal Human Consciousness; memories encompassing the entire range of human expressions; especially traumatic events; energetically charged thoughts and emotions - enhancing and diminishing, experienced and shared together during Mother's pregnancy, labor and birth - the very core of Whole-Self Prebirth Psychology.

My prebirth energetic education comes from my shared mutual maternal 'charged' thoughts, emotions, and feelings. They are reflected in the thinking and behavior of my newborn baby life subsequently grown into my adulthood.

My prebirth mental and emotional stresses can cause a wide range of mental, emotional and physical disorders: from relatively benign, unusual habits, psychological discomforts; to serious mental/emotional diseases such as schizophrenia; to incurable physical diseases. My pre and perinatal information can be transferred from past, present and future - even onward to succeeding generations. This is confirmed experimentally and most likely is connected with regulating processes investigated in the ***Science of Epigenetics***. It is possible to assume that my genome contains both somatic and mental information and is able to include new data of such quality. From Brekhman's view of the genes, each cell of my body is the carrier of quasi-consciousness and memory, and initially, *corpuscular-wave information psychosomatic structure*.

MOTHER BABY PSYCHIC COMMUNICATION

Brekhman scientifically proved Whole-Self Prebirth energetic psychic communication is precisely the key to the evolutionary Integrative Medicine hypothesis and practice of transpersonal Whole-Self Prebirth Psychology. The concept of duality has allowed an understanding of the benefits of the information contained in the psychic dimension of all human beings that has enabled us to consider her/him as a *Psychosomatic System;* even to explain possible reasons for illness and disease. Brekhman proposes that we begin by considering the Human Being from a position of *The Theory of Corpuscular-wave Duality of Matter.* It opens the existence, in natural ways, of the interaction and information interchange between genes, cells, organs, mother and gestating baby which had not been suspected. Prof. Brekhman scientifically proved the communication systems discovered 50 years by Whole- Self Prebirth Psychology.

EVOLUTION IN WHOLE-SELF PREBIRTH PSYCHOLOGY

Evolution is one of the most discussed theories about how humans have become more developed and refined. It is always interesting when an hypothesis about evolution reveals itself. This paper offers a theory to explain how evolution transfers basic physical, mental, emotional and psychic energetic patterns from one generation to the next. Its very core is that all these energetic patterns revolve around, in the first person, my parents DNA and the charged life

experiences mother has during her pregnancy. Webster's Dictionary defines evolution as *the act of unrolling or unfolding: specifically the doctrine according to which higher forms of life have arisen from lower forms*.

Charles Darwin and Alfred Russel Wallace had jointly published *the theory of evolution by natural selection* in a paper in August 1858; it was Darwin's landmark book *On the Origin of Species* in 1859 that truly grabbed the public's imagination. **Olga Gouni**, our intrepid Whole-Self Athenian, informed us that the *Theory of Evolution* dates far back before **Darwin** and **Wallace** to **Plato** and **Aristotle**. The *Internet Encyclopedia of Philosophy* tells us*:* The use of the term Evolution dates back to the ancient Greeks and is sometimes crudely referred to as the *Theory* of S*urvival of the Fittest*. Googling ***Aristotle and Evolution*** there are many websites. Aristotle's *Great Chain of Being* was his attempt to classify (taxonomy) all living species by order from the lowest (worms) to the highest (humans). This implied that Aristotle's Philosophy was that the Universe was ultimately perfect, and that his *Great Chain* must also be perfect meaning there were no empty links in the chain, and no link was represented by more than one species. Aristotle's theory has evolved.

HOW DOES HUMAN CONSCIOUSNESS GET PASSED ONTO THE NEXT GENERATION?

While theories describe physical evolution a question emerges about psychic evolution.

One hypothetical answer has been discovered and developed through research in Whole-Self Prebirth Psychology, Philosophy and Education©. W-SP&E© proved, in the 1st person, that when during her pregnancy, my Mother experiences charged thoughts and feelings, ranging from enhancing to diminishing events, situations or circumstances, I, her baby, am born with her energetically charged enhancing happiness or diminishing pathological patterns; her situational feelings; her mental reactive attitudes. In other words, the innate source of my talents or most frequently felt enhancing or diminishing reactive feelings; most frequent enhancing or diminishing self-judgments; and most frequent enhancing or diminishing decisions in my life, all are synthesized from my mother's mental and emotional experiences during her pregnancy; during my gestation.

The Evolutionary Process begins for each human before conception, in the 1st person, when my consciousness was energetically attracted to the vibrational frequencies of my mother's bio-energetic field. While it is commonly supposed that at conception human consciousness or soul is magically a person inside that little body about to grow in mother's womb, Whole-Self Prebirth Psychology has shown that while mother is growing my new body in her womb for me to use after my birth, my consciousness for this life is not inside mother's body but is in ***energetic synthesis & symbiosis*** with Mother's bio-energetic field of consciousness; that it is in her consciousness; in her mind and her emotions; in her bio-energetic field animating her physical body; being educated with her basic life patterns. During my gestation, my consciousness is in my Mother's biofield; my future body is part of her body;

The I of me was never inside my mother's body.
How can there be changes in the development and evolution of humanity when I explore my Whole-Self Prebirth Analysis Matrix or W-S PAM?

When I, as a part of humanity, through my Whole-Self Prebirth Analysis Matrix discover the source of my non-conscious patterns, bringing them to my conscious mind in an appropriate way, I am able to understand and transform and release them. I am no longer reactive to those

patterns with others in my family or society. When I can see my emotional, reactively charged behaviors, I can recognize which of my prebirth patterns where later reflected or mirrored to me through my parents, by my partner, by my children or by my culture or society. My symbiosis to my clan can be released. That means, my patterns no longer resonate or stimulate the same patterns in other people to serve me perfectly in our mutual evolutions. When that happens, a deeper understanding, a compassionate patience, a dynamic bonding and mutual respect are discovered! That is evolution in action!

EVOLUTIONARY SYMBIOTIC PSYCHIC COMMUNICATION

Every human being begins life in symbiosis with mother by being psycho-spiritually energetically attracted to her mind and by sharing her feelings and emotions even before conception. This symbiotic attachment relationship should have matured into individuation by the age of seven. When individuation does not occur in my childhood, I, growing into adulthood, cannot tell if feelings being felt are my own or mother's feelings. This is when symbiosis can become pathological.

ENERGETIC COMMUNICATION

In Whole-Self Prebirth Psychology, Energetic Communication begins between my mother and me on all levels (Brekhman) through our symbiotic relationship initiated pre-conception either through mother's desire to become pregnant or my need to enter life to evolve; to become educated especially through my parent's charged mental and emotional experiences. It is my moment of ***energetic symbiosis*** not my ***moment of conception*** when my prebirth consciousness begins communicating with my mother to whom I energetically attach.

The Key to this Evolutionary process in Human Beings comes in the form of the symbiotic synthesis of consciousness between my Mother and me before birth. *Wikipedia* defines ***synthesis*** (from the Ancient Greek σύνθεσις, σύν *with* and θέσις *placing*): refers to a combination of two or more entities that together form something new; alternately, it refers to the creating of something by artificial means. The corresponding verb, ***to synthesize***, means *to make or form a synthesis.*

Prof. Peter G. Fedor-Freybergh called Prebirth Psychic Communication as the *Mother/ Baby Dialogue*. Prof. Grigori I. Brekhman confirmed the existence of this psychic communication. ***Evolutionary energetic synthesis*** is how my Mother's mental and emotional patterns got passed on to me. As mentioned above, tens of thousands of participants in *Whole-Self Prebirth Analysis* discovered that consciousness transfer from mother's biofield to the newly birthed body with the first breath. During life, my consciousness resolves inherited patterns for both myself and Mother. ***This is the evolutionary purpose of my life*.** The key to my Whole-Self Life's Streams of Consciousness® is found in the simple Whole-Self Prebirth Psychology discovery already mentioned that:

> ***Not only am I the synthesis of my parent's DNA codings giving me my physical characteristics, but I am also the synthesis of their energetically charged feelings and thoughts during their pregnancies: my Whole-Self emotional DNA© (W-S eDNA©).***

This Evolutionary Transpersonal Whole-Self Prebirth Psychology discovery explains how I can still be feeling the feelings that mother was feeling during her pregnancy synergistically educating my mind and my emotions before my birth. ***Epigenetics*** demonstrates that as with familial patterns and diseases, there can be inherited generational psycho-spiritual patterns in families. In Human Evolution, Whole-Self Prebirth Psychology helps me to understand the '*parable*' or '*mythos*' of my family psycho-history. The evolutionary Whole-Self Prebirth Psychology hypothesis is that through my homeostasis my Mother is healed; my family is healed; my community is healed; all of humanity is healed and invited into universal harmony.

Evolutionary Whole-Self Prebirth Psychology reveals that when my Mother experiences charged diminishing or enhancing events or circumstances during her pregnancy, I, her baby, am born with her energetically charged patterns; her situational feelings; her mental reactive attitudes – the innate source of my most frequently felt reactive feelings, most frequent diminishing self-judgments, and most frequently diminishing decisions in my life.

Again, while Mother is growing a new body in her womb for me to use after my birth, my consciousness for this life is in energetic synthesis with Mother's bio-energetic field of consciousness, her mind and her emotions animating her body - being educated with her basic life experience patterns. This energetic synthesis is how her mental and emotional patterns get passed on to me. These patterns are the challenges which will be activated after my birth for me to resolve and release from both myself and my Mother. This is the evolutionary purpose of my life. The key to my Life's Streams® of Consciousness is found in the simple Whole-Self discovery again that:

Not only am I the synthesis of my parent's DNA codings which gave me my physical characteristics, but I am also the synthesis of their energetically charged feelings and thoughts during their pregnancies: my Whole-Self emotional DNA© (W-S eDNA©).

THE PROOF: THE CORPUSCULAR-WAVE THEORY OF MATTER

Brekhman proved clearly how and why Whole-Self Prebirth Psychology and Therapy works. The key is that we are able to examine Whole-Self Prebirth Psychodiagnostics and Psychotherapy from the point of view of ***the corpuscular-wave theory of matter***.

His research examined how Human Beings exist not just as physical bodies but as foci for energies; bio-energies which can be measured in a number of scales; one of these waves can be called ***consciousness***. This consciousness is precisely the dimension of information we have identified in the form of charged feelings and charged thoughts of Mother and, through her relationship with him, Father, as well. So let us review the early research of bio-energy about this consciousness – this wave energy. The term 'psychosomatic disease' assumes that in a pathological process both *psyche* and *soma* are involved. But, it also means we know about the existence of illnesses of the *psyche* and the *soma* separately. Such classifications were quite true for a certain stage of development of Science. Today, a Human Being is considered as a complete psychosomatic system. One can be tempted to determine this affiliation by traditional representations; as an aggregate consisting of brain (the biological predicate of the *psyche*), and body (the biological predicate of *soma*). However, from the perspective of modern knowledge and philosophical representations it may not be quite correct. Why?

THE CONCEPT

Brekhman's theory about the wave information psychosomatic system explains how my memory operates and if necessary draws past, forgotten events from my memory. While some people may hold that memories might 'possibly' begin at birth, but definitely after birth, the Whole-Self Prebirth Psychology model proves that I am already born with Mother's charged corpuscular energy patterns. My prebirth memories began when my consciousness was energetically attracted to my Mother's consciousness even before conception. When I give myself a command 'to recollect', I direct an *information cloud wave* to travel to my biofield and subsequently to my body. Without conscious participation, this *information cloud wave* activates structures within various cells. It proceeds so long as the inquiry, having a certain wave frequency, enters into resonance with the required coded wave information. Actually, this is my quasi-consciousness at work. During the *inquiry-find convergence,* a resonance effect may take place which switches my brain activity providing the interpretation of the requested, coded information of ideas and words.

CONTACTING MY WHOLE-SELF

The same convergence occurs when a therapist asks me to enter into contact with my Whole-Self and to recollect the feelings and thoughts energetically connected to a specific traumatic event. If I try to remember consciously, I lose the link with my *corpuscular wave informative cloud.* To a certain extent, a semi-trance state facilitates this process, as it allows me to concentrate my attention only on a search in my cloud for the information needed at the given moment. This concept gives a key to understanding of body-oriented (reflected from the biofield) therapy, through preliminary extraction and the comprehension of the reasons for psychosomatic disorders, which can strengthen the effectiveness of treatment. This concept gives substantiation for an holistic approach to health, or to restoration of it, especially through the Whole-Self methodology whose intent is to bring my subjective reality – what I believe happened to the objective truth of what actually occurred.

SYMBIOSIS & MY WHOLE-SELF

As mentioned, every human being begins life in symbiosis with mother by being psycho-spiritually energetically attracted to her mind and by sharing her feelings and emotions even before conception and birth. This symbiotic attachment relationship should have matured into individuation by the age of seven. When individuation does not occur in childhood, my consciousness, growing into adulthood, cannot tell if feelings being felt are my feelings or mother's feelings. This is when symbiosis can become pathological. Excitement, excessive excitation (charged information) in my biofield has specific pathogenic influences which are capable of generating the deformed wave component which touches the structure and function of a part of me which, at that moment, is in an aroused, active, imbalanced state. **Smilja Janjatovic Pugliese** our Whole-Self Italy Co-Director says: "When talking about excitation, it is important to distinguish between excitement and agitation. I think that the feeling of excitement indicates some form of recognition of positive elements in the person's field. This means that excitation is

not necessarily pathogenic. It could also be a stimulus for better and more balanced psychological and physical wellbeing while agitation indicates diminishing, negative, possibly even dangerous elements."

ENERGETIC COMMUNICATION

Brekhman's research confirmed Whole-Self Prebirth Psychology Psychic, Energetic Communication begins between mother and me on all levels through our symbiotic relationship initiated before conception either through mother's desire to become pregnant or my need to enter life to evolve; to become educated through mother's and father's charged mental and emotional experiences – or both. ***It is at the moment of energetic symbiosis - not the moment of conception - when my consciousness can begin communicating with my mother to whom I am energetically attaching.***

THE FLOWER AND THE SEED

One of the most evolutionary discoveries in Whole-Self Prebirth Psychology is that hypothetically there are two separate parallel tracts in human conception: ***one is the physical; the second is the consciousness***. We can use the analogy of a flower and its seed to illustrate this Whole-Self Prebirth Psychology hypothesis: Without entering the realm of which came first, we look at how a flower reproduces itself. In nature, we see that from a seed comes a bloom; a flower manifests as an expression of all the potential that was contained in the seed.

GESTATION: A TIME OF EDUCATION

In simplest terms, Whole-Self Prebirth Psychology observed that, in a bloom, just as a seed is an integral aspect of a flower, in the first person, my yet-to-be-born little body gestating in mother's womb *is like a seed, an integral, defined part of mother's body*.

Just as a seed is still a part of the flower, the little body is still an integral part of mother's body. It is growing and developing and practicing - being educated - so that after nine months of gestation it will be able to separate in order to function, to express all that it had innately physically contained, independently of mother's body.

Simultaneously, in the first person, my actual consciousness, my sense of myself, had been energetically attracted to my mother's consciousness, to her mind and to her emotions animating her body. Mother's bio-energetic field is growing and developing and through her experiences is psychically educating me especially through her charged mental thoughts and her charged emotional feelings so that at birth I can begin individuating from her consciousness (usually by the age of seven years).

The more charged Mother's mental and emotional reaction to life experiences, the more strongly the effect on the education of my forming baby mental and emotional development - the more impact this memory has on my whole baby development. I am born with the amorphous, non-conscious memory of mother's experiences especially trauma event reactions. ***These feelings and thoughts create my non-conscious behaviors.*** These feeling reflections are the

source of the potential pathological patterns which after my birth need to be activated and then, ultimately resolved during life. These expressions basically dictate that in that nine months, ***on the first track***, physical experiences which mother is experiencing are also being experienced, and encoded by the little baby body because it is part of mother's body (Is this where cellular memory, if there is such a phenomenon, begins?) ***On the second track***, where my consciousness, like the little psychic seed, being in mother's consciousness - her mind and her emotions - is being formed and informed by Mother's charged mental and emotional experiences which are educating my emerging developing mind and emotions.

THE QUESTION OF SYMBIOSIS?

Symbiosis begins when my consciousness is energetically attracted and attached to mother's bio-energetic field - her consciousness. Because my newly-developing emotional and mental bodies are practicing with mother's mind and emotions, we are sharing the most intimate link between two people - *a* ***symbiosis***. Symbiosis is a psychological situation in which I cannot tell what feelings are mine or are someone else's. If my mother has charged thoughts and charged emotions about what she is experiencing, being in her consciousness, my consciousness is being educated with those same exact thoughts and those same exact emotions. And, because we are symbiotically sharing those same charged thoughts and charged feelings, I am born with and continue to non-consciously behave as though those events are still happening to me. Not only do I continue to react or respond to believing that those thoughts and feelings were mine, I may even believe the traumatic event is ***my fault***.

In Biology, when any two organisms share the same environment it is always for their mutual benefit: ***For mother*** the benefit is that she fulfills her destiny being an instrument for the evolutionary development of the human species. ***For me***, the benefit is that my new mind and new emotions, when joined to the little body which mother is preparing for me, will at birth, be able to function as a specific evolutionary instrument in life. When, through the Whole-Self Prebirth Analysis Matrix of 22 specific moments during gestation, I explore my prebirth patterns and realize that they are, in fact actually mother's experiences, thoughts and emotional patterns, I can release myself from them. Recognizing that my debilitating thoughts and my pathological feelings are mother's thoughts and feelings from the nine months of her pregnancy – are not mine or my fault - allows me to dehypnotize myself from them. This is the very essence of Whole-Self Prebirth Psychology an hypothesis illustrated by the following case histories:

CASE 1: PEOPLE WALK AWAY FROM ME!

I worked with Tabby, short for Tabatha, a woman of 30 years near London. Her presenting problem is of people 'walking away' from her, demonstrated through dysfunctional behavior in relationships, dependency and jealousy. A behavior of anger also came out in her Whole-Self Prebirth Analysis Matrix© (W-S PAM©). Tabby's traumatic moment:

"It is the sixth month of my mother's pregnancy. I see mother standing in the kitchen with her coat on waiting for father to take her shopping for baby things. A plate drops and smashes on the floor!"

"This doesn't sound very traumatic", so, I ask Tabby, "How does the plate drop on the floor?" Tabby confesses: "Mother throws it down! She is having a traumatic temper tantrum! She's really angry!"

In order to understand how Tabby's personality patterns work, it is necessary to know what mother is feeling as she is getting ready to go shopping for baby things.

This is because ***the feeling before the trauma becomes the trigger*** for the pattern

in Tabby to repeat itself until she recognizes it and releases it: "Mother is quite happy. But that changes very fast when father refuses to take her shopping. She starts a fight with him. He has promised to take her and now he refuses to go. He wants to work in his garden. As he stomps out in his Wellys (boots) he shouts defiantly as he ***'walks away'!" 'Besides, I never wanted a baby anyway!'***

I asked Tabby to feel what happens to mother's happiness as her mother reacts to his outburst. Tabby laments: "Mother is in tears. Fear smashes into her belly (solar plexus)! She feels utterly helpless, hopeless and powerless to get him to do what she wants!"

So now, Tabby's Whole-Self has shown her ***the moment when the 'walk away' pattern is established prebirth*** for Tabby's new life. And, more importantly, she has discovered the trigger to make Tabby start to walk away before the other person does:

It is when she feels happy! Tabby has to pull away because the non-conscious program in her bio-computer says: "When I am happy in a relationship, very quickly,

I will be unsupported, not get my needs or demands met and therefore I will feel pain!"

All her life Tabby had put on her boots and '*Kept On Walkin*!' (Nancy Sinatra song) ***before someone walked away from her***. But, these patterns which Tabby's mother was experiencing during her pregnancy are only potential for Tabby. Now we have to link mother's feelings, thoughts and behaviors to the first time the patterns locked into Tabby after her birth: "I'm an infant! I'm screaming! I'm really demanding attention!

They won't do what I want! ***Mother 'walks away'!"***

Note: An important aspect in Whole-Self Prebirth Psychology is for Tabby ***to reconnect with the feeling patterns without acting them out***. We do not suppress them but simply discover, recognize and acknowledge their existence. By doing this,

we are able to help the client to recognize and acknowledge the patterns without being emotive re-encoding the hormonal saturation which locked her into the pattern in the first place. Tabby can even express this by saying: I'm really angry at mother that she can do this to a baby - ***to just walk away!"***

I invite Tabby to correlate the frustration feelings and tantrum mother has ***when father walks away*** from her into the garden and when mother ***'walks away'*** from her as a little infant. 'The infantile behavior is exactly the same!" Tabby confesses.

Now it is important to explore the psychic impact of father's parting words as he walks away ***'Besides, I never wanted a baby anyway!'*** Father's rejecting, vicious, retort of annihilation, not only devastated Mother, but being in her mother's mind and emotions, Tabby, experienced Mother's devastation as her own. And, in a plastic formative moment, Tabby locked in to the psychic reality that it was her fault just for being conceived. Even though for years, father would be loving towards mother, Tabby was frozen to mother's devastation from before birth by father's words of annihilation.

Note: What Tabby's prebirth history shows so vividly is that there is an infant consciousness before birth which is a recipient of mother's and father's charged exchanges. Tabby wishfully adds: "He loved mother to pieces and didn't want anyone else with them!" I asked Tabby what that is called. "***Jealousy!***" she responds. Asking Tabby if jealousy had ever been part of her psychic pattern to sometimes act like an infant to prove that people would not want her; smiling coyly, she gave a big ***"Yes!"***

Amazed at these insights of both her parent's patterns in her own life, Tabby gets even more correlations when Tabby sees where mother is just before the first signaling from the birth contraction: "Mother is pushing a cart around in the supermarket. She is so tired and unhappy. Really down!" I ask: if this depression is a familiar feeling in her life. ***"Oh yes!"*** Tabby recognizes. I ask her if she is receiving any emotional support from her father? Tabby admits: "Some - as much as he can! I accept that as how he is. That is what depresses me!" I ask if that depression is because of feeling not supported a familiar pattern? ***"Oh! Yes!!! Yes!!! Yes!!!"*** Tabby enthuses, "Even right now in my life! I make excuses for my father that he does not give me the emotional support I need! I let him off!" I ask Tabby to correlate how this psychic pattern may influence her relationships with other men! She admits: "It does precisely! When the first contraction actually strikes, mother has a mix of concern and excitement. It's a beginning! When I'm depressed those are exactly my attitudes and feelings!"

I suggest to Tabby: "Please allow your Whole-Self to let you sense again the decision that locks into your mother's mind at that moment?" Tabby says, "Alone again! Stiff upper lip! Chin up! I can do it alone!" I ask: "Are those familiar attitudes in your life, Tabby?" "Oh, yes!" she sighs. Compassionately, I observe that it appears that aloneness is where mother's strength comes from! "And, yours too?" I question. "True! I have to be alone to be strong! Mother is a survivor! Mother had three children. My brother died of cancer when he was 10 years old" Did father walk away from that, too? I ask. "Yes!" (Long Silence) I ask: "What is your first thought when you are just born?" Tabby gasps: "Pain! Mother's labor and I still have the emotional pain! I feel it right now!"

Note: It is a very common reality for people recognizing mother's labor pain not only to believe it was their pain but that they were the cause of mother's terrible agony – lifelong non-conscious guilt. I gently encourage Tabby to feel her feelings while her little body is still connected to her mother through the umbilical cord. Sulkily, "I feel safe but confused. I'm still screaming my head off! I'm really indignant!" In her three hour Whole-Self Prebirth Psychology, Tabby was able:

- To understand how her personality has continually, non-consciously, pushed relationships away before they could 'walk away' from her.
- This pattern was reinforced by protecting herself from people who 'don't want a baby anyway' by having infantile tantrums and behaviors of anger just like her mother did during the pregnancy.
- Obviously, her mother's behaviors continued after her birth as a model for Tabby as she grew up.
- There is Tabby's innate belief that only by being alone and in pain does she have the power and strength to survive.
- Having gathered all this information, we helped Tabby to de-hypnotize herself from the charged psychic mental and emotional patterns she implemented from her parents.
- She has stopped blaming others for walking away from her by taking responsibility for first non-consciously pushing them to leave her.
- She has a totally new psychic outlook towards people and is open to rewarding relationships without walking away when someone gets close and she is happy.
- She has completed a simple Whole-Self Balancing Exercise to reinforce her new enhancing patterns.

Now, Tabby can stay happy without triggering the walk-away-from-her prebirth psychic pattern. This is personal growth of the most healing order! And this personal growth will allow

Tabby to create a partner and be able to be a parent whose baby won't have to repeat the diminishing Epigenetic '*walk away'* psychic patterns of her mother and grandmother. All this in just one 3 hours prebirth discovery with Tabby's Whole-Self.

CASE 2: LIVING APART TOGETHER

Troya's client, a man she named Ronald, 40, divorced and wants a relationship with a new partner. His concern is his sexual potency; his potential; his future. Ronald expects too much from a partner. This expectation is what caused the disintegration of his first marriage. His present partner, wary of his separation pattern, makes him aware of this fact, and therefore wants a 'living apart together' relationship. Because of his symbiotic psychic neediness for closeness, this is not satisfactory for Ronald. It is his very neediness which creates conflict for him in relationship, too. He feels consumed! Feeling himself a victim he closes down. He is impotent to stay connected. Since his divorce, this is also his diminishing psychic relationship pattern with his children. Through his Whole-Self Prebirth exploration Ronald discovers:

- He is not conscious of himself, his emotions, his feelings; and his feelings of lust.
- He admires other people, men and women, in a way in which he discounts and disconnects from himself, too.
- He has patterns appearing based on a chaotic, symbiotic relationship with mother.
- He has passion for handcrafts, working with his hands at home, all by himself.

Historically, Ronald knew his parents where divorced and through his Whole-Self Prebirth Matrix he discovered that during her pregnancy mother, and his consciousness resident in her consciousness - in her mind and her emotions animating her body - that he shared in his mother's desperate reaction to father abandoning them during his gestation. The result of this betrayal was that mother psychically claimed Ronald only symbiotically instead of raising and supporting him as a loving mother to become an individuated adult. Another significant discovery is how much he psychically resented and rejected his father (and ultimately all men) for abandoning his pregnant wife:

- Difficulties between his parents were present during the pregnancy causing his mother to obsessively cling to her not yet born child.
- Mother's obsessiveness is self-denial living psychically through another. It is her survival pattern with no self-respect for herself or her love-object.
- Ronald continued, with his mother, to blame his father for their identical psychic lack of self-respect and self-love; abandoning themselves in the belief of being unworthy instead of growing and evolving as individuals.
- His opposition to his father abandoning them, set Ronald up for the same conflicting divorce pattern. (*The Whole-Self Law of Opposition – Whatever I am opposed to I have to experience*).
- Because of father's absence, Ronald's mother did not allow him to identify with any male model keeping him impotent to erect himself; to be seeable to manifest himself. Because he was unwillingly possessed by his mother holding him in a diminishing symbiotic psychic relationship instead of letting him live free to grow and evolve into a adult man, he had not known how to relate other than by clinging or loosing himself.

After his Whole-Self Prebirth Discovery with Troya, Ronald has broken the diminishing symbiotic psychic possession his mother had on him. He feels more responsible in his life and looks forward to make new beginnings. He is no longer postponing his potential growth and

evolution into an individuated man. His desire is freedom, independence and to express those qualities in a healthy close non-symbiotic relationship.

Note: Aside from his physical impotence with another person, what we find in Ronald's Whole-Self Prebirth Therapy exploration, is a psychic pattern that is often unrecognized as a pathology; Ronald, in his impotence, was unable to consummate a lasting relationship with a partner with whom he has a commitment; but, the more actual pathology is that he was impotent to consummate a relationship with himself. Having been unable to recognize and transcend his symbiotic psychic relationship with himself or with his mother, he is now strengthened to develop and consummate a relationship with his adult self as well as with another person appropriately.

Note: There is now a e-book, ***Whole-Self Prebirth Psychology: A Key to Human Evolution*** illustrating W-S Prebirth Psychology hypotheses. It is dedicated to Prof. Peter G. Fedor-Freybergh, whose guiding principle has been that readers like to read case histories. In keeping with that concept, our e-book written by Troya, me and Olga Gouni offers 80 Case Histories revealing how pathology is traced to the prebirth period.

CONCLUSION

So, Whole-Self Prebirth Psycho-diagnostics and Psychotherapy are proved from the point of view of ***the corpuscular-wave theory of matter***. In gestation, Nature gives my little body - which is part of my Mother's body - the opportunity to practice and rehearse so that after birth it can live on its own. Sigrid Westermann, our Whole-Self Co-Director in Germany asks, "How can Nature provide practice and rehearsal for my little body - as part of my Mother's body and not provide practice and rehearsal in her biofield for my mental body inside her mind and not provide practice and rehearsal for my emotional body in her emotions?" The answer is, it does! My mother's psychic, energetically charged mental and emotional patterns during her pregnancy are symbiotic communication instruments through which her patterns get passed on to me; challenges which activated after my birth present for me to resolve and release from. A Whole-Self Prebirth Psychology evolutionary hypothesis is that through my homeostasis, my Mother is healed; my family is healed; **all of humanity is healed and released into a universal homeostasis. This is the purpose of life.**

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THE COMPLEXITY OF PRENATAL & PERINATAL EXPERIENCE: WHY TRAUMA AND HOW TO HEAL

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Abstract. Looking at our Pre/Perinatal Experience from the perspective of Modern Sciences and Theories (Complex Theory) that cast light to the ways that our Cosmos has come into being in general and how human life appeared and evolves, we can realize that the same Eternal Universal laws that govern Cosmos are to be found at work behind our Human Life Dynamics.

Keywords*: Prenatal, Perinatal, Trauma, Complex Theory, Consciousness, Evolution, Chaos, Emergence, Path Dependence, Self-Organization, Fractals, Hubs*

HOW COMPLEX IS COMPLEXITY?

In Latin, the word *complexus*, from which the word *complex* derives, ***meant woven together, encompassing, made up of various interconnected parts***, while in psychology the word *complex* refers to ***a group of related, often repressed memories, thoughts and impulses that compel characteristic or habitual patterns of feelings, thought and behavior***. However, complex is also "***not simple***" or "***difficult to understand or deal with***". It's been quite a long time now that in science as well as in health, whatever we thought of as "difficult to grasp" we developed the tendency to "break down" in small parts to make sense of it. And this strategy of reducing and cutting down in our effort to understand has been a strategy we can see in other aspects of our life.

However, a number of sciences among which Biology, Chemistry, Computer Simulation, Economics, Mathematics, Physics and communications have developed and have proven theories that cast more light to the ways Nature functions when creating worlds even ***multiverses***, not just our Universe. Today, the Theory of Complexity has developed key principles that can explain **complex adaptive systems** (CAS) and **complex evolving systems** (CES) in more appropriate ways. And as the story goes, due to the synergetic work of a number of exquisite Scientists including Stuart Kauffman (1993, 1995, 2000), John Holland (1995, 1998), Murray Gell-Mann (1994), Peter Allen (1997), Brian Goodwin (1995, 1996), Ilya Prigogine (1985, 1989, 1990), Humberto Maturana, Francisco Varela (Varela & Maturana 1992), Mingers (1995), Gleick (1987), Luhmann Niklas (1986,1995), Steve Strogatz and Duncan Watts, complexity has ceased to be complicated and as the understanding is much better now it will be very soon when Complexity will become "**Simplicity**".

Studying complexity helps us understand the nature of our world as well as the nature of the organizations we live in. And although a lot of work needs to be done to test how well and to what extent complexity principles can be applied to prenatal human evolving or adaptive systems, this is our initial effort to explore the metaphors, analogies and models within complex systems in the field of Prenatal Psychology.

What is more, it is our intention to introduce a conceptual framework, a way of thinking and a way of seeing the world of human experience from pre-conception to after birth and beyond, expanding our pre-conceived linear ways of looking at what is and what becomes to new nonlinear dynamic systems that can better explain how we might co-evolve from generation to *generation.*

THE KEY PRINCIPLES WITHIN COMPLEXITY

All Natural Complex Systems, Human Systems included, present common characteristics or behaviors.

Table 1: Key Principles

1. Connectivity & Interdependence
2. Co-Evolution
3. Dissipative Structures
4. Exploration of the Space of Possibilities & Exaptation
5. Feedback
6. Spontaneous Self-Organization
7. Emergence
8. Path Dependence
9. Participation
10. Chaos, Coherence and Order

CONNECTIVITY & INTERDEPENDENCE

Within any system all elements are interconnected. They interact with each other and with the environment in which they exist. Urie Bronfenbrenner, when formulating his Human Ecology Theory, has stated that human development is influenced by the different types of environmental systems (namely the *micro-system* the *meso-system*, the *exo-system*, the *macro-system* and the *chrono-system*). Prenatal Pioneers including Peter G. Fedor-Freybergh (Mother/ Baby Dialogue) Grigori Brekhman (Wave Theory), the Turners (Whole-Self Prebirth Analysis Matrix), Lake (M-FDS), Grof (Matrices) etc., have spoken about the importance of the uterine environment and the interplay between the Maternal Environment and the baby conceived, in gestation and being born as well as the imprints that may stay with him later on as baby grows into childhood and adulthood.

The development of the (un)born child is the result or outcome of an intricate, inter-twining of myriads of elements or information that may affect him. However, this affect does not have equal or uniform impact on all, and, each one of the human beings in the field, as this varies with the state of each related individual and system at a given time. The history and the constitution of the maternal system - in its expanded meaning - as well as the organization and the structure of it, will shape the (un)born baby in a unique way that is connected with the history, constitution, organization and structure of the (un)born child her/himself. A lot depends on how open or closed the two systems are and the interplay may lead to outcomes that might not be experienced as beneficial by all involved parts.

As all of us involved in Bonding Analysis or Empowering Prenatal Bonding have noticed, the way a mother or family perceives the (un)born child and the consequent ideas, thoughts, attitudes, emotions and behaviors that stem from this way are not necessarily empowering for the (un)born. As the baby may try to improve her/his opportunity in life, this may mean a worsening condition for others who cannot see the mutual benefits for both organisms in symbiosis.

INTERCONNECTIVITY IS "CONNECTED" WITH A HIGH DEGREE OF INTERDEPENDENCE

The greater the interdependence the wider the ripples of disturbance may be as the "improvement" in one part may impose associated "costs" or "losses" on another part within the same system or related systems. A failure to recognize the win-win aspects may trigger unnecessary friction.

Grigori Brekhman has spoken about the multidimensional communication between the maternal environment and the (un)born baby. Complex systems are indeed multidimensional and all dimensions interact with each other altering and changing to the best or the worst. Narrowing down research to one or some dimensions will prevent us from fully understanding the ways human beings become in the process.

What is more, as Complex Evolving Systems can adapt and evolve creating new order and coherence, it is important to see how the agendas of each part in the mother-baby system can work effectively as a team for the optimum outcome; or change the rules of interaction and act on limited understanding of what the system aims to achieve as a whole or adapt to self-repair and/or self-maintain. Different degrees of connectivity and/ or interdependence within the family systems as well as diversity, density, intensity and quality of interactions between maternal environments and (un)borns - later grown-ups - has been seen in Prenatal Psychology.

CO-EVOLUTION

Kauffman has stated that "***Co-evolution takes place within an eco-system and can- not happen in isolation"***. According to Wright (1931, 1932) "***Each genotype has a fitness and the distribution values over the space of genotypes constitute a fitness landscape"***. Each organism can alter the fitness landscape of self and the fitness landscape of the other as it influences and is influenced. The evolution of the (un)born baby is dependent on the level of evolution of the maternal environment. The symbiotic phase calls all of us to think of co-evolution opportunities not only for the (un)born but also for the maternal environment. ***Co-evolution,*** that is the evolution of interactions, places a strong emphasis on the quality of relationship between the co-evolving parts.

Furthermore, we need to see this co-evolution process as an open system that does not follow a linear direction but is in constant interplay with all other systems at play. We are constantly influencing co-evolution and self-evolution. This viewing of things takes us to the new position of seeing the (un)born not as a passive receiver of influences but also as a fully participating, active agent of co-evolution and self-evolution with all responsibilities and rights connected to it. No individual, no part is powerless as each part reverberates through a very subtle web of inter-relationships and calls for greater "***sensitivity***" and awareness of responsible action.

It is also important to look at the element of ***time*** in co-evolution as two or more organisms can co-evolve **if they change in the same upward direction at the same time**. Can short-term adaptation in one part lead to long-term co-evolution? Can the rate of co-evolution be measured? As prenatal experience is a preparation and adaptation for functioning properly after birth, could the transfer of information, knowledge and above all wisdom from the maternal environment to the new human being allow her/him to better operate and function in life and allow the family bonds to stay strong and not fall apart? How can we all, in the wider context of

maternal environment, create the culture that will help the child/human being to not only survive but also thrive? And, how can all of us, in the same context, by doing so evolve as well?

As professionals in the field, it is part of our mission to see how our constituent aspects can evolve together in an interconnected, interdependent way within an ecosystem and allow the ones that come to our clinics learn how to harmoniously co-create their environment in ways that are to the mutual benefit of all stakeholders, removing any barriers that interrupt creative interactions and **teaching** - when needed - how to make space for the new person to make their contribution and develop the appreciation of what each member/human being can bring to the system and the willingness to accept what is offered to her or him.

DISSIPATIVE STRUCTURES & EMERGENCE

Dissipative structures are ways in which: "***Open systems exchange energy, matter or information with their environment; and, when pushed "far from the equilibrium point" they can create new structures and order***".

As Nicolis and Prigogine (1989) said: "***By applying an external constraint, we do not permit the system to remain at equilibrium***". When, we continue to apply such a constraint, there will be a critical point when the equilibrium will disappear and a new structure (order) will appear. This new structure is the result of a self-organizing process of the system in its effort to continue existing even after having pushing far beyond its own equilibrium state losing its own old structure/order and, at the same time, assuming a new one better equipped for the new environment-hopefully of a higher level.

The new form is usually of **unpredictable and uncontrollable nature**. It is behind all forms of creation in our Universe and it is the factor that makes each one of us stay aghast at the variety of forms energy can take.

At the same time, there is not one and only one possibility for the new form to emerge as there are several solutions that may lie ahead for the same "**parameter values**". But, which one is to be taken? Which solution will be selected and which path will be followed? This is what gives ***the specific system a "historical dimension" kind of "memory" of what had happened at that specific moment which affected its further evolution*** as Prigogine (Nicolis & Prigogine, 1989) has also said. The past symmetry was lost but the emergent behavior presents coherence, the result of micro-level interactions of the participating parts, even against entropy as shown by Prigogine.

In Prenatal Psychology, one of the most significant fears that surfaces is the fear of death; the fear of the unknown which is also the fear of life Otto Rank spoke of. Is the key to understand this, to this specific dissipating structure, that lead to the emergence of new forms? If, yes, then our teachings and our support systems may take new avenues of development as we dare to lose identity and traditional known forms and schemata to enter the world of all new forms and all new identities open ahead or just the one that is responsive to the new order parameter values.

Spotting the **bifurcation points**, that is "***the forks in the Road***" can be most significant acts. It is at that point, when all possibilities are present simultaneously and what remains to create the new is the decision through the dynamics of fluctuations as the system scans the new territory and makes its efforts to stabilize again becoming a "historical object" depending on the decision made.

As the Turners have shown in their Whole-Self Prebirth Analysis Matrix (W-S PAM), there are a lot (22) of bifurcation points in our primal experience from pre-conception to

postnatal. At each of them, the (un)born human organism is educated and makes decisions depending on the information it gets from the environment in mother's consciousness, and these decisions shape their future. Our prebirth environment experiences become our history and our future; and, what makes the difference between living entities is the current state (our individual present experience) and that of the maternal environment. **Our present is the keeper of all destinies**. Before any decision is made final, the alternatives are sources of innovation and diversification, endowments towards the direction of exploring the space of new possibilities in terms of behavioral patterns and relationship modes.

Dissipating structures, the creative force at work, and the act of "**autocatalysis**" can be seen not as catastrophe of form (which is as the symmetry is broken) but at the same time, creators of new multiple solutions open in front of us. It is then the "***hysteresis***" based on the past history of each one of us which will lead to new self-organized forms of higher wisdom, thus called ***evolution***.

When analyzing our primal experience and **Primal Health System** (this interaction of nervous, endocrine and immune system as a whole system) we can trace the critical points of our prebirth history and it is here where there is a vast possibility for all Health Advancement, freeing not only our proteins on a biological level from synthesizing this or that form of life, but, our destinies as societies and nations, as Humanity from self-reproducing patterns of lower level Health and civilization. Professionals in the field of Prenatal Psychology are invited to act as catalysts and also as enabling/empowering infrastructures offering their support at such critical points in our process.

It is also important to bear in mind that **form emerges**. It is not imposed and there are no end states. This remembrance can help us make decisions away from eugenic practices. It is good to maintain our intentions as life developers, or better say, as **life evolutionaries** who can shape outcomes in the generations to come. But, there will always be unexpected outcomes, too, which may surprise us, and which are entitled to the rights of being and becoming as part of the ways energy chooses to manifest.

EXPLORATION OF THE SPACE OF POSSIBILITIES & EXAPTATION

Complexity makes it clear that each and every living entity needs to be always scanning the environment so that she/he can spot the optimum possibilities present in the environment which can guarantee either survival or thriving experience. This scanning is a never-ending process as all systems are characterized by an unsteady element which makes them changeable. We need to have a level of intellect/ intelligence to spot the changes and strategies which will allow us to make micro flexible adaptations to it, so that we can safeguard what is optimum for us at every given moment. It is not an act we are called to do once and then rest, but, a process that calls for active participation in continuously, rapidly changing ecosystems.

Flexible adaptation calls for empowering new ways of looking at things and seeing things. Stephen J. Gould and Stuart Kauffman (2000) have used the term "***exaptation***" to describe the act of "seeing a novel function for a part of an existing entity. It is the quality much appreciated today in research, applied Science, innovation, art to mention just a few.

Asking our clients, our children, our colleagues, our partners and ourselves what new good use of the existing resources can you spot in the here and now, and how can you make it work so that it can open up new survival and/or thriving possibilities is a habit that we could develop towards this direction. That exploration of the "**adjacent possibility**" can take us to the

identification of the "**building blocks**" at our disposal, so that we can better create what we can be and become. The "**endogenous mechanisms**" that can be triggered can be critical as to the success or failure of the system to find new ways of making a living and/ or thriving. And as many in Prenatal Psychology have clearly shown, ***the higher the primal stress, the lower the functionality of our Primal Health System*.** Removing what may block such successful exploration of possibilities in the vicinity and empowering the human being to wisely scan, spot and bring to form resources present in the now and here can be one of the major priority learning tasks of educators in all fields, parents and teachers included apart from Psychotherapists.

Perhaps, it is not surprising that our world today is faced with metabolic challenges, name them diabetes or obesity, but, also making our world a sustainable living experience. Questions like "***how can it be better than that?***" can make a huge difference in the direction of exploring optimum possibilities.

FEEDBACK

Each system depends on both negative and positive feedback gained from the environment. Any negative feedback that reaches the system contributes to the stability of the system and becomes the conservative force, the stabilizer of its existence. Any positive feedback creates an amplification condition, and renders the system sensitive to dissipating structures and a new coherent order. There is a sort of non-stop "**dance**" between change and stability in complex systems. When things do not work new ways are to be found. Once the ways serve the system well, there is a tendency to maintain the equilibrium gained.

In Prenatal Psychology, it is important to look at human (maternal - (un)born baby) interactions that influence potential action and behavior from either side and work with the feedback exchanged between or among the participating parts, as well as the ways this feedback is interpreted by them as part of the degree of connectivity, time and space as well as the light encapsulated in the system and how this is connected with co-evolution of all involved.

PATH DEPENDENCE

In physic-chemical systems, we can observe "**bistability**" the phenomenon that Prigogine has named as such when "***under the same boundary conditions, it is possible that several stable states can exist"***. The specific path that a system will follow is based on the past history (our past becomes our future) and it is highly unpredictable as the past not only of human beings can be traced in the long held information carried by the ovum from time immemorial but also of our Universe the creation of which, and the forces at play at the time, are lost and still not uncovered. The interplay between negative and positive feedback, stability and change seems to be similar to the game as children we used to play when we were divided in two teams and pulled a rope we as part of the team in our direction trying to get the other team to lose hold of the rope and so to win.

The insight we gain as to how our neural system communicates information, but, also the ways network communities function together with the insight we got from the work of Prof. Albert Laszlo Barabasi and his findings on the ways hubs work in knowledge transfer - the same stands true of human cells where hubs are found allows us to even attempt to predict outcomes using Barabasi's equation $P(k) = Z(k) - \lambda$. This simple law describes our complex interconnected

world and gives an insight on the patterns followed by each system. Clusters may at first attract little interest but as they gather force they may lead to the tip point where the dissipating structure will appear; the rope will be left to one team; a path will open in front of the system for it to follow. Expansion or constriction, the two polarities are both possible as the two paths at the far-edge lost stability in the middle.

As Path dependence can also be used to enable further developments it would be very wise to bear in mind a Salutogenic focus of thinking and acting: Health breeds Health, Civilization breeds Civilization, Evolution breeds Evolution and Wisdom breeds Wisdom. Let us focus on this direction, being brave enough to dissipate forms that are not conclusive to those, so that every day we can create new paradigms in this direction.

SPONTANEOUS SELF-ORGANIZATION

Darwin and Wallace have spoken about natural selection in which a "**single force**" sets to motion processes that dictate who is going to stay, and who is going to change, and in what ways. Kauffman argues the Darwinian point of view and speaks about the three characteristics of self-organization, emergence and order, as a whole together with natural selection are necessary for evolution. Emergence is a whole that needs to be studied as such, and not as separate parts. It is related to the parts and forces that have worked behind, but synergy -the end outcome- is greater than the sum of the parts. We need to look at the ways life organizes itself and new order emerges to get the deep understanding of who we become, of Health and dis-ease or breakdown as part of a self-organization stage, so that, a new emergence comes out not necessarily in the form of evolution but also as a form of mal-adaptation.

Observing the forces at play when analyzing Primal Experience can discover the energy and the ways it synthesizes to emerge and "feed" missing information, so that the human being can have more opportunities to self-organize who she/he is towards evolutionary paths and not mal-adaptive ones.

Fundamental structural development in the form of novelty is very different from superficial change in this direction. We, working in the field of Prenatal Psychology need to provide for both: **Breadth and Depth. Breadth** in the meaning of allowing sufficient diversity for spontaneous self-organization to happen, making space for heterogeneous groups and relevant information to exist or research or act as catalysts and **Depth** in the meaning of peeling off the layers, getting to the issues underneath lost in time and space immemorial.

PARTICIPATION

The Universe (Versus Uno/ Towards the One) is entirely participatory. Schrodinger in his 'cat experiment', has shown that it is the act of observation that determines the cat's wave function and makes it alive or dead.

Each one of us is an active participant in co-creating what happens through our continuous interactions. **We create the present and the past as a result outcome of what or where we choose to look at or look for.**

Living in fields we are the receptors of connections and relationships across space and time, and at the same time, we influence these fields with our choices. We are both Individuals

and Universe, parts and wholes, Gods and Humans, Immortals and Mortals. Luis's saying "***L' Etat c'est moi***" can be seen in this light and undertake a new meaning: That of bearing responsibility for our choices and decisions as these can influence the whole world. In Greek, the word '***Άτομο***' which describes the individual is also a word that describes "what cannot be divided".

In complex theories, where fields intersect even for a split moment, particles come into being. Is this the moment of conception? Is conception the historical moment when the fields of the two genitors intersect? How can this understanding create a difference to the medical world researching into infertility or technology - assisted conception? And how can this understanding make things different when exploring rejection issues prenatally? Are there "conception accidents"? Nothing exists separately to our awareness. In our modesty, we are creators with unpredictable outcomes in the years to come.

CHAOS AND ORDER

Chaos Theory (Gleick, 1987) examines those forms of complexity in which order co-exists with dis-order at the edge of chaos (Chris Langton -Waldrop 1992, 1994). Chaos, another Greek word «χάος» describes the "infinity of space of formless matter supposed to have preceded the existence of the ordered Universe, the void at the beginning of creation impregnated with all life forms. Does this mean that everything that is already exists in us? The chaos exists within us packed full with all possibilities. The order is already present as is the dis-order. How to set our integral boundaries within us, as we explore the space of possibilities in and around, makes the order (or even disorder) visible within our personal environment, the group or network we belong to and the humanity in general.

FRACTALS

How to work with non-linear dynamics in all and each one of us can give rise to extraordinary intricate behavior as the one seen in the beauty of a fractal or the turbulence of a snowstorm. Spotting the family, or societal fractals created from repeated patterns evident at many levels of scale, and making visible the strengths of the cause and the consequence of the effect when working with the non-linearity of our primal life, and who we later become as adults can help us distinguish not falling off "**over the edge**" but being "**on the edge**" where order and chaos meet to manifest.

As Prenatal Psychotherapists, we can escort our fellow humans as they observe what is happening within and around them; as they discover the unintended consequences from actions of the past to the best of intentions; being there for them holding open the paradox; teaching them how to move from "either or" solutions; attitudes to what if "both and" can co-exist, supporting the person to walk the infinite space of possibilities opening up even at the smallest changes introduced to their systems as they can lead to major changes in the long run.

As Prenatal Psychologists, we can be present as our fellow humans "**flap their wings**", as other butterflies, to initiate attractors like the one in the equation of Lorentz that may take them to new heights - or lows. We can be there as they understand how they start the motion of the

pull-push oscillations in their love affairs, and how they work under the same mathematical formulas as everything else in Nature leading to Heavens or Abyss.

By applying chaos theory to human primal experience and what comes out of it is a tool that invites us to

- Think Differently
- Search for a simpler way
- Work on a multi-dimensional level enabling frameworks that facilitate this
- Re-focus our attention
- Appreciate wholeness
- Synchronize dissimilar individuals
- Bring Science to Real World
- Find our Links in the outside world
- Spot the hubs and use the ones to create values away from those that spread viruses within families or societies
- Spot the breakdowns in the system that cause disease and enhance Health
- Know that Humans, as everything else in Life, can be unpredictable and move beyond formulas and equations presenting paradox developments or failures

CONCLUSIONS

Working within Prenatal Psychology, complex theory can challenge our preconceived ideas of how life co-evolves from generation to generation; how our patterning and order shows over time; the coherent forms we have developed through repeated interaction within non-linear dynamic systems; the Attractors to which we are drawn; the ways we may flip our behavior from one pattern to the next, making the sometimes huge quantum leaps that lead us to either heights or lows on our paths.

Furthermore, it is part of our mission as Prenatal Psychotherapists to support a process so that all parts involved (maternal environment and (un)born child) can become co-creators retaining autonomy, but creating synergy based on mutual trust and mutual understanding far from self or other judgments that undermine optimum life continuity.

Teaching and sharing of knowledge and past wisdom with children, adolescents, grandparents and pregnant couples but also educational institutions, economic enterprises, social structures and national or international organizations can facilitate decisions that tip towards paths and emergent forms that honor life in evolutionary manifestations.

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ON QUANTUM-HOLOGRAPHIC BASES AND FRONTIERS OF INTEGRATIVE MEDICINE AND TRANSPERSONAL PSYCHOLOGY: PSYCHOSOMATIC, EPISTEMOLOGICAL, AND SPIRITUAL IMPLICATIONS

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Abstract. We hereby focus on the quantum-holographic bases and frontiers of integrative medicine and transpersonal psychology, with deep implications for understanding psychosomatics and spirituality. In the context of quantum-informational holistic acupuncture-based & consciousness-based approaches and techniques, their goal would be a resonant stimulation of the electromagnetic psychosomatically disordered quantum state (acupuncture palpatory painful or psychologically traumatic, as one of hundreds possible disordered states) thus enabling that its disordered initial memory attractors are one by one bioresonantly excited (similarly to annealing procedure in artificial neural networks) becoming shallower and wider on the account of deepening of the (energy-dominating) attractor of healthy quantum state (acupuncture palpatory painless or psychologically non-traumatic) – which is then altogether quantum-holographically projected on the lower quantum-holographic cellular level, thus changing the expression of genes. However, when this process is hindered by transpersonal entangled blockages in the energy-state space of EM field of the acupuncture system / consciousness (and numerous laboratory tests are revealing the evidence of entangled minds i.e. extrasensory experiences in a quantum reality) – then memory attractors of quantum-holographic network of field-related collective consciousness should be removed as well (via prayer or circular (psycho / energy) therapies from all relevant meta-positions included in the problem, thus performing spiritual integration of personality which initiate the process of permanent healing as suggested by experiences of volunteers in post-hypnotic regressions). So, all these holistic acupuncture-based and consciousness-based approaches and techniques can be treated as quantum-informational therapies, by imposing new healing boundary conditions in the energy-state space of the acupuncture system / (individual and collective) consciousness – with significant global psychosomatic implications of the necessity of including three front lines of integrative psychosomatic medicine. The aforementioned studies are in line with re-awakened interest in the scientific study of consciousness in recent decades (with indications of appearance of the grand synthesis of the two modes of knowledge, indirectly-rational & directly-mystical, in the framework of the emerging quantum-holographic paradigm) – where the role of each individual becomes indispensable due to the influence and care for collective mental environment, which is fundamental question of mental hygiene and civic and spiritual morality. It should be noted that three essential aspects of any comparative study of science and spirituality are hereby included: utilitarianism and / or limitations of psychosomatic transpersonal practices of tribal traditions, meditation practices of the East, and prayer practices of the West, in healing or salvation of souls; epistemology of the two modes of knowledge, indirectly-rational and directly-mystical; and phenomenology of transpersonal-mystical, near-death, out-of-body, and extrasensory states of consciousness.

Keywords: *Quantum-Holographic Framework, Integrative Medicine, Transpersonal Psychology, Psychosomatics, Epistemology, Spirituality*

INTRODUCTION

Despite the involved huge financial and intellectual resources in biomedical research and health care, human health is still jeopardized by numerous *psychosomatic diseases*, which find the fertile soil in modern man exposed to everyday *stress*. Since modern partial methods have not shown the desired efficacy in the prevention / treatment of psychosomatic disorders, new approaches are needed, which will include methods of *integrative biophysics*, oriented to *holistic healing the person as a whole* rather than disease as a symptom of disorder whole, implying their deeper *quantum-holographic origin*. In the *focus* of these *holistic methods* are *acupuncture system & consciousness*, closely related within the fast developing fields of *integrative medicine* [1] &

transpersonal psychology [2], with an ideal to achieve and maintain a state of *complete physical, mental and social well-being* [3].

The aforementioned studies are in line with re-awakened interest in fundamental and applied *holistic research* in past decades [1-150], indicating the occurrence of *grand synthesis* of *two modes of knowledge, indirect-rational and direct-mystical, within the framework of extended quantum-holographic paradigm* – where *the role of each individual* becomes *indispensable* due to the influence and care for *collective mental environment and social well-being* [1-26]. And can help us realize that all our *partial rationalizations* are still only approximations of *fundamentally-holistic reality*, and that all the *divisions* that separate us harmlessly at first and then spontaneously give birth to big conflicts – are *tragic misunderstanding* of spiritually immature (historical) epoch of civilization [23-26].

ON QUANTUM-HOLOGRAPHIC BASES AND FRONTIERS OF INTEGRATIVE MEDICINE AND TRANSPERSONAL PSYCHOLOGY: PSYCHOSOMATIC IMPLICATIONS

The prevailing scientific paradigm considers information processing within the central nervous system as occurring through *hierarchically organized and interconnected neural networks* [7,8,14,15,27-31], it seems that this hierarchy of biological neural networks goes down to the subcellular *cytoskeleton* level, which some researchers believe to be an interface between the *neural* and *quantum* levels [32,33]. It should be pointed out that the Feynman propagator version of quantum mechanics has *mathematical formalism analogous to Hopfield neural network*, which represents the basis of *quantum neural holography* [8-15,27] (which allows successive reconstruction of the wave functions of the memory states at the output of quantum-holographic Hopfield neural network (complete, of both amplitude and phase) in recognition of the wave function of the previously memorised state displayed again at its entrance (which is the basis of every holography, but everything here is simpler than in the standard laser holography, which requires so called coherent reference and subject laser beams).

Mentioned analogy opens additional *fundamental question* of how *classical* parallel processing level is resulting from *quantum* parallel processing level, which is a general problem of relationship between quantum and classical levels in the *quantum theory* of decoherence [8-15,35,36]. The same question is closely related to the fundamental nature of *consciousness*, whose indeterministic properties of *free will* [7-9,12-19,37-40] and other holistic manifestations like conscious-unconscious transition and consciousness pervading body [40], *transitional states of consciousness* [7-9,12-19] and *altered states of consciousness* [7-9,12-19,41] – imply that some manifestations of *consciousness* must have deeper *quantum origin*, with significant *psychosomatic implications*. Namely, according to the *quantum-coherent characteristics* of the Russian-Ukrainian school of *microwave resonance therapy* (MRT) [42-49] (highly resonant microwave sensory response of the disordered organism, biologically effective nontermal microwave radiation of extremely low intensity and energy, and neglecting microwave energy losses down acupuncture meridians), *acupuncture system* is the only *macroscopic quantum system* in our body to be *associted with consciousness* (while brain still seems not to be [34]) – *with memory attractors treated as psychosomatic disorders of electromagnetic microwave* (EM MW) *quantum-holistic records*, which can be the basis of (*temporarily reprogrammable*)

acupuncture-based [6-8,12-16,19,20,42-60] *& consciousness-based* [6-8,12-16,19,20,71-89] *quantum-holistic local psychosomatics*, cf. Fig. 1.

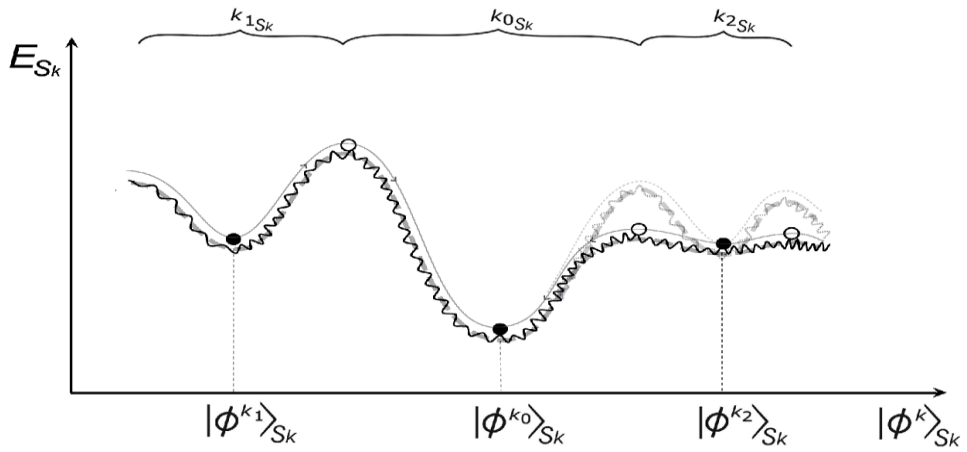

Figure 1. *Schematic presentation of the adaptation of memory attractors in the energy-state space* ($E_{S_k}(\phi^k)$) *of quantum-holographic memory of various hierarchical levels of biological macroscopic open quantum system S_k (local cellular enzyme / substrate, local bodily acupuncture system / consciousness, nonlocal out-of-body consciousness / collective consciousness). It should be noted that Nature presumably has chosen elegant room-temperature solution for biological quantum-holographic information processing, constantly fluctuating between quantum-coherent states and classically-reduced states of various hierarchical levels of biological macroscopic open quantum system S_k, via nonstationary interactions with out-of-body farther environment and further through decoherence by bodily closer environment – and thus a quantum neural holography combined with quantum decoherence could be very important element of quantum-holographic feedback bioinformatics, from the level of cell – via the level of the body – to the level of collective consciousness, with backward dynamic influence on the expression of genes. In the context of quantum-informational therapies, their goal would be bioresonant excitation of the treated psychosomatically disoredered state (acupuncture palpatory-painful or psychologically traumatic, as one of hundreds possible disordered states), thus enabling that its initial memory attractor ϕ^{k_2} (dotted line) is bioresonantly excited (similar to annealing procedure in artificial neural networks, see Ref. [31]) becoming shallower and wider (full line) at the expense of deepening of the (energy-dominating) attractor of healthy (acupuncture palpatory painless or psychologically traumatic-free) state ϕ^{k_0} – with successive larger overlapping and final integration of the two states. Thus, all these acupuncture-based & consciousness-based holistic approaches and techniques might be considered as quantum-informational therapies, via imposing new healing boundary conditions in the energy-state space of the acupuncture system / (individual and collective) consciousness – implying necessity of quantum-informational successive bioresonant balansing of all unwilling side memory attractors (like ϕ^{k_2} above), which would otherwise cause development of psychosomatic diseases on the individual level, and interpersonal fights in this and further generations on the collective level.*

Namely, according to the *Tibetan traditional medicine* [55] *acupuncture procedure must be repeated every few months* – probably as a result of *renewed* patient's mental loads from his *non-reprogrammed mental transpersonal environment,* which is supported by Tibetan *pulse diagnostics* that allows accurate diagnosis of psychosomatic disorders not only of patients but also of their family members and enemies). That *acupuncture system is closely associated with consciousness and psychosomatics,* is also supported by new *meridian (psycho / energy) therapies*

(with rapid removal of *traumas, phobias, allergies, post-traumatic stress and other psychosomatic disorders* [71,72]), where the simultaneous effects of *visualization and tapping / touching acupuncture points* could theoretically be interpreted as *'smearing' of memory attractors* of the psychosomatic disorders, *via successive setting of new boundary conditions in the energy-state space of the acupuncture system during intense visualizations of psychosomatic problems* [7,12-17,19]. At the same time, the above mentioned *analogy between mathematical formalisms of Hopfield associative neural network and Feynman propagator version of quantum mechanics* implies that *collective consciousness* is possible *ontological property of the all-pervading unified physical field* [6-9,12-19], whose *memory attractors* can be the basis of *quantum-holistic global psychosomatics* with *significant religious / social implications* of the necessity of *transpersonal spiritually-mediated quantum-holographic balancing of all unwilling side memory attractors* [6-8,12-17,19], cf. Fig. 1.

So, when the healing process is hindered by *transpersonally entangled blockages* in the energy-state space of the acupuncture system / (individual and collective) consciousness (on numerous laboratory tests revealing the evidence of entangled minds i.e. *extrasensory experiences* in a quantum reality, see refs. [127-133]) – then memory attractors of quantum-holographic network of field-related *collective consciousness* should be removed as well (via *prayer* or *circular (psycho / energy) therapies* from all relevant meta-positions *to disentangle energy-informationally all mental addresses included in the problem* [6-8,12-19,90-116], thus providing *spiritual integration of personality* which *initiates the process of permanent healing* as suggested by experiences of clients in *post-hypnotic regressions* [110]). Hence, these transpersonal holistic procedures, alongside with working on all levels of acupuncture-based therapies [6-8,12-16,19,20,42-60] and non-circular (psycho / energy) therapies [6-8,12-16,19,20,71-89], might be the holistic clue for imposing healing boundary conditions in the energy-state space of the acupuncture system / (individual and collective) consciousness of the patients, cf. Fig. 1.

The above Hopfield-like quantum-holographic associative neural network (HQHNN) framework implies quantum-holographic feedback influence of the EM field of acupuncture system / consciousness on the cellular conformational enzyme(s) changes and expression of genes (so called *macroscopic 'downward causation'*), and not only reversed (*microscopic 'upward causation'*), with mutual quantum-informational control of ontogenesis / embryogenesis and morphogenesis (via changes in density of enzyme(s) conformational states, within the occupational bases of conformational states of the corresponding enzyme(s) involved, like in Fig. 1), starting from the first fertilized cell division which initializes differentiation of the acupuncture system of (electrical synaptic) *'gap-junctions'* [6,7,14,15,46-48,60]. To be more specific, since all successive biochemical reactions are functionally interconnected, so are the successive HQHNNs in bioinformational framework within the corresponding enzymes occupational bases – which may be presented in the form of Haken's multi-level synergetic neural network, composed of layers of successive HQHNNs. In such bioinformational framework of Haken's multi-level synergetic neural network, each of the successive HQHNNs layers, representing corresponding intra-cellular and extra-cellular biochemical reactions, has a formal Hopfield-like mathematical structure in the form of (non-morphological / abstract) *'formal neurons'* massively inter-connected by *'formal connections'*, while the layers of HQHNNs would be mutually quantum-holographically coupled via their *'memory attractors'* (i.e. their quantum-holographic memory states, within the occupational bases of conformational states of the corresponding enzymes involved) [10]. Such a generallized bioinformational framework of Haken's multi-level synergetic neural network, representing corresponding intra-cellular and extra-cellular biochemical reactions, is in line with trends of

modelling hierarchical information processing in higher *cognitive processes* as well [14,15,27,30, 125].

It should be added, that quantum nature of water (and its fundamental quantum-informational nature as Hopfield-like quantum-holographic neural network), with its numerous memory attractors, might also mediate in coupling quantum-informational intra-cellular and extra-cellular biochemical reactions (this being the possible quantum-informational basis of homeopathy [61,62] and some intriguing field-mediated genetic experiments [63,64]; on some other proposed field-related phenomena of biological water see refs. [65-69]).

ON QUANTUM-HOLOGRAPHIC BASES AND FRONTIERS OF INTEGRATIVE MEDICINE AND TRANSPERSONAL PSYCHOLOGY: EPISTEMOLOGICAL AND SPIRITUAL IMPLICATIONS

Mentioned *quantum-holographic picture* implies that quantum-holographic hierarchical parts carry information about the whole (which resembles the Hindu relationship *Brahman / Atman*, as a whole and the part which contains information about the whole [96-98], allowing subtle *quantum-informational coupling of various hierarchical levels* in Nature [123-127,146, 147], which is supported by *acupuncture system and its projection zones* (ECIWO holographic concept [54]) and the discovery of *quantum-holographic influence of verbal communication on the expression of cell genome* (by voice-modulation of irradiating-laser beams [64]), as well as the *origin of the amazing creativities* (Tesla and Mozart as 'case studies' [148,149]) and *predestinated life paths and temptations* (as indicated by the contemporary experiences of hypnoregressions [110] sa well as experiences of tribal traditions [91-95] and traditions of East [96-100] and West [101-104], while still emphasizing that it is *possible to optimize them by spiritual purification* [87-117])).

In this context, *despite the deterministic evolution of the quantum-holographic Hopfield-like neural network of collective consciousness* (as there is no out-of-cosmic environment that triggers the non-unitary collapse of the quantum-coherent state of the field-related cosmic collective consciousness and complementary 'particle' cosmic environment) [7-9,12-19], the *memory attractors of the collective consciousness could still be reprogrammed by merciful prayer for ourselves and the others*, by eliminating inter-personal loads of collective consciousness *– probably via the spiritually-excited macro-quantum portions of vital energy* (similarly to mental-channeled Ayurvedic, Qigong and Reiki experiences of local and transpersonal healings [77-80, 87,88]) in the *prayer-related persons*, as *indeterministic intervention in the quantum-holographic evolution of collective consciousness* (and complementary incoming individual and collective events), thus (non-unitary) setting necessary *new boundary conditions* [7-9,12-19]. That leaves the most room for *free will and influence on future preferences* – implying that *role of each individual* becomes *indispensable* due to the influence and care for *collective mental environment and social well-being*.

Bearing also in mind the possibility and *effectiveness of transpersonal circular meridian (psycho / energy) therapeutic processes*, i.e. *from all relevant mentally-addressed meta- positions of other persons who participate in the treated trauma* [72], this implies that all these interactions of the trauma-related persons are of the *quantum-gravitational nature*, via miniature *'wormhole' space-time tunnels* (generated in accordance with very general Einstein's *Principle of equivalence* of inertial and gravitational accelerations [150]) in the *highly-noninertial transitional states of*

consciousness of trauma-related persons [6-9,11-17,19] (i.e. *'silver cords' of vital energy, extra-sensory observable in altered states of consciousness between heart, stomach or the throat chakras of the related persons*; in *Afro-Haitian voodoo tradition the 'silver cord' between the operator and the victim is deliberately created by visualization*, while in the *Hawaiian ho'oponopono tradition the 'silver cord' is cut by visualization in order to remove the traumatic emotional connection* – which otherwise *naturally exists* between mother and child, and is *spontaneously formed by intense exchange of vital energy* among relatives, close associates, current and former lovers, friends and enemies, whereby it can also survive *post mortem* between the living and the deceased [7,12-17]). Thus, our theoretical considerations suggest the *real nature of transpersonal experiences* of various spiritual traditions [41,55,76,117-119,137], substantiated by *accumulated phenomenological evidences and laboratory and clinical studies* [2,4,37,64,72,115,116,127-136, 138-143,148-150], and even *practically incorporated* in contemporary acupuncture-based & consciousness-based holistic approaches and techniques of *quantum-informational medicine* [7,12-16,87-114].

In this context, *association of individual consciousness with manifestly-macroscopic-quantum acupuncture system*, by *applying* the methods of *associative neural networks, quantum neural holography*, and *quantum decoherence theory*, suggests *two modes of knowledge*, according to the coupling strength consciousness-body-environment [12-19]: *weakly-coupled quantum-coherent direct mode* (in the *out-of-body* spiritual / creative *transitional and altered states of consciousness*, like prayer, meditation, daydreams, lucid dreams...) & *strongly-coupled classically-reduced indirect mode* (in *bodily* perceptively / rationally mediated *normal states of consciousness*, like sensory perception, logic and scientific reasoning...) – with *conditions of mutual transformation*. This explains the *generally poor informational rationalization* of direct quantum-holographic spiritual / religious *mystical experience* (as the problem of quantum theory of measurement, related to the reduction of the implicate order of the quantum-coherent (quantum-holographic) superposition of states into the explicate order of measuring classically-reduced states [12-19]) – which is close to the experiences of numerous *shamanistic tribal traditions*, with beliefs that the *genuine* (quantum-holographic) reality is represented by *dreams* [127], and that (classically-reduced) waking state is lie / illusion (*maya*, as stated in the *traditions of the East* [96-98]).

In addition, the necessity of direct quantum-holographic coupling of individual and cosmic collective consciousness in an observation of the implicate order needs weak out-of-body quantum-communication coupling consciousness-environment, i.e. previous *reprogramming of all psychosomatic loads* (cleansing of the possessive or hedonistic emotional-mental sinful / karmic connections with world – which as loading *'mental addresses'* would give rise to quantum projections of mentally-channelled tunnelled consciousness upon the out-of-body environment, and thus to classically-reduced *out-of-body extrasensory observing* of the mentally-addressed environment) – and in this context the efforts of mystics of all traditions to *purify consciousness / soul via spiritual practice* (prayer, meditation...) and thus to reach their *final eschatological goal* (Kingdom of God, nirvana…), i.e. *post-mortem salvation of soul* (non-bounded sin-free / karmic-free) by *re-union* (*re-ligare / yoga*) with the *supreme God* [96-98,102] appear reasonable.

It still *leaves room for personal love*, whose highest manifestation is ability and readiness *for permanent and unconditioned forgiving* (to loving person, and because of him / her to everybody else, including enemies), in prayer and (subtly related quantum-holographic) living practice; the same refers to love for relatives and friends [6,7,12-17].

ON WIDER PSYCHOSOMATIC, EPISTEMOLOGICAL AND SPIRITUAL IMPLICATIONS AND CONCLUSIONS

From rational-empirical viewpoint, this paper includes all *three essential aspects* that must be in the focus of any *comparative study* of science and spirituality: **(A)** *utility of psychosomatic and spiritual practices* of tribal traditions, meditation practices of the East, and prayer practices of the West, in healing or the salvation of souls; **(B)** *epistemology of two modes of knowledge*, direct-mystical and indirect-rational; and **(C)** *phenomenology of transpersonal communications*, mystical, near-death, out-of-body, and extrasensory experiences.

(A) Utility of psychosomatic and spiritual practices. Our quantum-holographic framework of integrative medicine and transpersonal psychology provides better understanding of the *nature of psychosomatic diseases* as well as *limitations of their prevention and healing methods*, which might help in *developing further strategies for psychosomatic integrative medicine*, with all holistic acupuncture-based & consciousness-based approaches and techniques treated as *quantum-informational therapies*, by *imposing new healing boundary conditions in the energy-state space* of EM quantum-field-related *acupuncture system / (individual and collective) consciousness* – suggesting that there are *three front lines of psychosomatic integrative medicine* [7,8,12-16,20]: (i) *spirituality and circular (psycho / energy) therapies* from all relevant meta-positions, with the possibility of a potential permanent removal of mutual memory attractors on the level of collective consciousness, (ii) *(quantum) holistic medicine and non-circular (psycho / energy) therapies*, which temporarily remove the memory attractors on the level of the acupuncture system / individual consciousness and prevent or alleviate their somatization, as a result of negligence on the first level, (iii) *symptomatic conventional medicine*, which via immunology, pharmacology, biomedical diagnostics and surgery at the physical level prevents or alleviates somatic consequences of carelessness on the first two levels.

It should be noted that the *necessary activities* in the second and third levels, with *neglect of the first level*, would result in *further transfer of memory attractors* on the level of individual & collective consciousness in this and future generations, thus *accumulating quantum-holographic nonlocal loads* that cause then not only diseases but also interpersonal conflicts, wars and other sufferings! Thus civilization, via *synthesis* of scientific knowledge in the field of *consciousness* and millennia experiences of the *spiritual traditions*, could contribute that new millennium would be characterized by *wisdom* [16,23-26]. Decisive role in this process could play all *religious communities*, *cultivating* a true *spiritual moral* and absolute (not declarative, as so far in history) inter-personal, inter-ethnic and inter-religious *tolerance*, as a measure of individual behavior from the *perspective of death*, i.e. amount of generated and non-reprogrammed psychosomatic conflicts until death, which determines the *spiritual evolution* of the soul of the deceased as well as the *preferences* of the individual and / or collective future of the descendants – that can be *significantly altered* only via *collective prayer* for ourselves, our neighbors and enemies, and consequently *global reprogramming of collective consciousness*.

(B) Epistemology of two modes of knowledge. Our quantum-holographic framework of integrative medicine & transpersonal psychology also provides better understanding of the *two modes of knowledge*, according to the coupling strength mind-body-environment [12-19]: (i) *weakly-coupled* quantum-coherent *spiritual / creative direct mode* (in altered and transitional states of consciousness), and (ii) *strongly-coupled* classically-reduced *perceptual / rational indirect mode* (in normal states of consciousness) – and *conditions of mutual transformation*, with significant epistemological / spiritual implications. This explains *generally poor informational rationalization*

of direct quantum-holographic spiritual / religious *mystical experience* (as the problem of quantum theory of measurement, related to the reduction of the implicate order of the quantum-coherent (quantum-holographic) superposition of states into the explicate order of measuring classically-reduced states [12-19]). And can help us realize that all our *partial rationalizations* (classically-reduced mappings!) are still only an approximation of *fundamental holistic reality* (quantum-holographic territory!) – and that all *divisions are tragic mis-understanding* of spiritually immature (historical) epoch of civilization (because, map is not the territory!) [16,23-26].

So *science is closing the circle, by re-discovering two different modes of knowledge* and at the same time setting its *own epistemological limitations* – as it was preserved for millennia in *shamanistic tribal traditions* [92-95], or as it was concisely described by *Patanjali in Yoga Sutras* more than two millennia ago [96-98], pointing out that mystical experience (samadhi) is 'filled with truth' and that it is 'above inference and the scriptures', or as this difference between faith and cognition was formulated at the beginning of the last century by *Berdyaev in Philosophy of Freedom* as the difference of two modes of knowledge [101], prayer-mediated 'comprehension of the affairs invisible' and rationally-mediated 'comprehension of the affairs visible'! This is in line with scientific re-awakened interest in the phenomenon of consciousness, with indications of the appearance of the *grand synthesis of two modes of knowledge* – where the *role of each individual* becomes *indispensable* due to the influence and care for *collective mental environment and social well-being*, which is a *fundamental issue* of both spiritual and civil morality [16,23-26].

(C) Phenomenology of transpersonal communications. Our quantum-holographic framework of integrative medicine & transpersonal psychology also suggests the *real nature of transpersonal experiences* of various spiritual traditions [41,55,76,117-119,137], substantiated by *accumulated phenomenological evidences* and *laboratory and clinical studies* [2,4,37,64,72,115, 116,127-136,138-143,148-150], and even *practically incorporated* in contemporary acupuncture-based & consciousness-based *quantum-informational medicine* [7,12-16,87-114]. In these lines, *transpersonal experiences could be of quantum-gravitational nature* in space-time transcending highly-noninertial *transitional states of consciousness* [8,9,12-17,19] (from high-dielectric bodily into low-dielectric out-of-body states!) *locally equivalent-to-strong-gravitation* (according to very general Einstein's *Principle of equivalence* of inertial and gravitational accelerations!) manifested by *locally generated 'wormhole' space-time tunnels* (stabilized by so called *exotic matter* (vacuum fluctuations in strongly curved space-time of 'wormhole' tunnels [152]) with *anti-gravity effects* (indeed observed in *transpersonal psychokinetic manifestations* of vital energy [13,76,96,99,100, 126,131,150]!)).

Then *transpersonally-extended esoteric concepts* of various spiritual traditions of East and West could be biophysically accounted within our plausibly generalized *quantum-holographic / quantum-gravitational framework* [8,9,12-17,19]: (i) *astral body* (*manomaya, lingasarira, manovijnana, ka, psyche, nephesh, nafs, subtle body, psychic body, soul*...) [96,97,102,118] **vs.** *ionic component of the out-of-body displaceable EM-ionic macro-quantum acupuncture system* (*connected with the body by miniature 'wormhole' space-time tunnel, generated in the highly-noninertial transitional states of consciousness, as frequently observed in extrasensory near-death experiences*) [6-9,12-17,19]; (ii) *mental body* (*vijnanamaya, suksmasarira, manas, ba, thymos, ruach, ruh, noetic body, spiritual body, mind*...) [96,97,102,118] **vs.** *EM component of the out-of-body displaceable EM-ionic macro-quantum acupuncture system* (embedded within *ionic component of the out-of-body displaceable EM-ionic macro-quantum acupuncture system*) [6-9,12-17,19]; (iii) *distributed centers of consciousness* (*chakras, acupuncture points, sephiroths, holy discs*...) [96,97,102,118,119] **vs.** *EM-ionic condensations* in the *structured out-of-body displaceable EM-*

ionic macro-quantum acupuncture system [6-9,12-17,19]; (iv) *vital energy* (*chi / qi / ki, prana / akasha, mana, ka, pneuma / ether / natura medica / anima mundi, yesod, baraka, the Holy Spirit / Uncreated Light, bioenergy / biofield...*) [96,97,102,118,119] **vs.** *EM-ionic-exotic macro-quantum condensates* (*unstructured / structured, virtual / real* [8,69]) *within acupuncture channels* (with possible *generalization* from the *EM field* to the *unified field*, in line with the *broader traditional meaning* of vital energy, as all-pervasive cosmic quintessence) [6-9,12-17, 19,119]. Additionally, if put in the *theoretical context of the holographic principle* [151], according to which any 3D physical system is *isomorphic* to the holographic information embedded on its 2D surface, then *quantum-holographic informational content of a body* could also be contained in *corresponding surface layer of vital energy of the astral-mental body (aura)*, as has been stated in various traditions of East and West [96,97,102,118,119].

In conclusion, everything considered and discussed above might be of fundamental importance in understanding underlying *macroscopic quantum-informational Hopfield-like holographic* acupuncture system / (individual and collective) consciousness *EM field-related biofeedback control mechanisms* of embryogenesis / ontogenesis and morphogenesis via *downward influence on the expression of genes* [7,8,12-16,20,144,145] – shedding new light on the *long standing open problems* of the acupuncture system & consciousness as well. It also indicates the *full significance of holistic education and behavior* – demonstrating ultimate necessity of *redefining the global educational / informational / political goals*, with the shift towards *holistic gentle actions for global solutions of the world risk society* [23-26]!

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150. It should be emphasized that many *transpersonal phenomena* related to *consciousness and psychosomatic bioenergy-correction* are phenomenologically well documented, and that their physical explanation should be sought on the very border of the current *scientific paradigm*; in the framework of our plausibly generalized *quantum-holographic / quantum-gravitational theoretical framework of consciousness and psychosomatics* they are of *quantum-gravitational* nature *in the space-time transcending highly-noninertial transitional states of consciousness* [8,9,12-17,19] *(from high-dielectric bodily into low-dielectric out-of-body states!)* equivalent-to-strong-gravitation *(according to very general Einstein's Principle of equivalence of inertial and gravitational accelerations!)* manifested by locally generated 'wormhole' space-time tunnels (stabilized by so called *exotic matter* (vacuum fluctuations in strongly curved space-time of 'wormhole' tunnels [152]) with *anti-gravity effects* – indeed observed in *transpersonal psychokinetic manifestations of vital energy* [13,76, 96,99,100,126,131], see also http://www.youtube.com/watch?v=faUJAgvvV_c). The same theoretical framework also suggests a physical basis for ad hoc *von Neumann's projection postulate* (on micro-quantum scale), to explain the quantum-mechanical *wave function collapse* (via local quantum-gravitationally-induced 'wormhole' tunnels in highly-noninertial quantum-measurement-like situations equivalent-to-strong-gravitation (in accordance with Einstein's *Principle of equivalence!*); the question of how it is possible that these highly-noninertial microparticle processes with inevitable opening of miniature 'wormhole' tunnels were not taken into account within quantum mechanics which is nevertheless extremely accurate theory(?!) – can be answered as they were(!?) but *implicitly* in the framework of von Neumann's projection postulate (which is on the deeper quantum-gravitational-level!?) [8,9,12-17,19]; on the other hand their macroscopically accumulated anti-gravitational imprint might possibly be observable on cosmological scale (or have been already detected(?!) by recent advances in the cosmological tests, which invite again Einstein's cosmological constant and related concept of hypothetical dark energy or quintessence which permeates all of space and tends to accelerate the expansion of the universe [153]; finally, it should be added that so called gravity / gauge theory correspondence in string theory suggests that quantum-gravitational traces of miniature 'wormholes' are present even within ordinary quantum-field theory, as *any* quantum entangled system (i.e. Einstein-Podolsky-Rosen correlated quantum pair) is connected by some sort of miniature (non-traversable) 'wormhole' (i.e. quantum-gravitational Einstein-Rosen bridge) [154]; (as stated previously, its possible traversability in cosmological conditions was subject of ref. [152]).
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METHODOLOGICAL APPROACHES TO THE PSYCHOLOGICAL ANALYSIS OF IDEAS OF ANTI-RUSSISM IN UKRAINE – TRAUMA AND TRANS-GENERATION TRANSMISSION

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Abstract. In Soviet and Russian psychology, interethnic relationships have been for rather long time considered from perspective of such illusory concept as "internationalism", and then, after 1991, from perspective of "tolerance". These approaches seem to be just an attempt to disguise the problem or avoid its scientific research and analysis. In area of interethnic relationships, this lack of socio-psychological forecasting became especially obvious in post-Soviet time and was expressed most prominently in Russian-Ukrainian conflict. That is why it is appropriate to reconsider the main psychological concepts relevant to the problem of interethnic relationships. Author considers it from the position of some modern psychological and psychoanalytic concepts.

Keywords: *Aggression, Brainwashing, Ethnic Conflict, Crisis, Identification, Narcissism of Minor Differences, Psychic Trauma, Psychohistory, Psycho-Politics, Trans-Generation Transmission, Understanding Psychology*

In Soviet and Russian psychology, interethnic relationships have been for rather long time considered from perspective of such illusory concept as "internationalism", and then, after 1991, from perspective of "tolerance". These approaches seem to be just an attempt to disguise the problem or avoid its scientific research and analysis. In area of interethnic relationships, this lack of socio-psychological forecasting became especially obvious in post-Soviet time and was expressed most prominently in Russian-Ukrainian conflict. That is why it is appropriate to reconsider the main psychological concepts relevant to the problem of interethnic relationships.

To begin with, I would like to outline psychological and psychoanalytic concepts I used as a basis of this paper. First of all, it is understanding psychology, founded by Wilhelm Dilthey, Karl Jaspers and others. Let me remind you the main idea expressed by Dilthey: "We explain nature, we understand mental life». Or, even more correctly, we try to understand it. Ideas, developed by Jaspers, are also important for my train of thought, such as: "individual is what he is because of specific historic, not just generally human, basis"; "psychic life is unthinkable without traditions which one gets through his community", "nothing is forgotten in the area of inherited connections" [1].

The second concept is Freud's psychoanalysis [2,3], in particular, concept of identification. According to Freud, "identification is the initial form of emotional connection" with individual's father, mother, kin, tribe and people. The next concept is trans-generational transmission, it is also a psychoanalytic idea developed by Anna Freud and Dorothy Burlingham [4]. In a few words, after tragic events children of survivors develop deeper identification with their parents and manifest symptoms related to parental psychic contents and to the past in general, which they did not and could not witness.

In result of massive psychic trauma caused by a hostile large group, thousands or even millions of individuals deposit their traumatized images into their children. It leads to a cumulative effect, which determines psychic content of the large group's identity. Shared task of the traumatized society could differ from generation to generation [5]. For instance, for one generation the task is to mourn the ancestors' trauma, to feel shame and to be aware of their sacrifice. For the next generation, shared task might be revenge for these losses, and these versions are not the only possible ones.

Returning to Freud, we should mention his idea that contrasting individual and group psychic phenomena is ungrounded and "loses a great deal of its sharpness when it is examined more closely", so that individual psychology is "at the same time social psychology as well". Freud adds that it is important to view human beings not only as separate people but also as members "of a race, of a nation, of a caste, of a profession" [2,3].

In my works [6-8] I have repeatedly mentioned and elaborated Professor Vamik Volkan's idea that interethnic conflicts develop like paranoia [9] because the main psychic mechanisms manifested in all interethnic conflicts are projection and projective identification; their essence of which could be formulated as following: "It is not true that I victimize and hate X, but he victimizes and hates me". Let me add that in many cases such paranoia is manifested by both sides of international conflict.

We also need to pay attention to specific factors, which are usually neglected by academic science and which could be called "predictors". These factors have become more vivid in the last 15 years, when in addition to traditional for the USSR jokes about Jews or Armenians with their subtle irony, jokes about Russian-Ukrainian and Russian-Baltic issues have become wide-spread in Russian society, and their emotional content was different (humiliating and devaluing).

Another psychological factor of interethnic relationships is so-called "narcissism of minor differences" [3]. Its essence is the following: "If somebody is almost like me, but a bit different in language, traditions and customs, I perceive it as a caricature at me, which provokes my negative feelings". This mechanism is manifested in relationships between historically close nations, such as British and Irish people, Jews and Arabs, Russians and Ukrainians.

After this short introduction let us attempt to interpret contemporary events in Ukraine, starting with psycho-historic analysis.

Ukrainian people fought for their national identity and independence for many centuries. In this paper we take the span of the last 3-4 centuries. In the XVII century most part of Ukrainian population was under Polish rule. When we speak about history, we cannot overlook such an outstanding person as Bohdan Khmelnytsky. In 1647 he was elected Hetman (that is, the head) of Zaporozhian Army (military and political organization of Cossacks serving the Kingdom of Poland) and received the charter from Polish King. Immediately after that, in 1648, he initiated a war against Poland, first for Cossacks autonomy, and then for independent Cossack Ukraine "up to Lviv and Halych". The war lasted five years without much success.

After five years of war, Khmelnytsky asked Russian Tsar Alexei Mikhailovich for help and in exchange promised him to incorporate *Rus'* (that is, Zaporozhian lands and annexed Polish lands with cities and troops) into Russia. In 1654 this proposal was accepted, and Cossacks accepted Russian over-lordship. It should be mentioned that this decision did not receive nation-wide support. In Kiev, Orthodox priests refused to swear allegiance to Russian Tsar, and many citizens and Cossacks were forced to do it. Bohdan Khmelnytsky was condemned as a traitor of Ukrainian people, and there were anti-Russian uprisings. However, after that Ukraine and Russia waged war against Poland together. The power balance changed, and the victory was close.

Why couldn't they incorporate all Ukrainian lands into Russia? Poland was also exhausted by this war. Swedish King Karl X Gustav intended to use this situation and attacked Poland from the North (in 1655), but to strengthen Sweden was not in Russia's interests. Russia immediately concluded a peace treaty with Poland, and Sweden was attacked by joint Russian, Ukrainian and Polish troops. In result of this war, Left-Bank Ukraine was formed and became a

part of Russia. Western lands stayed under Polish rule. *Ukrainians became a divided nation, different segments of which developed different historical memories and perspectives.*

We need to remember that Russian Empire did not have national subdivisions; it was divided into provinces, one of which was Kiev Province. After revolution in 1917 Russia established new subdivisions, first regions, and then, in 1922, fifteen national republics of the USSR. Borders of national republics were not important and were assigned just in view of political goals.

For instance, population of Kiev Province consisted mostly of peasants, who were perceived as unreliable by Soviet power; it led to a decision to strengthen Ukrainian Republic by "working class". For this purpose, a number of Russian industrial regions were assigned to Soviet Ukraine by just a scrape of pen; they included contemporary Donetsk and Lugansk regions with their Russian population. It didn't have any significance in totalitarian state.

At about the same time (1932-1933) massive starvation took place in some regions of the USSR; in the last decades, Ukrainian media have actively propagated the idea that it was an intentional pre-planned genocide of Ukrainian people (*Holodomor*, hunger-extermination). However, there was the same disastrous situation with food supplies at that time in such regions as North Caucasus, Povolzhye, Kazakhstan and others, population of which suffered the same starvation, which was not selectively anti-Russian, anti-Ukrainian, anti-Kazakh and so on. It should be mentioned that the United Nations investigation, initiated by Ukraine and carried out in 2008, did not confirm that it was genocide of Ukrainian people. However, Ukrainian media go on expanding on this topic, thus increasing interethnic tension.

Let us remember that contemporary Western Ukraine for many centuries was under Polish, Lithuanian or Austrian-Hungarian rule. There was permanent fight for national liberation in these lands.

However, in 1939, in accordance with Molotov-Ribbentrop Pact, a part of this land (which belonged to Poland but was populated by Ukrainians) was incorporated into Soviet Ukraine; more correctly to say, into the USSR in general. Western Ukrainians could hardly perceive it as liberation or re-union with their people. For them, it was just the next occupation which followed the previous one. Stalin's regime was at the peak of its cruelty then. Soviet power was imposed upon Western Ukrainians, peasants were robbed of their land and cattle, businessmen of their possessions, and dissidents were arrested and executed. Importantly, after their long history of being colonized, Ukrainians still did not own their historical land.

Officials of Nazi Germany were not stupid indeed. When in 1941 Western Ukraine was occupied by Nazis, they declared that Ukrainian people were the main owners of their historical land. So, Germany secured its rear, and Western Ukrainians acquired hope for independence. While occupied by Nazis, Western Ukrainians established their administration, police and the SS division, and after a few centuries of colonization and humiliation they started their violent revenge upon Jews, Poles and Russians; pogroms, gallows and shootings became common practice.

It is natural that for us, Russians and Eastern Ukrainians, everybody collaborating with fascists was, and will always be, an enemy. We lost 28 million of our compatriots during that war. But population of Western Ukraine hated the Soviet power and Russians, and the majority of people supported Nazis and Nazi collaborators. We call them "banderovtsi", but for Western Ukrainians they were fighters for freedom and independence, like Stepan Bandera himself.

In 1944 the Soviet Army came back to Western Ukraine, and, which was natural for that time, started persecuting Ukrainian nationalists as Nazi collaborators, enemies and traitors. It was liberating anti-fascist war for us, but for them it was just the next occupation.

The Second World War ended in 1945, but fight against Ukrainian nationalists continued till 1953. According to different sources, each of the sides lost 60 to 90 thousand people. About 100 thousand were arrested and deported. There were public executions, shooting or gallows and other methods of so-called "Soviet correction", which were not openly discussed by public. However, families of murdered "banderovtsi" remembered these events and spoke about them, transmitting this memory from generation to generation. That is why their children and grandchildren have a different historical memory and different attitude to fascism and to Russia. Let me remind you that we are speaking about only a segment of Ukrainian population.

This segment, however, should be understood and accepted as something which exists in reality and cannot be quickly changed. But these people, whose worldview is strange for us, should also understand that we, Russians and South-Eastern Ukrainians (who are ethnic Russians, Ukrainians or representatives of other nationalities) have a different historical memory, too. They should also learn to understand and accept it.

To summarize: anti-Russian attitude in a segment of Ukrainian population has existed for centuries and has been repeatedly activated. Its external manifestations have been suppressed, but this fact could not influence intergenerational transmission mechanisms. Let us remember the statement quoted in the introduction: "Nothing is forgotten in area of inherited connections".

Let us turn to current events. When in 1991 Ukraine separated from the USSR and became an independent state, there was another event which went unnoticed. Time ago, Lugansk and Donetsk regions, as well as Crimea, which were populated mostly by Russians, were assigned to Ukraine. It was not important in the USSR because it was the united country. But after events of 1991 (dissolution of the USSR), Russians became a divided nation.

I am not going to analyze political situation in Ukraine now. I will only mention that Ukrainian national elite shamelessly robbed the Ukrainian people in 1990s. The same situation in 1990s was in Russia, but in Ukraine its scale was unprecedented. Social crisis in Ukraine was inevitable, but to some degree it was compensated by ongoing protests ("orange revolution" and others), which let off the steam but did not resolve the main problems.

In November 2013 the most powerful national protest movement started, which had been imminent for rather long time and which was directed against corruption, against the President ruling at that time and against the power of oligarchs. It should be emphasized that from November 2013 to February 2014 this explosion of hatred and civil unrest was directed exclusively against corruption and against the President and oligarchs. The additional factor was hesitant position of oligarchs in Ukrainian government on issue of association with the EU; it was one more stimulus for anti-oligarchic and anti-governmental mood.

In February 2014, when there was no problem with Crimea or Eastern Ukraine yet, the protest movement in just a few days became exclusively anti-Russian, and all other problems (including anti-oligarchic protest) simply disappeared from Ukrainian informational space. It should be mentioned that almost all media in Ukraine belong to oligarchs. In this case it is possible to suggest that there was re-direction of aggression by methods of brainwashing. Considering the fact that a segment of Ukrainian population has always had anti-Russian attitude, it was not a difficult task.

It is rather strange that this anti-oligarchic revolution in Ukraine led to paradoxical results: another oligarch was elected the President instead of the previous one, and a few more oligarchs were assigned as new governors.

Returning to chronology of events, let us stress that by February 2014 there was no separatism in any Ukrainian region. I would formulate the following hypothesis of how and why this separatism appeared. On February 23, 2014 (by the way, February 23 is the Russian Army Day) a legislative proposal was submitted to Rada (Ukrainian Parliament), aiming at abolishing Russian language as the second state language. This situation lasted for one week, and then the proposal was turned down. But for majority of people in Crimea and Eastern Ukraine Russian language is their mother tongue and the only language they could speak. That is why even an attempt of such abolishment led to vigorous protest.

National language is one of the main factors of national identification. Destruction of a national language is similar to destruction of a nation; in psychoanalytic terms, it is an equivalent of castration. In result of this attempt, another protest movement started in Russian-speaking regions of Ukraine; at first, its participants required federalization and autonomy inside Ukraine.

People of Eastern regions who did not carry out any attacks or explosions or shootings were condemned as separatists and terrorists, and nationalist militant brigades were sent to suppress them and later were supported by regular troops. I would like to repeat that they did not attack anyone and did not leave their region at all. But after the first shootings and first murders a different psychological mechanism was triggered, and the situation started to develop like a real paranoia.

Additional factors included the former oligarchic President's flight to Russia, referendum and separation of Crimea, humanitarian help from Russia to self-declared republics, Russian volunteers among irregular brigades in Lugansk and Donetsk – all these factors have increased anti-Russian attitude[15].

On the other hand, although I do not know how wide-spread these events are, but there are some worrying slogans like "Ukraine above all" (the exact copy of Nazi slogan "Deutschland über alles"), torchlight processions, fascist symbols (swastikas) on posters and military uniforms and rebirth of nationalism. They create additional reasons for mutual misunderstanding and escalation of the situation. All these manifestations of neo-Nazism and nationalism take place with the connivance of official authorities.

In general, it could be stated that at the moment there are two protest movements in Ukraine which have some similarities and some significant differences.

1. Similarities.

In both cases, in Kiev and in Eastern Ukraine there were massive protest movements and forceful assumption of power (in both cases, by illegitimate means).

2. Differences.

New Kiev power actually sent a message to Eastern regions: "You have to disown your historical memory, forget your personal and family history, sacrifices of your fathers and grandfathers and heroes you honored, and after that you should live, think and perceive everything like we do and in our language, including approving SS veterans processions and bringing flowers to Stepan Bandera's monuments". In my opinion, it is imposed slavery. And at

[15] Since March 2014, the Ukrainian media impose the idea that Russian regular troops including tank battalions have invaded Donetsk and Lugansk regions, but there have been no proof of this fact. Considering advanced technologies of satellite surveillance with video observation and photographic survey, if there was at least indirect proof, is would be immediately spread by all world media.

the same time, it is revenge, because Western Ukrainians were forced to learn other people's history and to honor other people's heroes for decades. Revenge is an explanation to "Fall of Lenin" phenomenon (destruction of Lenin monuments) and desecration of graves and monuments of WWII heroes.

New leaders of Eastern regions declared: "We want to protect our historical memory, to live and think the way we want, to honor our fathers and grandfathers and our national heroes. But we won't prevent you from living the way you want". For some reasons, the Western world perceives new Kiev power as rebels, and rebels of Eastern regions as terrorists.

If a few thousand Russian-speakers came to Germany or the UK or a Western Ukrainian city, they would have to learn German or English or Ukrainian. It would be their choice. But there are a few million people in Lugansk and Donetsk regions, who did not move there; they have always lived there on their historical lands and spoken their language. I believe, it gives them a right to have autonomy.

We all need to understand that it is impossible to force millions of people of one nation to consider themselves people of a different nation. We should strive for reconciliation and consensus. We need to mourn those who lost their lives and to forget or even bury our former hatred. But if we try to prove to each other who was a hero and who was not, there will be no peace at all, as minimum for 3-5 generations of our children and grandchildren. Do we want it?

In my opinion, there are two ways to deal with the situation: (1) we can try to understand and accept specifics of national history and national identification of Eastern and Western Ukrainians and facilitate their common striving for peace (2) or try to force one nation to live in accordance with other nation's worldview, but in this case escalation of conflict is inevitable. It is not a territorial problem, but rather a problem of different mentalities.

In conclusion, I would like to say a few words about another psychological phenomenon. Anniversaries of events are accompanied with memories of the past, both happy and tragic ones, and psycho-emotional state of individuals and large groups is characterized by regression to apparently forgotten experiences and reactions, which might become as intense as when they take place for the first time. In context of contemporary Ukrainian events, it is appropriate to remember the date of incorporation of Left-Bank Ukraine into Russia: it was in 1654 (360 years ago), and significant part of population as well as Kiev upper class perceived it as a betrayal of Ukrainian people by Bogdan Khmelnitsky, which led to anti-Russian uprisings. It was 75 years ago when Western Ukraine according to Molotov-Ribbentrop Pact (1939) was incorporated into the USSR. In 1944, 70 years ago, the Soviet Army returned to Western Ukraine and continued its victorious march; simultaneously, the fight against "banderovtsi" started, which lasted till 1953. Stepan Bandera escaped in a Western country where he was found and murdered by a Soviet agent; it was in 1959, that is, 55 years ago. Keeping in mind that nothing is forgotten in the area of inherited connections, and considering psychological mechanisms of intergenerational transmission, we should admit that contemporary national policy in Ukraine is to significant degree determined by its history, and a special role is played by population of Western Ukraine, including formation of new Ukrainian language based on Western Ukrainian dialect.

The same historical memory is typical for population of Baltic countries and some regions of Belarus as well as for some repressed and deported people in Caucasus, Crimea and Povolzhye. It should be mentioned that for long period of time "Soviet" and "Russian" were synonymous. Although Russian people suffered from Bolshevism and Stalinism not to less degree than others, their traumata are perceived as "intra-ethnic" (like intra-family) issue, while the abovementioned ethnic groups have much more complicated and internationally projected

dynamics as result of humiliation suffered in Soviet time. It is possible that these, not yet fully explored, phenomena have become the basis of anti-Russism, spread in post-Soviet space. Actually, all nations in post-Soviet countries, including Russia, as I have already argued in case of post-totalitarian states, can be classified as traumatized societies [2]. However, there are methods in contemporary psychology which allow to reduce tension in such situations and form more adequate mutual perceptions in hostile parties; these methods, called "peoples diplomacy", have been tested in different regions of the world [9]. But first of all, it is vital that military conflict should come to its end.

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STRESS AND TRAUMA IN THE 21th CENTURY

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Abstract. It has been noted that stress was the most widespread cause of illness in the 20th Century. Will the 21th Century turn into the age of trauma? The focal point of this paper is looking for the answers to this question and to see whether and how this could be avoided. The paper consists of three parts. In the first part we cover some of the most pressing problems of humanity today, such as overshoot and possible collapse of the global system of governance in the second part of the century. The second part of the paper is devoted to identifying the causes of the crisis and the search for its possible solutions. The third part proposes that in this period of time, we as a civilization stand at a historical crossroads, where one road leads to traumatic future and the other towards a quantum leap towards a great civilization.

Keywords: *Overshoot and Collapse, Short-Termism, Crisis of Perception, Ultimate Reality, Trans-Differentiation, Trans-Personal Consciousness, Quantum Leap.*

OVERSHOOT AND COLLAPSE

In May 2012, Jorgen Randers launched his book titled *2052 – A Global Forecast for the Next Forty Years*, at the WWF Annual Conference in Rotterdam. He closed his short presentation with the following statement [1]: „I am sad to be the messanger. I don`t like what I see. Please don`t shoot the messanger.“

What is the main message of „2052“? It is that humanity will not make a „soft landing“, but run into an *overshoot and collapse*! However, the collapse will not happen in the next forty years, but will happen, as Randers put it: „much later than most people think“. How much later? In his forcasts, the global temperature will rise for 2°C by 2050, and will peak at almost +3°C in 2080, when self-reinforced climate change will take hold. „ *2052* says that the world is on its path towards climate collapse in the second half of the 21st Century. It doesn`t happen before 2050, but it happens afterwards“, explained Randers. Until then, humanity will run into more problems of depletion, pollution, and rising costs for repairation of climate damage.

As we have seen, Jorgen Randers is refering to *overshoot and collapse*. What does it mean? To overshoot simply means excessive behavior. To overdo something. To go beyond the limits or constraints of any sort.

It has been discovered that there are three general causes of overshoot that can be found at any scale: growth, barrier to growth, delay in response [2].

In many cases, overshot does not cause big harm and can be corrected. However, it can be catastrophic if the damage is *irreversible*. What Randers was refering to is this kind of overshoot. This is the meaning of overshoot and collapse which is likely to occur in the 21st Century.

In order to understand Randers`s message better, we need to look at it from a wider perspective. Back in 1968 Aurellio Peccei inspired a meeting in Rome where thirty participants from various fields of expertise opened a discussion regarding the present and future predicaments of mankind. The outcome of this meeting was the inception of the Club of Rome whose purpose was to promote researches of the global system and its interdependent components – economic, political, natural and social.

In 1972. Donnella Meadows, Jorgen Randers, Dennis Meadows, William W. Behrens III and their team from MIT presented the first report to the Club of Rome titled *The Limits to Growth* [3]. Using the World 3 computer model which was based on J.W. Forrester`s reasearch on world dynamics, the team has analyzed five variables: world population, industrialization, pollution, food production and resource depletion. Based on assumptions that these variables grow exponentially, whereas technology and availability of resources have linear growth, they produced computer simulations with alternative scenarios. The study has shown that if human demands on Earth's ecosystems continue growing at the same rate as in the period from 1900 – 1972, we would overshoot the carrying capacity of our planet which would cause a major forced decline or even collapse. However, at that stage, the authors were optimistic and pointed out that overshoot could be avoided if smart global policies were applied without delay.

Since then, Donnella Meadows, Jorgen Randers and Dennis Meadows have twice updated their orginal work on limits to growth with the new data. The first update was published in 1992. This time, their main discovery was that humanity had already overshot the Earth`s carrying capacity. This was why they titled their first updated version *Beyond the Limits* [4]. However, the authors of the study were still optimistic because they believed that with the right measures humanity could reduce the demage of overshoot and still get back to sustainable territory. Their optimism was further reinforced with the fact that in the same year when *Beyond the Limits* was published, the world leaders gathered at the global summit on environment and development in Rio de Janeiro to tackle the enviornmental issues. However, their optimism vanished when they realised that not only that summit, but also the follow up conference Rio + 10 in Johannesburgh produced very poor results. Why? Because, as they had noticed, „they were almost paralyzed with a variety of ideological and economic disputes, and narrow national, corporate, or individual self-interests".

The second update appeared in 2004. That book was titled *Limits of Growth – The 30 – Year Update* [2]. In that report, Meadows and colegues brought to our attention the research of Mathis Wackernagel and his colegues who concluded that resource use had been, at that time, some 20 percent above the global carrying capacity, and that humanity had been last at sustainable levels in the 1980s. In spite all the efforts and positive developments, it was not only that the world was still in the overshoot mode, but the ecological footprint* of humanity was still further increasing.

As Donella Meadows, Dennis Meadows and Jorgen Randers have discovered, there are four generic ways in which a growing society can approach carrying capacity of the Earth ([2], p. 158):

- ***Continuous growth.*** *Society can grow without interruption as long as its limits are far away or a growing faster than the population.*
- ***Sigmoid growth.*** *It can level off smoothly below carrying capacity, in a behavior that ecologists call logistic, or S-shaped, or sigmoid growth.*
- ***Overshoot and oscilation.*** *It can overshoot its carrying capacity without doing massive and permanent damage. In that case ecological footprint would oscilate around the limit before leveling off. This behavior is called damped oscillation.*
- ***Overshoot and collapse.*** *It can overshoot the limits, with severe and permanent damage to the resource base. If that were to occur, the population and the economy would be forced to decline rapidly to achieve a new balance with the recently reduced carrying capacity at a much lower level.*

* Ecological footprint is defined by Wackernagel et al. as „the land area that would be required to provide the resources (grain, feed, wood, fish, and urban land.)"

As we have seen, overshoot and collapse is the most dangerous way in which a growing society can approach carrying capacity of the planet because it can create irreversable damage. And this is exactly the trajectory along which the humanity is moving. In his Roterdam address, Jorgen Randers said that on the social level it may cause huge migrations and breakdown of society as we know it.

Many other scientists share the same concern. For example, in 1992 about 1700 top world's scientists including most of the Nobel laureates in the sciences issued a statement titled *World's Scientists Warning to Humanity*. This is an extract from their statement [5]:

> *Human beings and the natural world are on a collision course. Human activities inflict harsh and often irreversible damage on the environment and on critical resources. If not checked, many of our current practices put at serious risk the future that we wish for human society and the plant and animal kingdoms, and may so alter the living world that it will be unable to sustain life in the manner that we know. Fundamental changes are urgent if we are to avoid the collision our present course will bring about...*
>
> *...We the undersigned, senior members of the world's scientific community, hereby warn all humanity of what lies ahead. A great change in our stewardship of the earth and the life on it is required, if vast human misery is to be avoided and our global home on this planet is not to be irretrievably mutilated.*

What is the mechanism which creates such irreversable changes? Why is this happening? The researches have found that it is the presence of the so called *erosion loops*. In systems terminology *positive feedback loops* accelerate changes and foster destabilization of a system. Erosion loops are said to be the worst kind of positive feedback loops. In their research, D. Meadows and his colegues have found many erosion loops in physical, biological and social systems. Many of them are incorporated in their World3 model. The authors illustrate how erosion loops may lead to breakdown of society in the following passage [6]:

> *When a country`s elite`s believes it is acceptible to have large differentials in well-being within their nation, they can use their power to produce big differences in income between themselves and most of the citizenry. This inequality can lead the middle classes to frustartion, anger, and protests. The disruption that results from protests may lead to repression. Exercising force isolates elites even farther from the masses and amplifies among the powerful the ethics and values that justify large gaps between them and the majority of the population. Income differentilas rise, anger and frustration grow, and this can call forth even more repression. Eventually there may be revolution or breakdown.*

The above illustration shows that humanity might be on collision course not only with the natural environment, but on the collision course with itself as well. It is evident that many societies are rapidly desintegrating, and that destructive conflicts at national and international level are on the rise. With the escalation of tension between world super-powers in their struggle for global dominance, the world peace is at serious threat. As it is well known, the destructive power in the world has reached unprecedented level. One TV analyst has shown this fact very vividly. He first dropped a marble into a dish. It produced a sharp, metalic sound. As he explained, the marble represented all the destructive power which had been used in World War 2. After that, he took a bag full of marbles and poured them into the same dish. It produced the sound simmilar to a machine gun. His final comment was that those marbles represented the present destructive power accumulated in the world.

SEARCH FOR SOLUTIONS

The day science begins to study non-physical phenomena, it will make more progress in one decade than in all the previous centuries of its existence.

Nikola Tesla

When it comes to reflecting on the state of the world and its future, one of the biggest threat is to fall into, what we might call, the *uninformed optimism/pesimism trap*. In our opinion, we must learn to distinguish between informed and uninformed optimism or pessimism. If uninformed, both optimism and pessimism are dangerous. Unimformed optimism is just wishful thinking in disguise.

All the historic data and the present trends clearly show that unless *fundamental changes* in human behavior and governance are made, there is really nothing to be optimistic about. In such case, optimism can only mean that humanity may continue with the same activities and expect different results. We consider that kind of optimism to be dangerous because it prevents us to see the world situation as it is and act proactively in order to make the necessary changes.

In fact, there are many reasons for pessimism. The most obvious one is that out of all the twelve scenarios explored by the World3 model, there is one which continuously persisists. That is the scenario „standard run", which can be understood as „business-as-usual". This scenario basically means that in spite all the signals and warnings nothing substantially changes. Instead of reducing the human ecological footprint, it grows even further. Instead of reducing the gap between rich and poor, it is also rapidly widening. This fact has encouraged Jorgen Randers to make predictions for the next 40 years. The original *Limits to Growth* and its updates did not make any predictions. They just explored different scenarios for the future.

With his latest book, Randers dared to make predictions. *These predictions are made on the so far proven assumption that the way decisions are made will remain unchanged.* Business will remain as usual, and as a consequence, collapse is unavoidable. As we have already seen, the collapse might happen even before that, as a result of possible destructive conflicts on a wider scale. And with collapse, there would be countless traumatic events. The 21st Century would then undoubtably turn into the age of trauma.

Must this happen? Can such a horrific scenario be prevented? Are there any reasons for optimism? We believe that if there are such reasons, we must look for them at deeper levels. At the heart of the problem. We must try to discover the *root cause* of the present crisis and find out what kind of interventions, and what kind of decisions and actions are necessary to take in order to make the turnaround and *really* get back to sustainble territory.

Jorgen Randers holds that the root cause of the crisis is, what he calls, *short-termism*. He argues that both capitalist system, and democratic society are based on *short-term thinking* and *decision making*. Based on the collected evidence and his understanding of the root cause of the crisis, his advice, particularly to the citizens of the rich world is as follows [7,8]:

- Have fewer children
- Reduce your CO_2 footprint
- Support strong government, and
- Build and pay for a complete clean energy infrastructure in the poor world

Randers puts special emphasis on the need for *stronger government with longer mandates.* He believes that solutions for most of the global problems already exist, but can not be

implemented in democracies because governments are not strong. He foresees that China will solve climate problems for the world through *centralized decision making and collective action*.

From our point of view, the search for solutions of the global crisis should not be limited only to questioning the existing economic and social systems. The depth and the scope of the crisis suggest that we need to go much deeper than that.

As we have seen, the researches have found the presence of many *erosion loops* which are said to be the feedback loops of worst kind. We propose that there is **ultimate erosion loop** which as we see it, drives all the other loops. The multitude erosion loops caused by man are just the offsprings of that one erosion loop, which can be described as following:

Inner disorder shapes behavior that creates outer disorder, which further reinforces the inner disorder.

Fritjof Capra, for example, holds that numerous manifestations of crisis are essentially different facets of one fundamental crisis, and that is the *crisis of perception*. From Capra`s perspective, for solution of the crisis we need a new „paradigm", or a new vision of reality. A fundamental change in our thoughts, perceptions and values. The shift from mechanistic to holistic conception of reality [9].

David Bohm, the reknown physicist and philosopher has a simmilar view [10]:

What I am proposing here is that man`s general way of thinking of the totality, i.e. His general world view is crucial for overal order of the human mind itself. If he thinks of the totality as constituted of independent fragments, then that is how his mind will tend to operate, but if he can include everything coherently and harmoniously in an overall whole that is undivided, unbroken, and without border (for every border is a division or break) then his mind will tend to move in a similar way, and from this will flow an orderly action within the whole... My suggestion is that a proper world view, appropriate for its time, is generally one of the basic factors that is essential for harmony in the individual and in society as a whole.

As we can see, paradigms shape perception, and perception molds behavior and actions. However, the fundamental question is: what shapes our paradigms? What determines our world view? We believe that the answer to this question may throw significant light on deeper understanding of the present worldly situation and the direction of the search for viable soultions.

Lik Kuen Tong, the founder of Field-Being philosophy, finds that world views are determined by our understanding of *the nature of the ultimate reality* [11,12].

According to Tong, in the final analyzes, the history of civilized thought, is simply a history of the dynamic opposition and mutual adaptation of *substantialist* and *non-substantialist* approach to ultimate reality. These approaches are grounded on different types of consciousness.

Substantialism is based on *phenomenological consciousness*. From this perspective, the ultimate reality is *substance* – some kind of entity like an atom. Some call it „the basic building block of the universe". Based on such understanding of the ultimate reality, the whole universe is just a collection of substantial entities – independent, self-identical, and isolated things. Tong finds that such a view leads to *idolatry of rigid identity*, which is the source of all ills and the global crisis.

Non-substantialism finds that ultimate reality is not substantial. In the extreme case, which might be called *nihilistic non-substantialim*, the ultimate reality is perceived as *emptiness*, which is the total negation of entitivity. If percieved as emptiness, at the level of ultimate reality, nothing has self-identity and all distinctions are unreal. Nihilistic non-substantialism is based on *meditative, or pure consciousness.*

Mutual adaptation of substantialism and nihilistc non-substantialism can be achieved by maintaining a dialectical balance between them. The solution is to be found in what Tong calls the *"Middle-Way of Trans-differentiation"*, that is *differentiation but also interconnection of opposites* [11,12]. The ground for such a solution is *trans-finite or trans-personal conscousness*, which is the synthesis of meditative and phenomenological consciousness.

Now, these Tong`s notions give a sound explanation of the essence of traditional polarization between the Western and the Eastern modes of thought, and also give direction towards their mutual adaptation. Whereas, the mainstream of the Western school of thought has been predominantly founded on phenomenological consciousness, the pure or meditative consciousness has played the vital role in the East. However, the rise of all the great civilizations has been founded on transpersonal consciousness based on trans-differentiation.

Simmilarly, David Bohm turns our attention towards the main point of difference between the Western and the Eastern thought [10]. He finds that these two traditions essentially differ in their notions of measure. In the West, measure has always occupied the central position. However, in the Ancient Greece, when speaking about measure, they did not look at it in terms of comparison of an object with some external standard, as it is perceived nowdays. What they refered to was the *inner measure*. The proper inner measure of things has been understood as the *foundation of physical, mental and social health and well being.*

Bohm has pointed out that the English word health is derived from „hale", meaning „whole". The same is with the Hebrew word „shalom". The consequence of going beyond the proper inner measure was illness, or breaking into fragments. The Latin word „mederi" (to cure), which is the root of the modern medicine, is based on the root meaning „to measure".

As Bohm has noted, in the East, the notion of measure has not played such a fundamental role. Instead, the *immeasurable,* the *infinite,* has always been regarded as the fundamental realty. The world of phenomena has been looked upon as „maya", meaning „illusion". Why is the phenomenal world taken to be illusory? Because, from this perspective, it covers the fundamental reality which can not be perceived by senses or reason.

The way we see it, such a polariztion can only be resolved through trans-differentiation. That is by understanding that opposites are different, but also interconnected. Reality is both finite and infinite, immeasurable and measurable, unmanifested and manifested. Such dichotomies can be resolved at trans-finite, or trans-personal level of consciousness. We believe that this is not only the appropriate world view for this time, but also a proper ground for integration of two great scientific traditions: science of the East and science of the West.

Why do we need such integration? Because it would enable us to systematically map the whole field of knowledge and the whole spectrum of technologies which can be used not only as means for resolution of the present crisis, but also as a way to develop a *really* great civilization.

Fortunatelly, there have been numerous initiatives towards such an integration. The first step towards this aim was taken by Nikola Tesla and Swami Vivekananda. In 1895, Swami Vivekananda wrote a letter to an English friend, saying [13]:

> *„Mr. Tesla thinks he can demonstrate mathematically that force and matter are reducible to potential energy. I am to go and see him next week to get this new mathematical demonstration. In that case the Vedantic cosmoloqy will be placed on the surest of foundations. I am working a good deal now upon the cosmology and eschatology of the Vedanta. I clearly see their perfect union with modern science, and the elucidation of the one will be followed by that of the other." (Complete Works, Vol. V, Fifth Edition, 1347, p. 77).*

Swami Vivekananda was the first scientist from the Eastern school of thought that came to the West. Later, many of them followed. H.H. Maharishi Mahesh Yogi, who was educated in both Eastern and Western tradition, has been working on integration of Vedic science and Modern science. For that purpose, he has established reasearch centers and universities in many conutries. H.H. Dalai Lama has a regular dialogue with the leading scientists of the West from

various fields of expertise. His vision is integration of Buddhist science and Modern science. Lik Kuen Tong has developed a conceptual framework which has an interface orientation towards better mutual understanding in such dialogues.

The initiatives towards the integration of science have not come only from the East. Development of Spiral Dynamics by Graves and Don Beck, the Integral Operating System and the AQAL model by Ken Wilber, are only some of numerous examples which head towards this direction.

AT THE CROSSRORDS

It is clear that today we stand at the historical crossroads. One road leads to continuation of „business as usual", and unavoidable collapse. From our point of view, this can not be changed by government intervention. What is necessary to change are the programs at the level of collective subconscous which determine our behavior and keep history repeating itself [14,15].

The other road leads to the quantum leap towards the great civilization. The new renaisance, as Dino Karabeg likes to call it [16]. This other road is the road of infinite potentials based on an ongoing dialogue supported by information and knowledge sharing technologies, and utilization of the creative power of the collective mind.

We agree with Jorgen Randers that we must change the decision making process in order to make significant changes in the world. However, we do not agree with his belief that centralization of decision making is the way to put us back on the right track. If we want better decisions, we must clear the burden in collective subconscious, as Dejan Rakovic is, for example, suggesting [17]. This burden consists of numerous fallacious programs and accumulated stress and trauma which reinforce behavior that will cause new stressful and traumatic events to take place at even a larger scale. Government can be a catalyst of positive change only if its efforts are directed towards promoting the strategies for clearing this burden in collective unconscious, and liberating the creative power of people.

The quality of decisions at any level, individual or collective, is a function of the quality of the information input, well rounded knowledge and clarity of mind which processes the information. With the burden at the level of collective subconscious, which is as heavy as it is, biased as it is, and egocentric as it is, we are not in position to make high quality decisions.

The decision making process which is founded exclusivelly on phenomenological consciousness, can only come to illusory solutions. This is because the human senses and intellect can not grasp the essence of reality and the invisible connections of everything with everything else that exist in the field of being. Intellect is ontologically blind, and therefore insufficient as a means of comprehending the totality and the dynamics of relationships in its structure. Devices which extend human senses, and the artificial intelligence which increases our capacity to reason and act, can not solve this problem for us. What they can do is only to accelerate the process of invalid decision making.

However, in order to experience the very essence of reality, we need to develop our capacity for direct insight. Such an insight provides a new context and meaning to our reasoning efforts. A proper balance of intuition and intellect is necessary for comprehension of the full spectrum of reality. This can only occur at the transfinite level of consciousness.

CONCLUSION

If we are to discover the viable solutions of global economic, social and environmental crisis, we must change the direction of our efforts from outisde–in, to inside-out. Instead of trying to impose order from ouside by relying only on outer control and new material technologies, we should make an effort to liberate the collective unconscious and tap into the inner creative powers of the field. To counter the previously mentioned ultimate erosion loop, we could utilize the **ultimate creative loop** which could be formulated as following:

Inner order shapes behavior that creates outer order,
which further reinforces the inner order.

Nobody has put it better then Erich Fromm [18]:

The need for profound human change emerges not only as an ethical or religious demand, not only as a psychological demand arising from the pathogenic nature of our present social character, but also as a condition for the sheer survival of the human race. Right living is no longer only the fulfillment of an ethical or religious demand. ***For the first time in history the physical survival of the human race depends on a radical change of the human heart.*** *However, a change of the human heart is possible only to the extent that drastic economic and social changes occur that give the human heart the chance for change and the courage and the vision to achieve it.*

We are optimistic that such change can and will be achieved!

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KABBALAH, THEORY OF SYSTEMS, AND PSYCHIC TRAUMA

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Abstract. The man in the prenatal period, named unborn child (prenate), can be presented as a *managed/self-managed psychosomatic system*. According to one management principles - *the principle of pairing* - the system consists of two inseparable physically continuously interacting components: *psyche and soma.* That is why *injury* one of them affects the state of the other. Structures of the psyche (soul) are distributed in the internal and external of human habitet interacting with each element, and protecting him from the destructive effects of the environment. Two groups of interactions with the environment are created (conventionally): a) soma, which passes with inertia into feelings and after their awareness retains the understanding in man's somatic memory, and b) the mind, which, without intermediate transformations, almost instantly (without inertia) transforms into a holographic (field) memory, which creates unconscious information. Internal interactions of psyche and soma, which do not lead to mutual deformation, generates a flow of unconscious information stored in a holographic memory, allowing each cell to know (but do not understand) status and needs of the whole organism, and give him know (but do not understand) the state and needs of each cell or organ. This self-management supports compliance immanent and emergent to interests of human-system. Each somatic element (cell, organ or human in whole) present itself the frequency transmitter and receiver equipment with selectivity ("our-foreigner"), resolution (frequency, phase and amplitude) capability, as well as upper and lower thresholds of sensitivity, cutting off dangerous levels of interactions with alien influences, as well as pre-painful sensations. Internal interactions of psyche, deformed by external influences, cause stored soma changes of its state, create conditions for psychosomatic diseases. If we compare the structures of psyche of both prenate and adult we could see that prenate's psyche has only two unobserved components: *Nefesh* (emotional perception) and *Haya* (viability of a person, protection from natural field effects of the environment). For the other two levels of the psyche - *Neshama* (interaction with the brain, providing together with DNA formation, development and operation of intelligence) and *Ruach* (spirit, contributing to the development of willpower and protects psyche against overloads, including fatigue), in pre- and perinatal periods are created the conditions for their appearance. In our opinion the force of the processes affecting the *Nefesh* within the system "mother-prenate" shifts the threshold protection and causes emotional deformation of prenate's psyche. Later is fixed by his holographic memory and then unconsciously affects the mentality and behavior of an adult. It is appeared in a tendency to psychiatric diseases, functional limitations or uncontrolled activity, as well as other effects, including the inclination for suicide and unmotivated violence.

Keywords*: Psychic Trauma, Kabbalah, Theory of Systems, Unborn Child, Psyche, Soma, Psychosomatic Disorders*

INTRODUCTION

The subject of this controversial report can be easily understood from its title. Therefore I won't take your time commenting on it, but rather mention its distinctive features. Firstly, the following presentation is based on author's research (Figure 1). As it is seen on the slide, the topics' range is not limited to just making a scientific theory, but it is meant to establish methods of managing the imperfect systems, one of which is a human being. Working out the management technology, the author confined the maximum allowable depth of publication of research results to the first commandment of medical ethics offered by Hippocrates (460 – 377 B.C.) – "Do no harm".

Note 1. The reason behind establishing the theory of systems is a concept that a human being can be and should be seen as a psycho-somatic imperfect system. It leads to the necessity of using the basic principles of management theory, where doctors, psychologists and psychiatrists can be surely accepted as subjects of management, and their patients (clients) as objects of management. The subjects, observing the patient and diagnosing his condition and behavior, make decisions on treating him, and then, based on diagnosis, the patient gets

the treatment. According to the definition [1], this is one of the methods of management. A human being is regarded as part of the psycho-somatic system because of interaction between psycho and soma, which evokes [2] psychosomatic formation. That formation has constant emergent features and by definition [3] is nothing else but a system. It refers to the class of governed-self-governed systems [4] as it has an external subject of management, which purposefully but discretely affects the system. At the same time it doesn't belong to the system, for example a doctor. Also, it has the internal subjects of self-government, for instance a genome and soul, which purposefully and constantly interact with one another and with all other elements of the system, and belong to it for the duration of the whole life cycle. In fact, the duration of the mentioned cycle of a human life is consequence of two processes of self-government: unveiling his physical and psychical potentials and then veiling them back. Actually, is it necessary to tell doctors and psychologists about imperfection of a man?

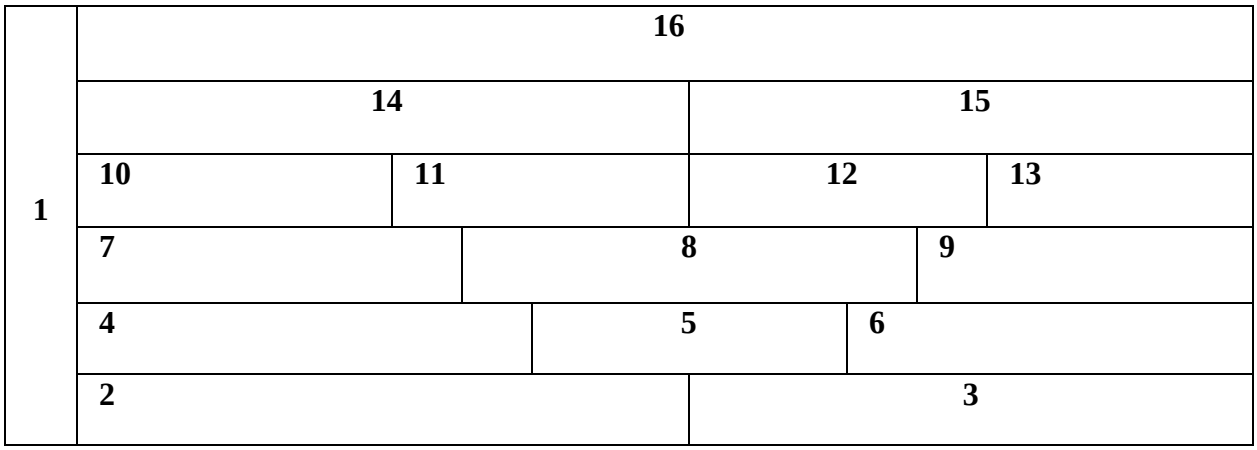

Figure 1. The structure of Main Idea and Action Plan to create the theory and technology of imperfect management of imperfect systems (1 – a world outlook credo of the author of the Imperfect management of imperfect systems' theory; 2 – terminological research, guidelines of bringing the initial plan into reality (managerial language); 3 – the methods of building the base and solving inexact and uncountable problems of management and learning, as well as the problems of world outlook; 4 – management features; 5 – principles of management and learning (world outlook); 6. – paranoia of absurd; 7 – Heraclites; 8 – the Great Nothing; 9 – Non-classical model of the universe; 10 – the Torah, the set of guidelines for building hypothesis of controllable evolution-involution of the world; 11 – the set of guidelines for building hypothesis of controllable evolution-involution of mankind; 12 – the set of guidelines for building hypothesis of controllable evolution-involution of the universe; 13 – the set of guidelines for building hypothesis of controllable evolution-involution of businesses, state and society; 14 – Methodology of hypothesis' generalization; 15 – Scientific theory of imperfect management of imperfect systems; 16 – Methods and techniques of managing the imperfect organized systems)

We hope that the above note proves effectiveness of statements for management theory and the theory of systems, as well as the statements for the developing theory of management of imperfect systems (Figure 1).

This presentation mainly focuses on discussing new possibilities of studying the system of "mother-prenate" (unborn child) for further prevention of traumas that cause damage to his psyche and for helping him accordingly. By trauma of the psyche, the author means

trauma of the psyche – its inter-psychic and psychosomatic disorder along with unknowingly recorded information of what has caused the disorder, because during prenatal period, an prenate is limited to only emotional perception of reality, even though sometimes it may seem that he acts knowingly;	(**1**)

To my opinion, it is impossible to solve the above mentioned problems (1) without proper understanding of paired interaction in men, for example between an animal-like and cognitive levels of the soul, somatic and psychic sub-systems. The concept of duality [2,5] predetermines not only the mentioned interactions, but also, as a result, the origination of psychosomatic system, to one of which classes a man belongs. By the way, this particular fact doesn't allow to equal a man with his body (somatic subsystem), as it is common in materialistic philosophy and Darwinism, and thus it creates opportunities for discovering the processes of interaction that may lead to spiritual traumas inside the "mother-prenate" system. If the traumatizing processes surpassed the natural defense systems, which is generously given to a man by nature, then it won't be possible to remove those fatal consequences. As the saying goes, "do not lament you have lost your hair when your head's been cut off". However, there is a chance to help a newly born child who's got psychological trauma in prenatal period. In order to do that, one needs to replace the strong but sporadic influence that has traumatized the psyche with a stream of positive emotions, and thus to make sure that the trauma would not turn into dominative factor of the psyche. Another way to prevent psychological traumas is very well-known. It's a difficult, less effective and extremely inertial. It's hard but necessary work of enlightening people of all ages and sexes. It's important to know that not only mother and father, but any man, any passer-by can be a cause of a psychic trauma of the embryo. In other words, there must be a continuous and determined work of fighting the mass ignorance. And the most difficult will be not to find the specialists to do that, but to sponsor such noble work. People know about AIDS, "swine and fish flu", but the psychological traumas of an unborn child are not taken seriously. Well, the water grinds the stone…

It may seem strange that an embryo remembers spiritual traumas (deformation of the soul) for the rest of his life, but doesn't understand what had caused them. What makes it worst is that those traumas may bother him his whole life, and not only his: they may echo in next generations. Even born and grown up, a psychologically traumatized man, without external help, won't be able to realize what caused him to make this or that decision. He would have no idea why he was acting in this or that way, what caused him to choose the wrong way; why he could give the right advice to others, but had a difficulty to solve his own problems, for example, at work; why he, from time to time, is falling into a state of aggression or depression, etc. Why does a quiet and honest person suddenly become a murderer or rapist, and thereafter peacefully comes back home, to his family? How to prevent such unfortunate events? The specialists in prenatal psychology and medicine know the answers to these questions better than me. A vast research material on psychological traumas in the "mother- prenate" system has been already accumulated. I doubt I could add something new to it, although I've got an opportunity to observe the consequences of such traumas in three generations of one family. Will one story make a difference? Not really. What's more important is to discuss intersystem relationships that would bring a clearer idea of the object, who is in need, and who does not always understand that.

INITIAL GUIDING LINES

Note 2. One of the first contemporary doctors, who did a research in psychosomatic medicine [6], was Franz Gabriel Alexander (1871-1964). He defined it as interrelation between man's psyche and physiology, stating that (1946), "a patient as a man with his worries, fears, hopes and frustrations is one whole, and not a mere owner of organs – diseased liver or stomach; such man is surely to be a rightful object of medicinal studies". It can be understood from the context of his book that F. Alexander didn't mean the wholeness and system when he talked

about "one whole". It is nowhere mentioned in his books that physiology can affect man's psyche. Without inverse connection, there can not be a system. Besides, even in his thoughts he wouldn't refer to a man as a system, because such understanding appeared later (1968) [7], although, just like any other concept, his concept had deep historical roots.

For better understanding of further material, there are definitions of frequently used concepts given in Table 1. There is also description of holographic effect that is crucial in understanding of formation of instant communication in the "mother-prenate" system, the presence of a source of spiritual knowledge and dispersed memory that records events that led to catatonic spiritual traumas. Following the commandment of continuation of family, a mother shouldn't give birth to a man who would consciously revenge for the deformation of his soul, for the fact that he was not loved the way he wanted to be loved, and for many other things that would be better stay unknown to him for the time being.

Table 1. Basic concepts of the management theory and the theory of systems

subject of management – the one who purposefully influences the object of management;	(**2**)
object of management – anything that is being purposefully influenced by the subject of management;	(**3**)
impact – an impact that changes state, behavior or position of the object, as well as effect, or new condition, different behavior or position of the object.	(**4**)
the process of impact can be governing or perturbing, internal (in self-governed systems) or external (in governed systems), internal and/or external in governed-self-governed systems, where the sequence of influences is already set for the governing impacts;	(**5**)
governing impact – is purposeful impact onto the system (object) controlled by the subject (process of system control) that leads to the required changes of its condition, behavior or position;	(**6**)
perturbing impact (disturbance) – is an action not controlled by the subject, that can change system's condition and behavior, thus disturbing its functions and development. A system should be protected from such influences;	(**7**)
state of system – constellation of salient parameters of the system fixed at certain moment;	(**8**)
salient parameters of system – parameters selected by the subject in the process of previous studies of its structure and behavior, that includes definition of its boundary points beyond which it can not reverse to the working state without external help (in our case – the help of a doctor, or psychologist). At normal state, all the salient parameters of the system are within certain limits.	(**9**)
system's behavior – a sum of its reactions on governing and perturbing impacts. If behavior is adequate, its reaction corresponds with the governing impact;	(**10**)
goal of management – expected result of the governing impact onto the system;	(**11**)
impact (as a result) – system's state and behavior fixed at a certain moment, or in a period of time chosen by the subject after the end of the impact process, if it is discrete, or based on other guiding lines, if it is constant; or based on the compliance of result with the goal of impact. The result of impact, generally, differs from what was expected;	(**12**)

system – the wholeness that possesses emergent qualities for the duration of the whole life cycle. Those qualities appear only due to interaction of its components. They are fundamentally irredundant to the constellation of qualities of its components, and the constellation of its qualities is indelible from its qualities;	(**13**)
psychosomatic system – governed-self-governed system that created by interactions of "psyche-soma" pair;	(**14**)
beginnings of a new quality or a loss of at least one of them mean the beginnings of another system; the change of its parameters means either renovation or degradation;	(**15**)
each element that is mentally allotted by the subject of the system from the superior system (habitat) has qualities and relationships which depend on his place in the system, functions, priorities of interactions and permitted activity. It means that in dynamics, **a**) the impact on each element of the system will definitely cause an observed or unobserved reaction (change) in other elements; **b**) there will be interchange of information inside the system, despite of availability of direct connection between its elements;	(**16**)
each element or **system**, physically detached from the system or superior system respectively, entails the work of the subject with the object, whose qualities, parameters and behavior differ from the original, due to the absence of interactions with former external habitat;	(**17**)
each element, which is replaced by the similar element of psychophysical (psychosomatic) system, to a greater or lesser degree changes its condition and reactions;	(**18**)
subject's mental allocation from the superior system (environment) at the least requires to inputs and outputs of the system, as well as mechanisms of input-output, if such exist;	(**19**)
inputs and outputs of the system, subsystems, and elements – constellation of environmental impact on the system (subsystem or its element) and system's impact on the environment. It means that the system's output is at the same time the system's input, and vise versa. It creates the universal psychophysical correlation in the world, including the one of a man. Through inputs-outputs, an informational exchange takes place;	(**20**)
influence (as the process**) on the system** has an input and output (**result**), and the process of system's functioning may be considered in a technocratic way as a transformation if the input into output, and thus one can use such method of research as a "black box";	(**21**)
system's output, affecting the superior system's input or the input of the system itself, provides feedback and information exchange;	(**22**)
feedback – brings inverse impact of the results of the system's management onto rulers of impact, in other words, onto the process of management, by using information about the changes of condition of the object of management; it is the **universal principle** of any management done by any objects;	(**23**)
mechanisms of inputs-outputs – constitutively detached material elements of soma (including organs of sense), through which an exchange between energy-information and environment takes place;	(**24**)
self-governed system – a system, where an inner observer can purposefully make an impact on it, being its part (for example, a genome, or soul);	(**25**)
governed system – a system, where an external observer can purposefully make an impact on the system, but he is not a part of it (for example, a doctor);	(**26**)

governed-self-governed system – a system, where both inner and outer observers govern by certain previously established rules;	(**27**)
the principle of holography (the principle of Gerard Hoft) – all the information which is contained in some area of space can be shown as a "hologram" that "exists" on the border of the area and contains "everything in each of its parts". Made by man by the means of a laser, such hologram is a 3D image informing the observer of a prototype. A wave reflected in the object carries the information about it in the form of particular distribution of amplitudes and phases. A man who looks at hologram can not see the prototype object. The hologram shows the object but is not the object itself. It is an informational fiction that creates illusion of observing the actual object. An image made by a laser ray looks like meaningless alteration of bright and dark lines. But if lightened up by another laser ray, immediately a well-ordered 3D image of the taken object (the hologram) appears. A man who looks at it gets the wrong impression that he sees the object itself. Another difference between a hologram and a photo is that each part of the hologram contains all the information about the object. A man can only perceive the external features of the object and can not perceive the information about its state contained in the hologram. Thanks to the holographic information, each cell of a man knows everything about him and keeps it in holographic memory. It knows but does not understand. The man-system knows but doesn't understand (perceive) the state of each of his cells, organs or subsystems. There is still hope that sooner or later people will learn to read holographic information, and, to their displeasure, many things that hidden will be revealed, and then diagnostics will be complete.	(**28**)

Apart from definitions described in Table 1, there are some concepts from Kabbalah used in this article. However, it doesn't mean that the speaker is into mystics and wishes to bring strange terms into science, thus ruining its basic cognitive status. Therefore it would be proper to be reminded of two types of knowledge: scientific and spiritual, and also of the previously mentioned principle of duality, according to which the interaction of elements of a pair leads to establishment of a new system (13), if only it is a true interaction of the pair. In other words, the interaction of the two mentioned components of knowledge can gradually give us a better understanding of the specific characteristics of prenatal periods, including the understanding of psychological traumas, the ways to prevent it or to alleviate the consequences.

Note 3. Somewhere around 2.5 centuries ago from now, Rabi Shneur-Zalman (1745-1813) wrote [8, pp. 10,11]: «...Due to incessant quest and development of scientific thought in the scale unattainable by the previous generations [so many scientific discoveries were made], that nowadays [some] scientists dare call people of previous generations ignoramus. However, they are mistaken and roaming in the dark. Surely, they were correct to say that. Comparing to previous centuries, our modern world witnesses the growth of scientific thought. But the statement of scientific ignorance of previous generations is false. The opposite is true: the previous generations surpassed the present generation in knowledge, but not in those areas that are being developed now. The modern researchers are mainly concerned in physical side of things, for example in achieving military supremacy over the enemy. The wisdom of people of previous generations is revealed in spiritual spheres which are beyond the reach of contemporary scientists". Where does a mortal take the spiritual knowledge from? I won't be in a hurry to give a traditional answer. Interesting enough, Nikola Tesla [8] used to get both scientific and spiritual knowledge from the same source.

From that quote in Note 3 comes the following conclusion: firstly, "the greatness of wise men of the previous generations was in comprehending the spiritual aspects of existence; and the greatness of later generations was in revealing the secrets of physical nature» [9, p. 13]; secondly,

the author sees his task in integration of both mentioned types of knowledge because only through its paired interaction and compliance new possibilities of understanding of conditions that cause psychological traumas during pre- and postnatal period of human life can be revealed. Such traumas are manifested only during one's postnatal period. Thirdly, it is very difficult to control the authenticity of spiritual knowledge, therefore it can be easily speculated which is absolutely unacceptable by science. Thus, special methods should be given to find adequacy between unperceivable impacts on one's psyche caused by the change of state of soma and one's behavior. Lastly, there are no signs of evolution of men's wisdom in the vast ocean of modern information and disinformation that daily sweeps us away to make us unable to understand what's going on. Yes, our generation is well-informed, but knowledge is not equivalent to wisdom. With the abundance of information, we have not become wiser or spiritually richer. Quite the opposite, we can see the symptoms of involution of our psyche, the symptoms of spiritual degradation [10, p. 29], such as negligence of taboos of decency and morality that increases the risk of people's manipulation, speculation and parasitizing. Anyway, we've got another topic: the psychological traumas, although the above mentioned can be the result of such traumas.

To confirm the possibility of integration of both spiritual and scientific knowledge, let me extract from the Kabbalah the correlation of principles of correspondence between unobservable impacts that cause traumas to the psyche, and its consequences manifested in *soma*:

trauma of the psyche vs. consequences manifested in soma – the unobvious manifests in obvious, the unobservable – in observable, and non-material – in material.	(**29**)

As we see, the so-called problem is actually "trivial", we simply have to have the clear understanding of how the elements of the pairs mentioned in (29) correspond with one another. To unite spiritual and scientific knowledge, it is necessary to establish and define the pair of psyche and soma, animal-like and cognitive levels of the soul. We should understand how they are connected with specific elements of soma and with informational field of external environment. Then we should describe interactions that are manifested in the state and/or behavior of the man-system, his subsystems, organs and cells. It is not an easy task, but it can be transformed into a technical task, and such tasks are always solvable providing that thorough preparations have been done before. It deals with not just understanding, but with regulation of accumulated knowledge, its systematization and classification.

In order to stay within the boundaries of a scientific research, we'll take an advantage of a common method: let us assume that further definitions (30-35) presented in Table 2 are true. They are quite logical, and "not widely accepted only because our [mundane] intelligence is not programmed to trust them" [11]. Such assumption means that the following conclusions will be true. The change of any of them, including the above definitions (1-28), can lead to the change of conclusions and reconsideration of some of the principles. There is nothing wrong with that in one's research.

Note 4. Kabbalah is the teaching that is fraught with amazing knowledge of man's psyche, of his soul, interactions between soma and the soul, interactions between the soul and the worlds around us, and it confirms that one's identification with his body is totally wrong. Because of unlimited interpretations of Kabbalah's concepts and texts, let me state it again: in Table 2, the definitions are given in the way they were understood by the speaker. According to Kabbalah, the higher worlds can not be scientifically described, therefore they are not included in our research at this stage. The context of the research is limited to the description of lower world of Assiya, where humans and all other objects dwell. However, let me mention that, according to the principle of holography (27), an image of everything that exists in the world of Asiya has its prototype in the spiritual worlds, and there is a non-

inertial (constant) holographic connection between the image and its prototype [11] due to inseparable informational nature of all objects that are situated in the same informational field. It is through the inputs-outputs (20), one's soul is connected, but his psyche is protected from necessity of understanding information given to him (otherwise he would loose the ability to be mentally healthy).

In adapted version, the concepts of Kabbalah borrowed from those that were accessible to the speaker are as follows:

Table 2. The concepts of Kabbalah used in the research

The world of Assiya (the realm of actions) – psychophysical superior system. It is self-centered, compared to the higher worlds, and wishes only to take from them. It misapprehends its govern as compulsion that brings suffering, and limits its desires. It doesn't want to suppress its Self according to the will of the superior worlds. It is created as a habitat for humankind, where people are its parts and, willingly or unwillingly, influence upon its state, by their thoughts and actions.	(**30**)
Nefesh (in man) – the first emotionally perceptive level of the soul, non-different from soma, that directs man's desires and his emotional state. Nefesh and soma do not exist separately from one another (Nefesh is flesh's soul, an animal-like soul); it is situated under non-perceptive influence of the world of Assiya (all of its objects). It is correlated with the blood circulation (mostly venous), including liver, heart and brain. It can be assumed that its state reflects in those organs and also in one's emotional state. It is selfish; during prenatal period, nothing restrains it, except for mother's soul, since an prenate is a part of the "mother- prenate" system.	(**31**)
Ruach – the soul of breath, the second structural level of the soul that acts as via medium in the interaction between the first (Nefesh) and the third (Neshama) levels of human soul. It stimulates one's will. It is also connected to the blood circulation system, including the organs of heart and lungs. This level is not inborn, but appears only after child's birth.	(**32**)
Neshama – the third cognitive level of the soul that is responsible for intellectual and creative work of a man. It is designed to correct (restrain) the animal-like soul and is responsible for the development of one's intellectual and creative abilities. It becomes apparent in logical ability of his thoughts and in his conscious behavior, takes part in perception. It is also connected to the subsystem of blood circulation, including heart and brain. It is not inborn, but appears after the birth.	(**33**)
Chaya – the forth level of the soul that predetermines one's vital capacity. It doesn't interact with soma directly. It is situated inside energy-informational area of the world of Assiya, which includes an area of a man of the same name, where his soul's inputs and outputs are concentrated. It interacts with psychophysical subsystem (habitat).	(**34**)
Ibur – pregnancy (burdening of woman with an prenate); burdening of one's soul with the psychological traumas, uncontrollable or hardly controllable emotional states of mind; untamed Self; a state when animal-like level of Nefesh rises above cognitive level of Neshama. It is also characterized by undisguised desire to get the most and to give the least, and by necessity of responsibility when making decisions in uncertain consequences.	(**35**)

PSYCHOSOMATIC INTERACTIONS IN "MOTHER-PRENATE" SYSTEM

A human is a large sophisticated system, where the quantity of elements and their interactions with one another are much higher than the ability of a scientist to comprehend and fully and clearly describe them. In this regard, the surveys on the state and behavior of mother and embryo that have been already done are invaluable. Each cell of man's body is a

psychosomatic system (14). And one's ovule is not an exception. Besides, it demonstrates more or less conscious behavior in choosing of spermatozoid for conception, in cutting down its tail, although it is harmful to it, and in detaching the chosen gametal cell from mitochondrion which determines prenate sex. Yes, there is intelligence behind its ability to choose, but it doesn't belong to it. It simply acts in accordance with the program of self-government. In this way all the internal psychosomatic interactions in impregnated ovule (zygote) and in the "mother- prenate" system take place.

Note 5. Taking aside the recent research [7] by biologist Karl Ludwig von Bertalanffy (1901-1972), up until now a man has not been fully described as a psychosomatic governed-self-governed system (13,14,27). According to it, the impact (4,5) on any, let us assume, cell would mean impact not only onto the whole body, but also, via feedback (23), onto the soul (Nefesh) (31) and genome of a man, which is generally strongly protected from outside influences. By the way, the genome, or, to be exact, a written program of self-government inside it, unfolds the construction of one's soma, as well as the first level of the soul (31). Each cell has its own genome and is in contact with Nefesh, which is nothing but informational structure of self-government of psychological activity of a man and his emotions. Therefore, the field of each cell has its inputs and outputs (20). A man is literally penetrated by the fields of particles, molecules, cells and organs. External energetic field is continuation of the internal field, and the man is non-separable from it. In this regard, it is important to understand the ways of feedback formation that, with all your desire, can not be limited by customary material connections typical to the input-output systems of soma (24).

To prove the above mentioned statements, let me give you an example from the field that is far from technical science: Jeffry Mishlaff wrote in his work [12] that in 1920s, a histologist Alexander Gavrilovich Gurvich (1874-1954) proclaimed that all the cells of one's body emit unseen rays (!), he called it a cytogenetic radiation. It has to be admitted that in 1912 he was first to bring the concept of "biological field" into science [13] by proving in his surveys that there is an increase of intercellular pressure in plants and sample cells that were penetrated with radiation discovered by him. That effect was seen only if the cells-percipients were separated from the cells-inductors with the help of a screen made of quartz glass, transparent to ultraviolet frequencies of electromagnetic spectrum.

Do we need another proof that in A. Gurvich's experiments the unobvious was manifested in obvious, the unseen – in the seen, and the non-material in material (29)? And that there is no contact between inputs and outputs? In 1967, Vlail Petrovich Kaznacheev (1924-2014) conducted a series of 5000 experimental studies [14], in one of which he detached different colonies of cells from one another by the means of quartz glass transparent to ultraviolet radiation. The cells of one colony were killed by fatal dose of radiation, chemical poisons and viruses that contained diseases. And the cells of another colony that were placed behind the quartz screen each time developed the same symptoms.

From the short description of those experiments, one can come to the following conclusion: the cells emit something and, without any physical contact, perceive information.

Thus we can understand that soma instantly gets to know about ovum fertilization because zygote emits this information. However, a signal of any frequency can not instantly reach soma's addressee, a cell or an organ, as any matter, through which the signal is sent, is a constellation of lines of delay. Therefore, it is not completely clear yet.

In any case, the body gets to know about the important event, but a woman herself doesn't know, because this information can not be perceived by her until she feels certain symptoms (29). In other words, the body of a woman gets to know about the presence of zygote much earlier than her. The body starts adapting to the change, but woman's behavior stays the same. Before collaborating on that matter, let me emphasize two things: one of them is related to the sphere of world outlook and is an evidence of impossibility of identification of a man with his body; it proves the statement in Note 4; the other one is from the sphere of ethics; the problems of frequent transposition of information in "mother-embryo" system are thoroughly researched by Dr. Grigory Brekhman. I hope he won't consider my report an intervention into

the sphere of his interests. This report is an attempt of consistent approach to understanding prenate's psychological traumas of which he has no idea.

Note 6. Having mentioned the necessity of instant delivery of information about conception, I'd like to stress that a human body, as well as the yet unformed body of an embryo, for its pleasure, is not given perception. Perhaps, it excludes premature activation of processes of realizing such important event by the future mother, because a child is not often a desirable fruit of love. Of course such things are against the commandment of continuation of family and commandment of sanctity of life. Nowadays, starting from the end of the twenty's century, it has became extremely important to protect a new life, because many women don't want to take this burden of pregnancy, don't want to take responsibility for the newly born and his future, don't want to deal with his education, don't want to carry the burden of constantly worrying for his health and protection. By the way, a father (biological or nominal) also may be not willing to take responsibility and can force the woman to think or act in a certain way. All that harms the embryo's psyche, because he instantly gets this information and records it. How does he do it? I will tell about it later.

In other words, if negative events happen by the will of woman, then she falls into a state of Ibur (35), tries to do abortion and kill the new life. Does she have the right to do that? And does a child have the right to live? If somehow or other the abortion was not done, then the child is born with psychological trauma of being unwanted, and this will definitely reflect on his relationships with the mother or those who had a negative influence on her, on her ability to sympathize and feel for him. If these events happen under external pressure, then not only the embryo is traumatized, but his mother as well (postnatal psychological trauma is generally realized).

However, let us return to existential and technical confirmation of possibility of instant transmission of information that brings the fact of conception to mother's body, and of similar transmission of mother's emotional state to an embryo (there is also an instant exchange of other information, but we won't touch it here).

Note 7. In 1982, the scientist headed by Alain Aspect discovered [15] that in certain circumstances elementary particles, for example paired photons, moving with almost maximum speed, are able to instantly connect with one another, regardless of the distance between them. Somehow or other each particle of the pair "knew" what was the other particle doing. A. Aspect's most famous experiments proved that "quantum entanglement" for the pair of photons is contradictory to the principle of limit of speed in distribution of exchange formulated by Albert Einstein. No need to worry, because the same experiments unwillingly confirmed the principle of twoness that was established two decades later.

Surely, A. Aspect is right stating that the ideas of quantum physics are horribly controversial. Another part of his conclusion was not a result of experiments, since "relic radiation" doesn't prove existence of "Big Explosion". Disproof of Einstein's postulate, that followed different experiments and attempts of their explanation via just physics' arguments completely ignoring spiritual knowledge, showed that without the latter, the quantum physics won't be able to solve all its contradictions. Let us add to this that possible manifestation (29) of spiritual knowledge in holographic effect (28), with which help we can explain the process of receiving spiritual knowledge by people, and intuition, and many other things, including the constant transmission of information. Also, in this way we can understand the role of the soul in human life.

To our opinion, apart from the above mentioned protection procedures, the purpose of the process of instant transmission of information is to provide multifunctional adequacy of emergent interests of system with the immanent interests of its elements, starting with the cells and constituent organs and finishing with its subsystems. Impregnation is like an earthquake in the body, and to preserve life is the most important commandment. Woman's body starts to experience rapid changes (a zygote doesn't wait, it demands), but each cell of the body has to receive all the necessary things for normal vital functions. Now it has to be within the boundaries of resourceful abilities of the system ("mother-prenate"). Even so, the cells, including zygote, can't take anything extra and thus to exhaust the system, because it would die with them. At the same time, the system can't exhaust them, because if the cells die, the result will be the same (their, not zygote's, death will be detrimental; zygote's death is more or less harmless for the

body, it will be detached and ejected from it, however, the zygote is not just a cell, a Nefesh that has a soul, but it is more impudent, selfish and demanding than the other cells, it would fight for its priority, because it has the certain level of the soul). The appearance of zygote requires quick re-programming of resources' distribution in the body, since it starts multiplying in order to build the body of a prenate. At the same time, it remains mother's specific subsystem, the carrier of new life. In other words, the system of a woman becomes the system of "mother-prenate", obtaining new aptitudes, new emergent qualities. According to the theory of systems, the appearance of at least one new emergent quality leads to appearance of a new system that has to be treated differently by others! Inside woman's body, a process of building another new system of embryo is going on (the subsystem of the above mentioned system). It comes along with slow preparation of mother and prenate to the moment of birth, to accepting the levels of Ruach and Neshama (32,33), to dependent life outside of mother's body.

Meanwhile, the prenate's needs grow constantly, demanding dynamic redistribution of resources. In her normal state, a woman does not experience that. An animal-like soul of the prenate (31) keeps demanding, and only mother's soul can withstand that (31-33). In accordance with terminology given in Table 2, a prenate is always situated in the state of Ibur (35). It doesn't have cognitive level of the soul yet (33), and because of that, nothing inside him can resist his egoistic desires. In case of failure to serve his needs, prenate's animal-like soul (31) takes it as violence; it is dissatisfied and actively objects. In this case, there is no ground for psychic traumas, because such relationships between the mother and the prenate are normal. The prenate fights, causes pain to the mother, and she is looking for the ways to satisfy his needs. Outputs of prenate's Nefesh become inputs of mother's soul, and vise versa. Where are they situated? The answer to this question is partially given in Table 2. For its completion let us have a look at holography.

Note 7 *(continuation)*. The ideas of holography (28) allowed David Bohm to interpret the results of A. Aspect's experiments differently. His opinion is as follows: «the elementary particles interact on any distance not because they exchange enigmatic signals with one another, but because their division is illusionary» [11]. To prove his idea, he gives a clever example where he asks to imagine a fish tank and two video-cameras, one of which is situated in front of the tank and the other one by the side of the tank. Now let us assume that we forgot about the fish tank and the two cameras, and we will be watching the swimming fish on two TV screens. By looking at the screens, we may conclude that the fish on the two screens are different, but after some time someone with better imagination may realize that those fish are actually connected. If one does not know that the two recordings are nothing but the two projections of the same fish, then while observing well-coordinated movements of two fish, he may conclude that they are instantly communicating with one another and thus coordinate their movements.

Based on this model, D. Bohm proposed similarity between observing "two" fish and two photons. It's ingenious and paradoxical, but he forgot to take into consideration that the photons can not be compared to projections. Indeed, they have one source, but it is not a photon. It always emits them in pairs: one rotates to the left, and the other one to the right. Interactions of such photons repulse them from each other. Therefore, A. Aspect and his colleagues were observing not photons' projections but photons themselves. On the assumption of this wrong idea, D. Bohm, who had a lot of followers, came to a logical, but wrong conclusion of the above mentioned inseparability. One could agree with him, if we were talking about spatial, not informational inseparability! Anyway, it could be just a translation mistake.

The answer to our question is lying in this very informational inseparability, but we should ground it.

Note 8. It's a well-known fact that each particle of every object emits something (Note 5), creating a certain field around itself via electromagnetic, gravitational and spinal radiations. But in this set, a rule of dichotomy of pairs is violated: there is no forth component. Each of the listed fields carries information about the state of

particles emitting them (or the object that consists of them). What happens to the information? Does it disappear, or does it have a recipient? No, it does not disappear. Quite the opposite, it creates the missing component – the informational one. Each object is placed into one field, the broad and all-pervading world of Assiya. That's it, the emanation of the higher worlds (from the top to the bottom) and the emanation of objects of the world of Assiya (from the bottom to the top). Here we have a hologram, created by constellation of unlimited flow of laser radiation, each of which is created by two laser sources (28). The holographic image turns the world of Assiya into the whole, a subsystem of other worlds of higher levels (their exchanges, as we said earlier, won't be discussed in this article). From it, Leonardo da Vinci and Nikola Tesla were taking many of their ideas. In that field there is information on how the world of Assiya is arranged. In it, the great deal of spiritual and scientific knowledge is contained. The spiritual knowledge can not be obtained via sense perception, but the scientific knowledge can be obtained via sense perception. However, one won't fully understand the field, but the objects of that world. Can D. Bohm's mirages appear? Yes, they can. Can they be separated from the real ones? I don't know yet. In reality there is always a place for illusions that cause confusion in scientists' minds. What's more important to us is that the integration of spiritual and scientific knowledge opens new opportunities for solving people's problems, including those of prenatal psychology. However, the question is still there: how are the prenate and the woman's soul (psyche) connected with one another and with the universal field?

Based on definitions (20,28) in Table 2 and Notes 4-8, a soul of a man does not belong only to him, but also to the universal field. They take part in the process of emanation "from the bottom to the top", as well as participate in creating of holographic image of the whole one world. The world of Assiya is just like a screen we are constantly staring at. Naturally, inputs and outputs of the souls appear and disappear in the universal field due to its informational inseparability. Through them, the objects of Assiya's world influence people (let me remind you that, due to certain conditioning, we are not discussing the higher world in this article, but there is no doubt that they are influential in the whole model). To take these influences into consideration or not is up to observer (the subject). He only limits the outer environment, based on the assumption of interdependence of conclusions of such influences.

So, all the answers to our questions have been answered, except for one: what should one do with gathered materials? For that, one should take advantage of the principles of summarization in technical and some natural sciences.

On the principles of summarization in the field of prenatal psychology, including knowledge of psychological traumas

Let me apologize in advance, if someone has got an impression that the speaker is teaching how to work. I'm just sharing my experience, and for that one should put all the achievements in the above mentioned and adjacent spheres of knowledge in order, systematize and classify, as well as to give recommendations, not to the scientists, but to practicing doctors and psychologists.

The most important thing in work that lies ahead is to get people who are able to integrate all the previously acquired knowledge, and to get sponsors for this uneasy work. All the rest is just a technical matter.

First of all, the materials containing the knowledge should be gathered together and put in order. And it is important to choose the principles for such operation. For example, on the first stage, one should not go beyond the studies that truly deserve attention. What makes it difficult is that [16] "psychosomatic problems are a borderland where all the sciences exploring men can be found, starting with experimental medicine and finishing with social psychology". Also, as we have stressed before, one should add the studies on the theories of systems and management, as

well as on transmission and reception of knowledge, its processing, holography, etc. It is hard to find a field of knowledge that can not contribute to the process of studying a man.

In order to not to burst in tears after reading the paragraph above and not to confine oneself to your small scientific glade, one should clearly understand the subject matter of gathered materials. For example, it could be just the psychological traumas in prenatal period and psychosomatic impacts that go along with them and that can be seen in soma and behavior (it is impossible to bind the unbound).

Furthermore, one should make a list of commenced experiments and published studies, write which research area they belong to and what their goals, methods and conclusions are. Everything must have a clear reference. Only then one can start to gather scientific materials to sort them into different groups, discuss the results of work and expediency of proceeding to the next step of systematization of well-ordered materials.

At this point one requires tremendous analytical efforts and erudition. There must be a possibility of partial or total change of command. During this assiduous work, the gathered materials should be grouped into the following groups:

- the reasons behind psychological traumas;
- its somatic and behavioral manifestations with the description of psychological portrait of the traumatized during prenatal period; results of blood tests done during the check-up (preferably of venous blood); pictures of his aura during the same period of time (these pictures will give us a hint on somatic consequences of psychological traumas of the organs mentioned in Table 2);
- events that led to the traumas;
- its influence onto next generations (we are not talking about inheritance, but rather about stereotypes of behavior);
- emotional states of a mother, as well as her blood tests' results (arterial and venous blood), if they are described of course. As seen from definitions (31-33) in Table 2 the state of man's soul manifests in the state of his blood; changes of the organs mentioned in the same table;
- distinctive features of mother's psychological portrait;
- her environmental and social conditions during that period;
- other characteristics that seem of some importance.

Conclusion of such work might be not a mere report (that's just a formality), but conclusions that include table with interrelations between psychic traumas and their manifestations both in behavior and some (thus creating the opportunities for future instrumental studies), as well as recommendations where those attributes to which the scientists have not paid attention yet mentioned.

The most difficult in analytical point of view would be summarizing stage of building classification of concepts, traumas, consequences, methods of diagnostics, etc. At the same time, classifiers must be correlated, even among the levels. After that stage, prenatal psychology will get a status of science in its traditional meaning. Until now, medicine, psychology, sociology and other sciences have been failing to do so. They are a set of scientific approaches, but do not establish the wholeness in which all the tendencies are interrelated.

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NEW UNDERSTANDING OF STRUCTURAL DNA

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Abstract: Human DNA as a system of codes that carry our whole life-work, and the whole mind-set so far, is closely monitored as a system of DNA. However, beside information that goes through the system of double helix and the system of A - T - C - G, we have no other choice in understanding from where it comes consciousness and the whole system of intellect and spirituality. Based on previous observations in our different research fields, we conjecture that time, space and language are encountered in DNA as a geometric hexagonal system through irregural oktagon with introverted character. In particular, they show that the words of the Serbian language in Cyrillic letters have energy levels that allow decoding of the entire system of the universe, based on a triple action: spiritual, astral and material – allowing to consider the whole procedure of prenatal, perinatal and postnatal studies of men as a new research system.

***Keywords**: Serbian Cyrillic Letters, DNA, Hexagon, Octagon, Fish, Ka*

Adela Margot has researched Serbian language in Cyrillic mode for years. She linked the Cyrillic letter with old knowledge of Torah, based on old Cabalists works with words and voices as direct connection with God. She worked with languages by using methods of *Gematria, Notaricon* and *Temura*. She developped a three-level-system with Cyrillic alphabet (Figure 01), West-Europian alphabet (Figure 02) and Serbocroat alphabet (Figure 03).

I explain the **SPIRITUAL**, *that is, the delicate, the invisible or internal state through* **the 30-letter Serbian-Montenegrin Cyrillic alphabet.**
Expressed in THE COMPUTER *LANGUAGE this is the entrance,*
- **INPUT,** *INVISIBLE* (NEVIDNO, smc.),(NE-VI-DNO, smc.
= NO YOU BOTTOM; YOU CAN NO LONGER GO BY THE SUPREME CREATOR'S RULES),
= *THE SPIRIT STATE.*

CYRILLIC ALPHABET

cir.	А.	Б.	В.	Г.	Д.	Ђ.	Е.	Ж.	З.	И.
lat.	A.	B.	V.	G.	D.	Đ.	E.	Ž.	Z.	I.
pho.	ɑ, ʌ	b	v	g	d	soft dʒ	ɛ	ʒ	z	i, ɪ
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
cir.	Ј.	К.	Л.	Љ.	М.	Н.	Њ.	О.	П.	Р.
lat.	J.	K.	L.	LJ.	M.	N.	NJ.	O.	P.	R.
pho.	j	k	l	lj	m	n	nj	o	p	r
	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
cir.	С.	Т.	Ћ.	У.	Ф.	Х.	Ц.	Ч.	Џ.	Ш.
lat.	S.	T.	Ć.	U.	F.	H.	C.	Č.	DŽ.	Š.
pho.	s	t	soft tʃ	u	f	h	ʦ	hard tʃ	hard dʒ	ʃ
	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.

Figure 01

I explain **THE ASTRAL**, *that is, the status of the ancestors or the descending to lower levels, the sinking, through*
the 26-letter Western-European (Latin) alphabet.
Expressed in THE COMPUTER **LANGUAGE THIS I**
- **A. P. D.** *(AUTOMATIC PROCESSING OF DATA ; see chapter* **U VOD**),
= **THE SOUL STATUS.**

WESTERN-EUROPEAN (LATIN) ALPHABET

A. 1.	B. 2.	C. 3.	D. 4.	E. 5.	F. 6.	G. 7.	H. 8.	I. 9.	J. 10.
K. 11.	L. 12.	M. 13.	N. 14.	O. 15.	P. 16.	Q. 17.	R. 18.	S. 19.	T. 20.
		U. 21.	V. 22.	W. 23.	X. 24.	Y. 25.	Z. 26.		

Figure 02

I explain **THE MATERIAL**, *that is, the solid status, through* **the 30-letter Serbo-Croatian Latin alphabet which has exactly the same letters and the same number of letters as the Cyrillic alphabet but they have not the same order.**
Expressed in THE COMPUTER *LANGUAGE this is the*
- **OUTPUT** - *EXIT, the visible (VIDNO,* smc.),
= **THE MATERIAL STATE.**

SERBO-CROATIAN LATIN ALPHABET

lat. pho.	A. ɑ, ʌ 1.	B. b 2.	C. tz 27.	Č. hard tʃ 28.	Ć. soft tʃ 23.	D. d 5.	DŽ. hard dʒ 29.	Đ. soft dʒ 6.	E. ɛ 7.	F. f 25.
lat. pho.	G. g 4.	H. h 26.	I. i, ɪ 10.	K. k 12.	J. j 11.	L. l 13.	LJ. lj 14.	M. m 15.	N. n 16.	NJ. nj 17.
lat. pho.	O. o 18.	P. p 19.	R. r 20.	S. s 21.	Š. ʃ 30.	T. t 22.	U. u 24.	V. v 3.	Z. z 9.	Ž. ʒ 8.

This means, that instead of using the numerical status of the Hebrew letters I use the three above mentioned alphabets and the numerical status of their letters.

Figure 03

On these lines, by using words and generated numbers, she conjectured that there exist 3 *main spheres*: 1. *Universe/Васељена* 2. *Cosmos/Васиона*, and 3. *Space/Свемир*, all 3 spheres existing on 3 levels:

1. spiritual level / духовни ниво D=Д (Table 01),
2. astral level / астрални ниво A=A (Table 02), and
3. material level / материјални ниво M=M (Table 03).

Table 01. Васељена/Universe

	Д	А		М			∑		
В	3	22		28			267/1	+324=	***591*** + 1389 = 1980!
А	1	**1**		1			324		591 - 57 = 534 + 1389 = **1923!**
С	21	**19**		24			- 57		***Д + М = 178; Д + А =169; А + М= 197;***
Е	7	**5**	↓	9					
Љ	14	(L) **12**		17					
		(J) 10							
Е	7	5		**9**	↑				
Н	16	14		**19**					
А	1	1		**1**		=			
	70/3	89/2		**108**/4					

Table 02. Васиона/Cosmos

	Д.	А	М		∑		
В	3	22	28		258/1	+ 232 =	***490*** + 1531 = 2021!
А	1	**1**	1		232		490 + 26 = 516+ 1531 = **1964!**
С	21	**19**	24		26		***Д + М = 177; Д + А = 151; А + М = 188;***
И	10	**9**	**13**				
О	18	**15**	**21**				
Н	16	14	**19**				
А	1	1	**1**	=	Прав.	Кален.	
	70/2	81/3	**107/2**		Кат.	Кален.	

Table 03. Све Мир/Свемир/Space

	Д.	А	М		∑		
С	21	19	22		**138/0**	+112=	***250***
В	3	**22**	28		112		250 + 26 = 276 + 1389 = **1923!**
Е	7	5	9		26		***Д + М = 92; Д + А = 77; А + М = 107;***
	31/1	**46/1**	**61/2**				
М	15	**13**	**18**		**139/0**	+ 21 =	
И	10	9	**13**		21		
Р	20	18	**23**		**118**		
	45/0	40/2	**54/1**	=			
СВЕМИР,							***Main Principe КА : Д. = 45 М.= 54.***
	31/1	46/1	61/2		277	+133=	410 + **1531 = 1941**
	45/0	40/2	54/1		**133**		410 + 144 = 554 + **1389 = 1943**
	76/1	86/3	**115/3**	=	**144**		***Д + М = 191; Д + А = 162; А + М = 201;***

On the other hand, Miloš Grozdanović has made mathematical model of the First Earth Flat Disc = *Flat Earth*. This model has 2000km radius (Figures 04 and 05), with its very center is Nish, Serbia, on 43º 19'44,99'' latitude, and 21º 53'31,72'' longitude. There are 10 circles on 200km distance. On each circle we have 10 main points. There is triangle with 3 *Shar* mountains, Serbia, Caucas-Russia and Jordan. They make triangle, or main sign of God. Circle, 4th is in red coloured because there is a Rome. But, 10 circles divided by 2 is 2.5, which represent main constellation of Sirius A = Sa and Sirius B = Sb, where is mass ratio Sa = 2.5 Sb. And finally, we have line Niš – Constantinople (Istanbul) – Bagdad, which make a Cross with Shar mountain in Russia and Jordan.

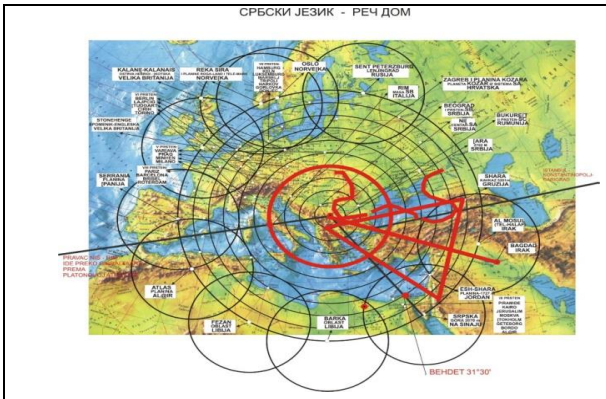

Figure 04

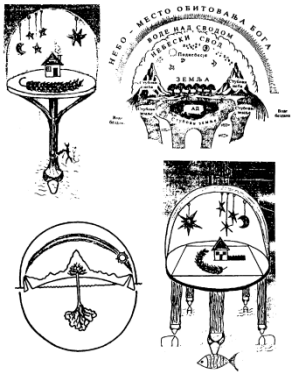

Figure 05

All ancient religious and all nations have their ethnic myths about Flat Earth. The presentation of their drawings are shown in Figure 08. Also it is in works of earliest ancients philosophers: Thales, Anaximandar, Anaximenes. But almost all of them, like Pitagora, speak about harmonies and numbers.

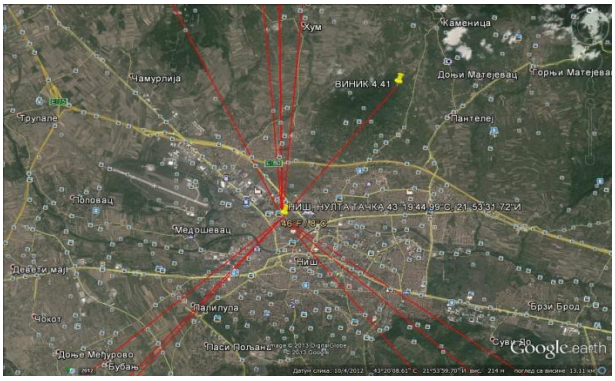

Figure 06

The severe center is Nish, Serbia on 43º 19’44,99’’ latitude, and 21º 53’31,72’’ longitude (Figure 06).We found some measure which are represents of language, space and time. Place Vinik in Nish is exactly 4410m from centre. Place Hum is 5539m or 4410 x 1,256. Place Konstandinovica on Rtanj mountain is 44100. Place Pločnik is also 44100m, and OSMAkova is also on 44100m from centre.

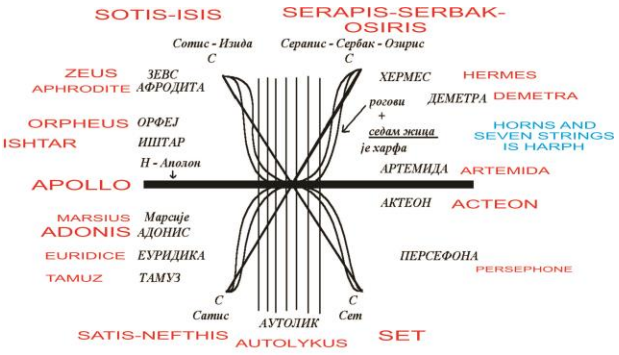

Figure 07

Also, Serbian main ethnic symbol is 4S, shown in Figure 07. It presents X letter as the symbols of the horns, the biggest Horned Deity. It's are the names of Sotis – Isis, Serbak – Osiris, Satis and Set. For this time they are usually being Egyptian, or Greek or Summer deities, but they are originally from Serbia. Flat Earth is base known as Apollo, but it mean in Serbian language – half of Uper and Lower world.

New genetic resarch made by English stuff, Michell Begent and Chris Tyller Smith, shows that Haplogroup HG2 have origin in Pudunavlje – river Danube in Serbia, which is centre of Flat Earth. Minimum age of HG2 is about 27000 years. But Anatole Kljosov, from Harvard, USA, spoke that Serb are the oldest people.

The houses and the graves in Lepenski Vir, Serbia, 5500BC, in Figure 08, have the structure of triangle, 3 *Shar* mountains. While in Figure 09 we have letter's system in Vinča, Serbia, 4500BC, with triangle shape.

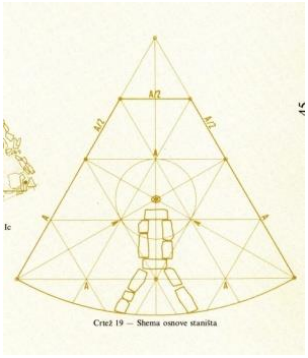

Figure 08

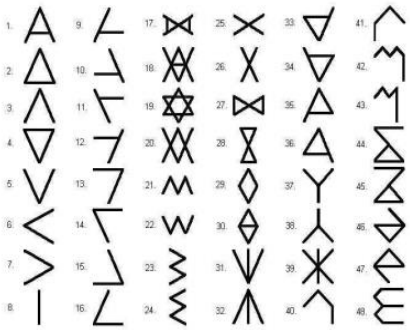

Figure 09

Flat Earth, Figure 10, has measure 4000 km in diameter. Piramid in Giza have one side 233m. When we divide his area with constant of precession of the pyramid, 43200=6 x 720, we have number 1.256. But, also and area of Flat Earth is 1.256 x10000000. I humbly called him as *Milosh point*, according to Pitagoras Point, 1.0136. We will find this number all around the world.

But, from Flat Earth, we now have transposition in Figure 11, how it is changed in Spherical Earth. We have first to add 22 ringes on basic 10 rings, and it was above, but we have 32 rings below. It gives altogether 64 rings. But, fine tunning gives us 63. So it is 64/63 or Horus Point, in the honour of God Horus, God of Heaven. In Serbian tradition, He is known as Sveti Đorđe, God Vid, or Soko as Hawk. So, we have Horus Point 64/63=1.0158.

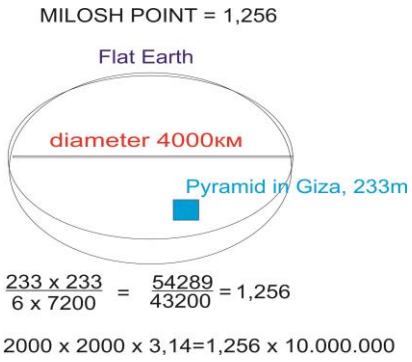

Figure 10

Figure 11

In Egypt we have Horus eye, the biggest talisman. But, it is mathematical fraction, which means ½+1/4 + 1/8+ 1/16+1/32+1/64=63/64. With inversion we have 64/63. Horus eye, Figure 12, is 63/64 or 64/63, and also presents human brain, Figure 13. But *Horus point is* 64/63=1.0158. Horus point is 64/63 and presents how Earth was made = 32 rings above and 32 rings below.

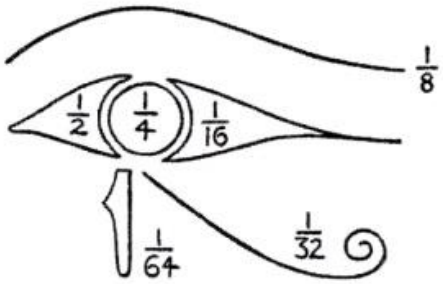

Figure 12

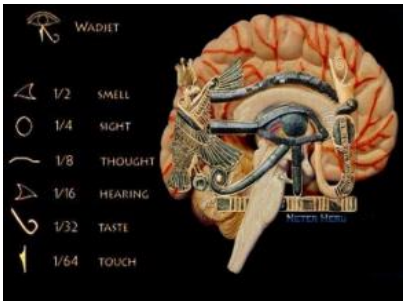

Figure 13

Mayan King Pakal have on his head numbers 144 0 0 0 441. They are coefficients which we have as 144, 1440, 14400 and 144000. But, eighth root from 144000 is 4.41. I describe all this in my book: "Serbian etalons in language, time and space in history of human civilization".

King PAKAL, Maya tribe, Figure 14, is buried in Palenque, Mexico. I measured all memorial complex and found that there are lines of 118m and 94m. *Milosh point* represents the method how the Flat Earth was made. It is of coefficient 1.256. It is also *118=Apsolut, Adela number* / *94=Base of feathered serpents, Mirjana number*.

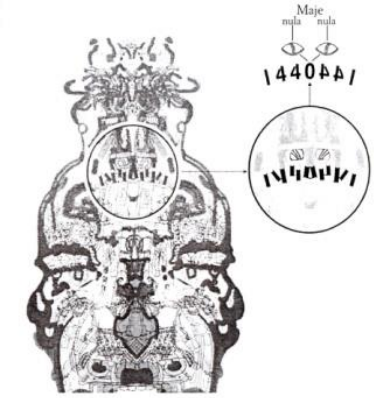

Figure 14

All other measures are strictly connected, and represent time, space and language.

Kalendar Maya begin to work on August 11, 3114BC. In Figure 15, today we have in Serbia calendar with black and red letters. On August 19 we have Transfiguration, or enter of star Sirius A again on night sky. August 28 is Assumption, but in Egypt it was *opeth* with encountering statues of God Amon – Ra from Karnak, and statue of Godess Mut on the ships on

Nile. Opeth is Serbian word, which means *again*. But, it is very important to know that line Nish – Karnak – Luxor goes over Hilandar monastire, on Mount Athos, in Greek. This calendar is so important, because time from 1.08 to 21.09 is period of 52 days. Divided with 21, Nativity, we have main sequence of *life on Earth*. 52:21=2.476190476190.

Figure 16 describes *pyramid in Giza* as measure for *Milosh point* and *king Pakal solution.* It is a *Pitagoras* harmony order 9/8 = *Major second*. This order is also time as a distance from 18 to 19=9, and 19-11=8. It is August month, when Maya begin to count the time, August 11, 3114BC. But, *September 21 is godess nativity*. Number 52=31+21. *Sequence* 52:21=2.476190 is basic time code of *everything alive in the world*.

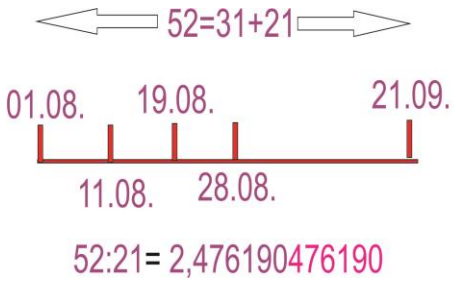

Figure 15

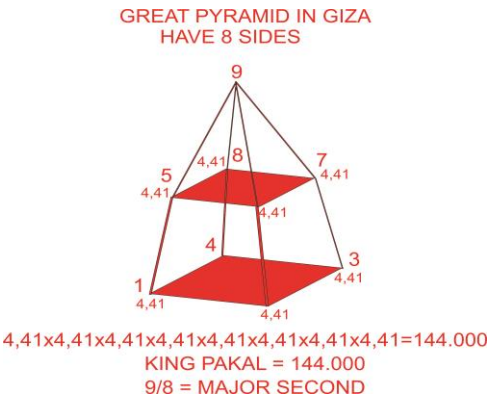

Figure 16

Figure 17 shows the strongest evidence that Serbian language is basic spiritual language in Universe. When we put on each number one letter from Cyrillic alphabet we have directly words: *Бог зађе* or *God enters.* When we have sequence 2 times more we have *Год во = God vo*, or *God bull.*

2, 4 7 6 1 9 0	x 2 =	4, 9 5 2 3 8 0
Б Г Е Ђ А З О		Г З Д Б В Ж О
БОГ ЗАЂЕ		Г О Д ВО
БОГ = engl. GOD		ГОД = engl. Trees ring
ЗАЂЕ = engl. ENTER		ВО = engl. BULL
Serbian lang. = GOD ENTER		Serbian lang. = GOD BULL
		We have and other combination:
		ГОД ЗОВ = God Calling,
		ГОД ВОЖД = God Vožd (Emperor)
		ГОД БОЖ = God

Figure 17

After 5th and 6th transformation, we have number 118 or *Apsolut/Absolute*. It means, that really we have confirmation that this is *holy word of god(s). Serbian language is universe first sound which causes transformation of DNA.*

So, system of DNA like

S – A – T – S

P – G – C – P
S – T – A – S
P – C – G – P

is defined by sequence 2.476190, Figure 18.

52:21=2.476190476190

6=2+4 6= hexagon	2.476190 x 2 =
	4.952380 x 2 =
28=9+19 28th august = Godess Assumption	9.904761904761905 x 2
	19.809523809523801 x 2
118=39+79 Apsolut/Absolut	39.619047619047 62 x 2
	79.238095238095 24 x 2
474=158+316 OCTAGONS	158.476190476190 x 2
	316.952380952380

Figure 18

Position 118 we also found in desert *Natzca* in Peru, Figure 19. There are numbers 12.56 = Miloš point, 118 = Absolut, 8 = Orion constellation. There is one more group of line in Natzca, 194.8m x 2, an 8m x 2. Vinik 4.41 x 4.41 = 19.48. This is 10 times more. 8 is Orion. It shows broken line of 10285, and 8130m. It is 1.256 or Milosh point.

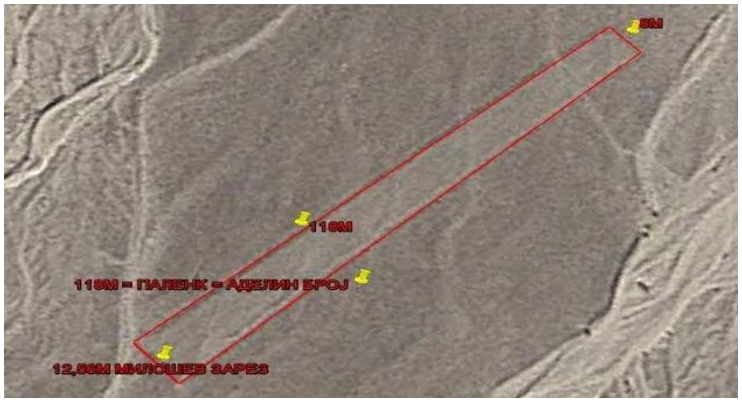

Figure 19

Figure 20 shows Oasis Siwa in Egypt, the place where Aleksandar The Great was buried. But, somehow, we have the line of 10285m, and line of 8188m, which give us 1.256 or Milosh point.

Figure 20

Figure 21 shows Serbia, with position 8 as Orion=Osiris. It *presents number 8 as fish with the body and tail*. On Suva mountain we have line Nish–Trem, peak of Suva mountain, 27831m, and 22169m up to the rest to 50000m. It is also Milosh point.

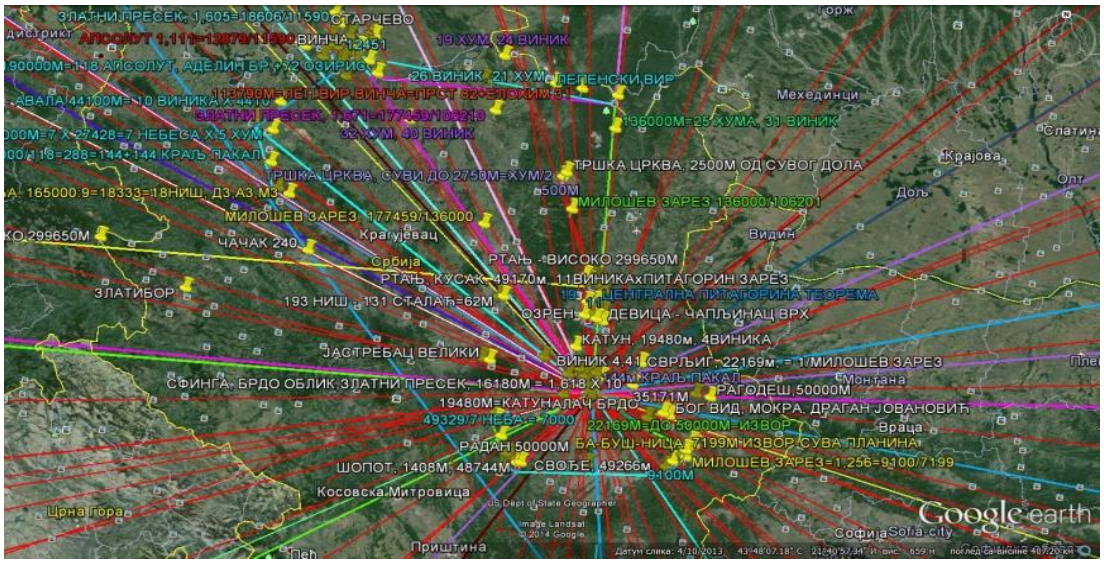

Figure 21

Figure 22 shows two fishes. The head of the first is the tail of the second. Here are almost all significant sacral and worlds places. We will see that all positions are *exactly firm*. *all is connected by Serbian language, and show the structure of Vaseljena/Universe, Vasiona/Cosmos, Svemir/Space, Milosh point, Horus point and DNA.*

Figure 22

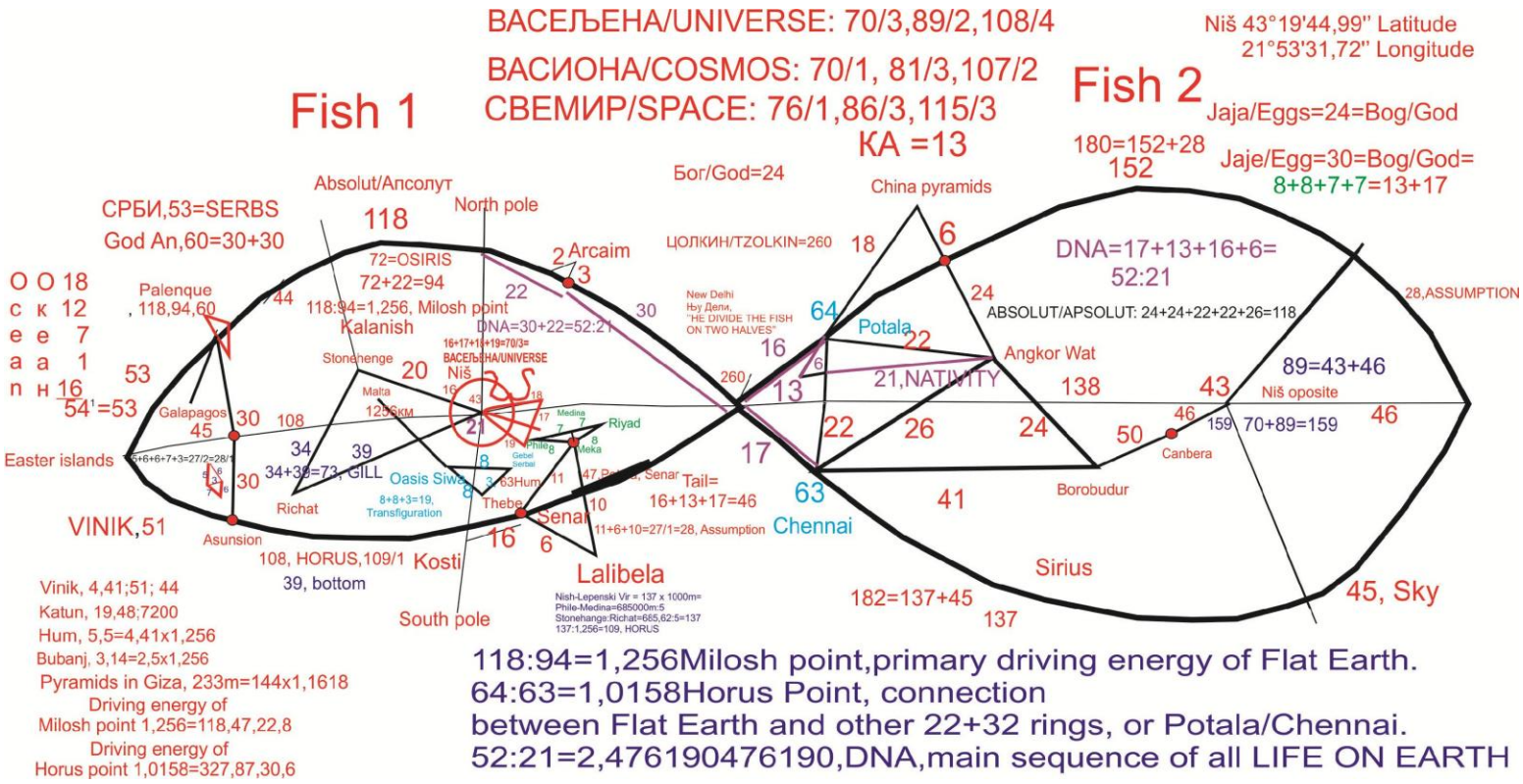
ВАСЕЉЕНА/UNIVERSE: 70/3,89/2,108/4
ВАСИОНА/COSMOS: 70/1, 81/3,107/2
СВЕМИР/SPACE: 76/1,86/3,115/3
КА =13
Fish 1
Fish 2
Niš 43°19'44,99" Latitude
21°53'31,72" Longitude
Jaja/Eggs=24=Bog/God
180=152+28
152
Jaje/Egg=30=Bog/God=
8+8+7+7=13+17
Бог/God=24
СРБИ,53=SERBS
God An,60=30+30
Absolut/Апсолут
118
North pole
China pyramids
ЦОЛКИН/TZOLKIN=260
DNA=17+13+16+6=
52:21
ABSOLUT/APSOLUT: 24+24+22+22+26=118
28,ASSUMPTION
72=OSIRIS
72+22=94
118:94=1,256, Milosh point
DNA=30+22=52:21
Arcaim
Palenque
, 118,94,60
Kalanish
Stonehenge
Malta
1256км
Niš
16+17+19=70/3=
ВАСЕЉЕНА/UNIVERSE
New Delhi
Нју Дели,
"HE DIVIDE THE FISH
ON TWO HALVES"
Potala
Angkor Wat
21,NATIVITY
89=43+46
Niš oposite
70+89=159
Canberra
Galapagos
Easter islands
Riyad
Meka
Oasis Siwa
34+39=73, GILL
Richat
8+8+3=19,
Transfiguration
Thebe
Senar
Tail=
16+13+17=46
11+6+10=27/1=28, Assumption
Chennai
Borobudur
VINIK,51
Asunsion
108, HORUS,109/1
39, bottom
Kosti
Lalibela
Nish-Lepenski Vir = 137 x 1000m=
Phile-Medina=685000m:5
Stonehange:Richat=685,62:5=137
137:1,256=109, HORUS
South pole
Sirius
182=137+45
137
45, Sky
Vinik, 4,41;51; 44
Katun, 19,48;7200
Hum, 5,5=4,41x1,256
Bubanj, 3,14=2,5x1,256
Pyramids in Giza, 233m=144x1,1618
Driving energy of
Milosh point 1,256=118,47,22,8
Driving energy of
Horus point 1,0158=327,87,30,6
118:94=1,256Milosh point,primary driving energy of Flat Earth.
64:63=1,0158Horus Point, connection
between Flat Earth and other 22+32 rings, or Potala/Chennai.
52:21=2,476190476190,DNA,main sequence of all LIFE ON EARTH

Figure 23 represents Godess *Isis* with *fish tail*, on the head together with *Horns*, which represent the oldest deity on Earth. While Figure 24 represents God *Dragon*, with human head and fish skin, with the chest of DNA and Earth measure.

Figure 23

Figure 24

Figure 25 represents almost all significiant position on Earth, and their correlation of Serbian language. These two Hexagons, represent these two fishes as connected system; but, these Hecagons are actually inside *octagons*, and this is reason why we have 8 steps *as octagons* in Figure 26.

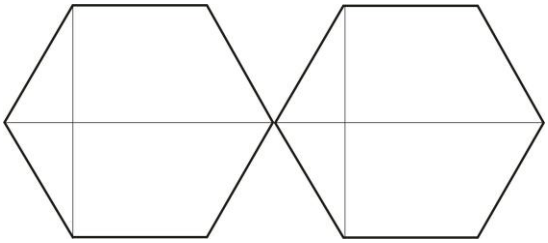

Figure 25

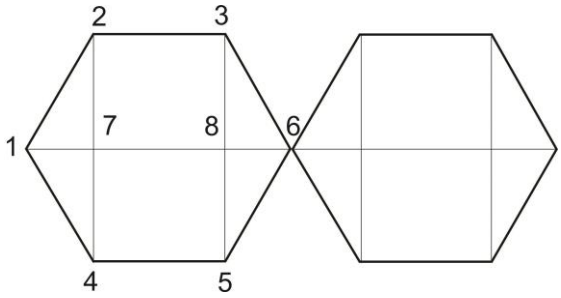

Figure 26

On Earth we have this greatest picture from ever. This two fishes, which exactly represent the all civilisation on Earth, and all measure are in coefficents which unite language, time and space.

Finally, these two fishes are actually pictures of two viruses, as irregural octagons. And, really, our DNA is only 3% human DNA, the rest is the virus waster.

From that reason, to prove that language, space and time are correlated by Serbian language, we have undertaken some measurements in thr Institute for Experimental Phonetics and Speech Pathology (IEPSP), Figures 27 and 28.

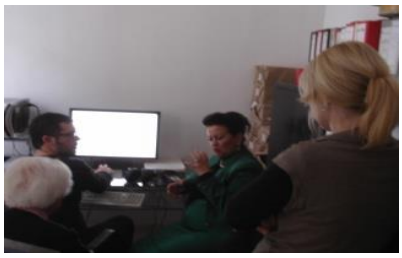

Figure 27

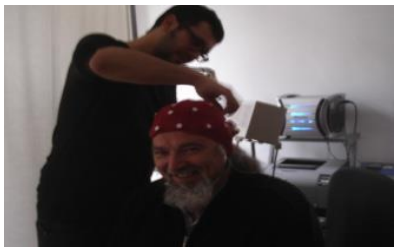

Figure 28

Figure 29 shows the power peaks of α2 waves during stimulation frequency 55Hz, while Figure 30 shows the power peaks of α1 waves during stimulation frequency 55Hz.

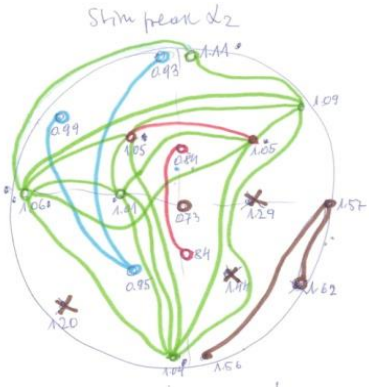

Figure 29

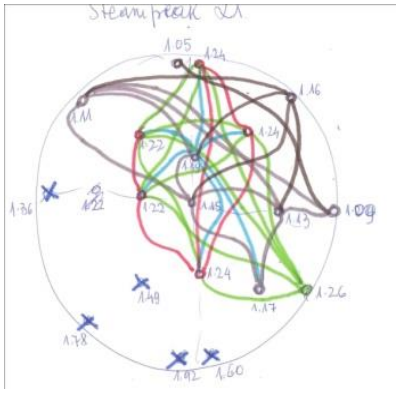

Figure 30

Figure 31 shows the power peaks of α2 waves during stimulation frequency 69Hz, while Figure 32 shows the power peaks of α1 waves during stimulation frequency 69Hz.

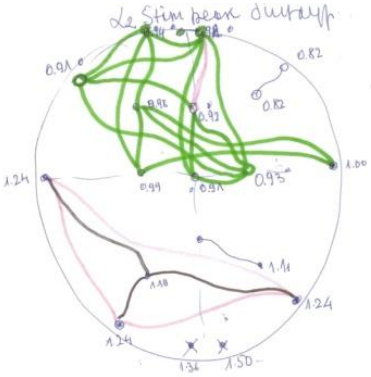

Figure 31

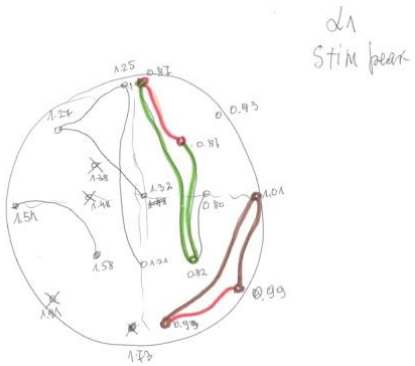

Figure 32

Figure 33 shows the peaks of stimulations at 55Hz, 63Hz, and 64Hz, while Figure 34 shows the peaks in Theta, 4-8Hz.

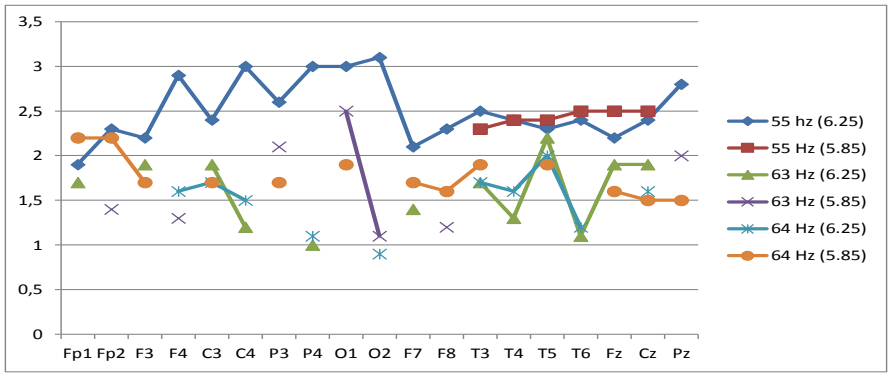

Figure 33

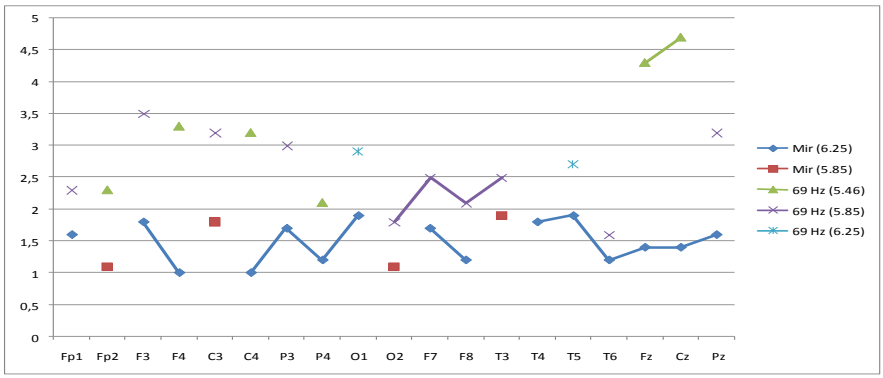

Figure 34

Figure 35 shows similarity of these graphics with star constellation.

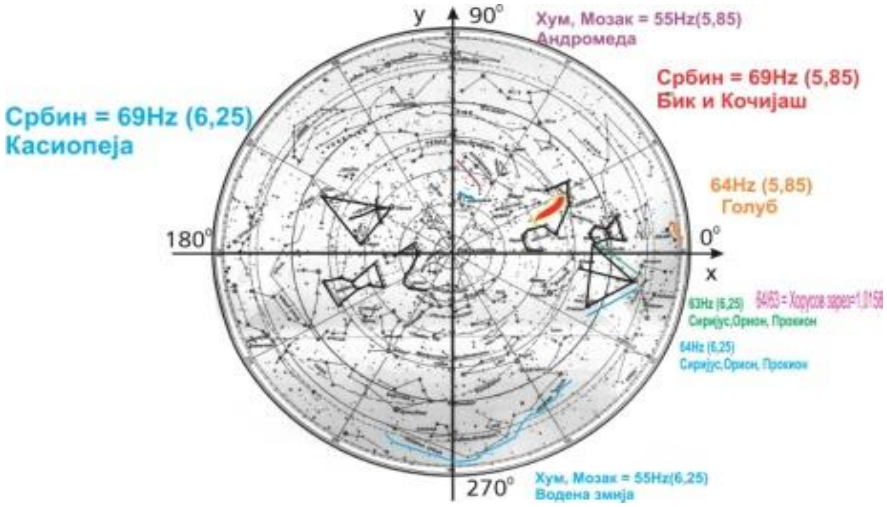

Figure 35

DISCUSSION AND CONCLUSION

Obviously, we have very limited stimulations, but they still provide possibility of orientation in time, space and language.

In addition, let us note that Great Britain scientist, Rosalind Elsie Franklin, Figure 36, has researched viruses, which look like hexagon, Figure 37, while Figure 38 represets virus in the form of two fishes, representing godess Gara as godess of bees. All DNA structures in Figure 39, as double Hexagon-Oktagon are here included, as symbols of two fishes making complete *sequence of life produing life every second on the Earth*.

All what we showed, when put in harmony row, on the guitar, which has 144 fields, gives the picture of Serbian letter ''ж''. We have for the first exact meaning of the words. All words we have in our Serbian vocabulary are with exact meaning. Similar things about word ''absolute'' and number ''144'' we have in the book of Russian philosopher Uspenski.

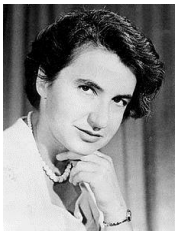

Figure 36

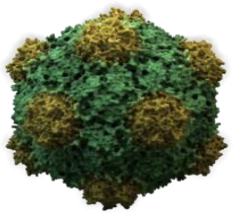

Figure 37

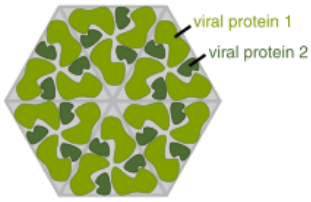

Figure 38

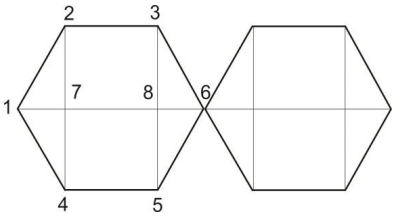

Figure 39

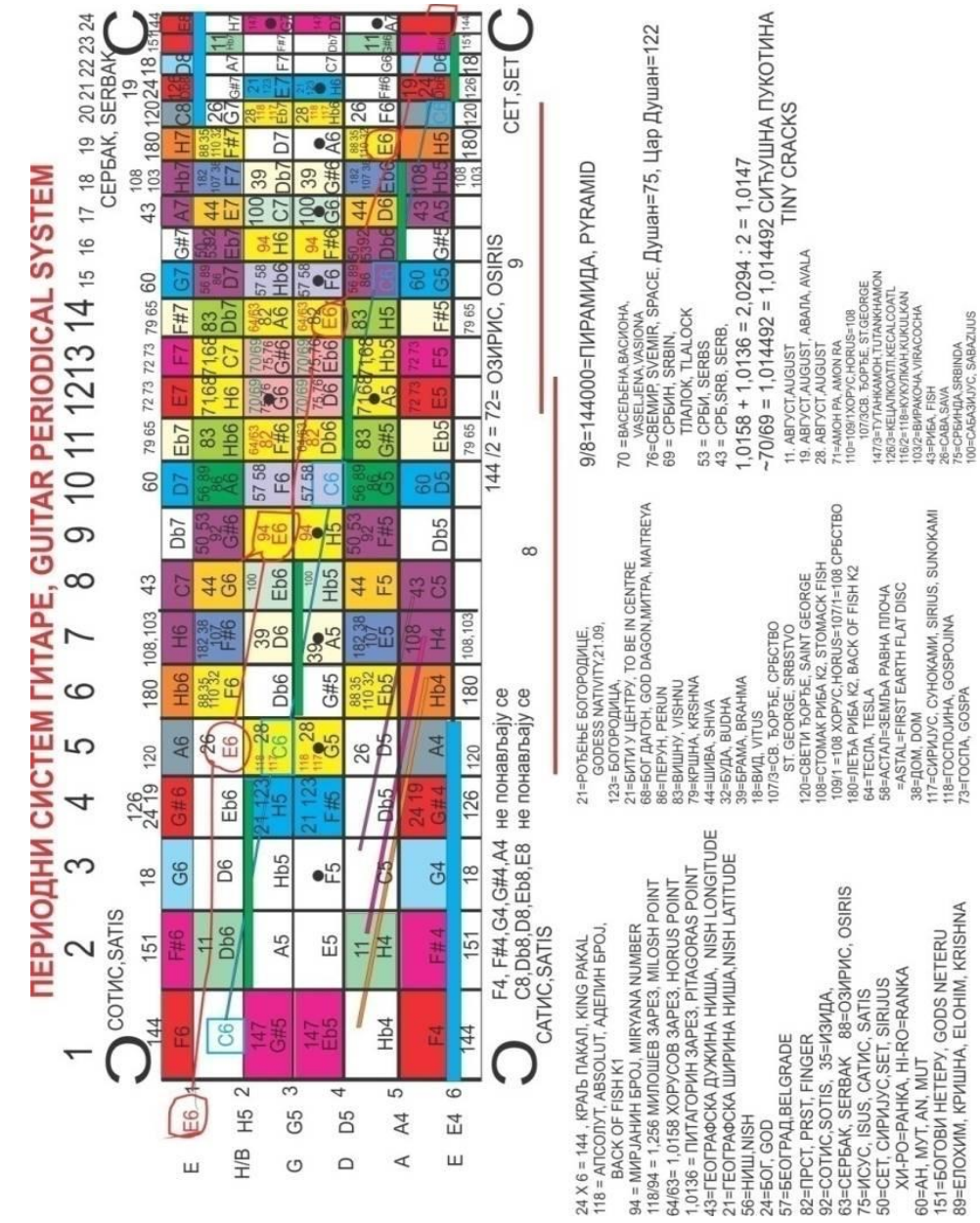

Figure 40

In Figure 40 we have system ‘’one word (notion) – one note’’, or ‘’one letter - one note’’. We make the music by words. We have here same two fishes from above, thiny cracks, Cross, K, 2K, S=C, Kalendar, Feathered Serpents, Gods, Saints, King Pakal and Tzar Dušan.

All human nature from the first moment of fertilization to a last moment of newborn child, up to grown-up man, everything is only in structure of harmonies, and constantly coding by DNA *which generate planet Earth by herself. That code* 2.476190 *is completely basic for all life on Earth.*

Serbian language is the holy key of the universe and is spiritual level which makes the orders to astral and material level. DNA is directly god word – god enter – бог зађе = бог уђе = бог хорус = соко = вид = св.ђорђе. His father Osiris creates tiny cracks with Serbs, as his living people on Earth.

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PART II. PRENATAL AND PERINATAL ASPECTS OF PSYCHOLOGICAL TRAUMAS AND THEIR TREATMENTS

APPLICATION OF THE INSIGHTS OF PRENATAL PSYCHOLOGY IN THE PSYCHOTHERAPEUTIC PRAXIS

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Abstract. In the last years it became more and more evident, that the early preverbal experiences from the time before, during and after birth are much more present in the experiencing self than thought before. These early experiences are present like a background film on an emotional and feeling level, influencing the conscious ego in an unidetentified way. Typical examples are birth related symptoms as phobic anxieties, suffocating anxieties, anxieties in tunnels and so on. These connections should be reflected and hadled in all psychotherapies, be it psychodynamic psychotherapy or behavioral psychotherapy.

Keywords**:** *Prenatal Psychology, Prenatal and Perinatal Psychotherapy*

INTRODUCTION

In the last years it became more and more evident, that the early preverbal experiences from the time before, during and after birth are much more present in the experiencing self than thought before. These early experiences are present like a hidden background film on an emotional and feeling level, influencing the conscious ego in an unidetentified way. Typical examples are birth related symptoms as phobic anxieties, suffocating anxieties, anxieties in tunnels and so on. These connections should be reflected and handled in all psychotherapies, be it psychodynamic psychotherapy or behavioural psychotherapy. To this topic I edited three books: „The Prenatal Dimension in Psychotherapy“ (Die pränatale Dimension in der Psychotherpie, Mattes, Heidelberg) and „The Prenatal Dimension in Psychosomatic Medicine“ (Die pränatale Dimension in der psychosomatischen Medizin) and „Birth“ (Geburt, both Psychosozial, Gießen).

To bring these aspects in the common awareness we founded a Study Group for Prenatal and Perinatal Based Psychotherapy (German: Pränatal basierte Psychotherapie, see www.isppm.de Rahmenbedingungen für eine Pränatal fundierte Psychotherapie). I will explain the main points in several sections.

INSIGHTS OF PRENATAL PSYCHOLOGY

We all are experiencing beings before, during and after birth. These emotions and feelings are stored in preverbal memory systems in the right brain. If there are traumatic aspects they are split off and not accessible for later experience. In the age of two years the left brain speech center begins to dominate. In specific stress situations these split off traumatic emotions and feelings from the preverbal time can be activated in a dissociative way and can lead to psychic or psychosomatic symptoms.

THE SPECIFIC CHARACTER OF PREVERBAL ACTIVATIONS

Activations of preverbal experiences can appear as: sensations, feelings, emotions, imaginations, behaviours, scenic actions, irritations, trances etc. They are not in any way speech related. Therefore the normal psychotherapy of understanding suppressed speech related contents does not function.

PRENATAL BASED PSYCHOTHERAPY (PBP)

Guidelines are: essential is a broadened awareness for preverbal early experiences. Therefore a good anamnesis of the prenatal and perinatal history is important. Then the focus has to be on the attention of extraverbal contents like sensations, feelings, emotions, images, behaviours, scenic actions, irritations, a.o. Experiencing comes first, reflexion comes later.

The aim for the future is integrating psychodynamic psychotherapy and prenatal based psychotherapy. That gives the chance for real recovery of the patient and self development.

THE MAIN TOOL TO UNDERSTAND PREVERBAI CONTENTS IS SELF-EXPERIENCE

Via:

Regression sessions: only sensing and feeling – by this you go from the left brain to the right brain (Janov, Emerson, Hollweg a.o.).

Light suggestive instruction: by going in your body feeling and letting go, you come into the emotional realm of your prenatal time (Hidas, Raffai)

Going in imaginations, so called daydream technique (Rosenberg)

Gestalt therapy techniques: identification with the symptom and elements of dreams.

At the end I want to mention a new method to resolve pre- and perinatal related symptoms and new method of prevention by supporting the pregnant mothers in their relationship with their prenatal child.

A NEW METHOD TO RESOLVE PRE- AND PERINATAL RELATED SYMPTOMS IS THE "TECHNIQUE D`IDENTIFICATION DES PEURS INCONSCIENTES" (TIPI) BY LUC NICON

The client remembers a situation with an unpleasant feeling as if it is now – this triggers a specific hidden trauma (the root of the unpleasant feeling) – than comes the question: what makes this in your body, please describe the body sensations and feelings – then in few minutes these feeling disappears and the actual unpleasant feeling or symptom is resolved (see the Book: Luc Nicon: „Revivre senseriellement", published in France).

A NEW METHOD OF PREVENTION VIA SUPPORTING THE PRENATAL MOTHER-CHILD-RELATION

A new method of prenatal support of the relation between mother and child has been developed by the Hungarian Psychoanalysts György Hidas and Jenö Raffai. The pregnant mother comes once a week for a session of experiencing the contact between mother and child. Astonishing experiences are made by the mother in the emotional contact with her becoming child.

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OVERCOMING SOMATIC AND PSYCHOLOGICAL DIFFICULTIES: NEW EXPERIENCES FROM AN INTEGRATED LINKAGE OF OBSTETRICS AND PSYCHOTHERAPY

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Abstract. In recent years it has been shown that an integrated linkage of gynecology, obstetrics and psychotherapy resulted in an astoundingly low rate of premature births among the pregnant women cared for. Many physical problems in pregnancy should be regarded within the entirety of physical and emotional processes. Symptoms are not regarded as problems that have to be got rid of, but are rather to be interpreted as signals and signposts that point towards more appropriate modes of behaviour and lead to insights into the inner emotional history of the mother and previous burdens, arising from her own or her ancestors early history. This leads to suggestions for primary prevention, the encouragement of the expectant mother to improve her inner emotional and physical state and to get her unborn child free from mother's so far unconscious impairments. This can be achieved by the early dialogue between mother, father and (unborn) child, but also including it on a conscious and unconscious level between the parents and their 'inner child'. The knowledge about the interconnections is of great importance for all professionals in these fields, their work and the general improvement of care of pregnancy. Five different methodological levels within prenatal psychology and the importance of their inclusion into care of pregnancy are worked out otherwise. This psychosomatic and psychotherapeutic access will help to prevent and treat pregnancy difficulties on an emotional and somatic level.

Keywords: *Psychosomatics in Obstetrics, Obstetrics and Psychotherapy Integration, Prenatal Psychology, Parents-Child Dialog, Primary Prevention.*

INTRODUCTION

In the following contribution, I report practical experiences from my daily work which demonstrates how trans-generational aspects can profoundly influence the situation during pregnancy and birth. In doing so, I want to illustrate how the observation of methodological levels, which were dealt with during the ISPPM's conference in September 2007, can be helpful in prenatal psychology. This also holds for dealing with psychosomatically significant illness during pregnancy, about which I report more fully.

To make understanding easier, it is necessary to know something about the situation of my practice/surgery. I have been practicing in Birkenfeld, near Pforzheim, for more than 25 years and specialized in gynaecology and obstetrics as well as in psychosomatics and psychotherapy. I work on the basis of psychodynamic psychotherapy and I endeavour to fundamentally integrate these two sides in my daily work. Birkenfeld is a village with a population of 10,000, situated at the north of the Black Forest amidst woods with the small river Enz flowing through the valley below. The town of Pforzheim is just next to it.

I have gathered a lot of experience in single and group psychoanalysis. I have also concerned myself intensively with body psychotherapy, in particular with 'Funktionelle Entspannung' (functional relaxation, according to Marianne Fuchs). Of particular interest to me are solution-oriented, salutogenetic and system-oriented approaches.

Scientifically, I have worked principally with the psychosomatics and treatment of premature birth (Linder 1997, 2006). Supportive maternity care and assisting at house births are

further priorities in my work (Linder 1998, 1994 and 1996).

My understanding of the trans-generational aspects of problems during pregnancy and birth was increased by the conference "Liebe, Schwangerschaft, Konflikt und Lösung – zur Psychodynamik des Schwangerschaftskonfliktes" (*"Love, Pregnancy, Conflict and Solution – on the psychodynamics of conflict during pregnancy"*) which was held in Heidelberg in 2006 (Linder 2008). This dealt with the deep-seated background sources of conflict during pregnancy, the survival of attempted abortion, ambivalence in contraception and the origins of these conflicts, which can make themselves felt over many generations. I wish to tell you about examples from my practical experience, of which none is simple, as is often the case in reality; somewhere between black and white, as life mostly is. It will become clear how important the extended prior history is in evaluating the problems in the current pregnancy situation. Here, the observations in gynaecological practice correspond exactly with those of bonding analysis – a method for improving the prenatal attachment of mother and child (Hidas and Raffaj 2006). What bonding analysis observes on the inside, as it were, reveals itself to the gynaecologist on the outside with all the complexities of a real life situation.

Due to this complexity, the conclusions of the ISPPM conference in 2007 on the *methodological levels in prenatal psychology* are helpful. The starting point was the need or requirement that it is necessary to analyse which levels we are dealing with in prenatal psychology and at which level we are working. The clarification of the methodological levels is important not only for working with pregnant women but also for working with infants or adults regardless of whether in the field of psychotherapy, medical situations, the work of midwives or other socio-therapeutic or socio-medical fields. It was important to identify these levels and to consider their significance. There are five of these levels:

1. The quantitative level
2. The qualitative level
3. The level of empathic insight
4. The level of practical knowledge of professional groups
5. The level of cultural psychological comparison.

In practice, it is of utmost importance for the unborn child's interests that the carers take into account and balance all five of these essential levels in their work in order to do justice to the reality of the child's life. The subsequent case histories will demonstrate how these levels are always present simultaneously and have to be newly balanced according to the situation. First, however, as background information I would like to identify the most important psychosomatic problem areas that the gynaecologist has to take into consideration.

PHYSICAL ILLNESSES DURING PREGNANCY WITH PSYCHOSOMATIC ASPECTS

In the following psychosomatic problem areas, psychological aspects play a greater or lesser role in each case. It is necessary to clarify these individually in order to gauge the possibilities of psychotherapeutic/psychosomatic treatment:

1. Threatened miscarriage
2. Status after recurrent miscarriage
3. Morning sickness
4. Premature contractions/premature birth

5. Preeclampsia
6. HELLP-syndrome
7. “Symphysial slackening”, pelvic pains
8. Breech presentation
9. Dealing with overdue delivery
10. Postpartum mastitis

In dealing with women after recurrent miscarriages, I thank Dr. Zeeb for the following literature extracts, which show that the chances of a woman carrying the child to term increase by more intensive accompaniment/supportive care from 30% to over 70% (Stray-Pederson et al 1984, Lidell et al 1991, Clifford et al 1997).

Morning sickness, which is often difficult to access psychotherapeutically, is mostly alleviated by drip-feeding and supportive care.

Premature contractions and threatened premature birth are of particular interest due to their importance in health politics as almost half of all perinatal complications and child deaths are due to premature birth. Consequent implementation of psychosomatic-psychotherapeutic possibilities of treatment, as outlined elsewhere (Linder 1997, 2006), could be of great significance here. Some aspects of this work are pointed out in the case histories II, III and IV. In this situation it is necessary to bring together a profound medical and psychological judgement. A threatened premature birth should be regarded within the entirety of physical and emotional conditions. Medical intervention consist of reduction of strain (notification of sickness, home-help, more bed rest), medication (homeopathy, aroma therapy), rarely Arabin cerclage pessary (Abdel-Aleen et al. 2013, Acharya et al. 2006, Alfirevic et al. 2013, Arabin et al. 2013) or only very rarely Hospitalization. Psychotherapy will help for relief from demands, better balance of tensions, overcome fears, increasing resources and improving security. In the end it needs the consideration of all the five methodological levels.

The diagnostic consideration of preeclampsia and HELLP-syndrome as a psychosomatic illness is important because we are dealing here with really life-threatening illnesses for mother and child that can only be treated by emergency caesarean section. However, in my experience there are strong indications pointing to psychosomatic factors for which a therapy can be considered in advance of a new pregnancy. They have been recently described in a synopsis of current knowledge about implantation time with psychological findings of patients affected by preeclampsia or HELLP syndrome. They shows striking interrelations (Linder 2014-1 and 2014-2): “The lifelong fundamental question is: how is life in a relationship possible? ***Here a second generation trauma is being dealt with, because the origin lies in the severe traumatization of the grandmother.*** She was apparently so unconsciously trapped in shock that the pregnant daughter remained so shocked in the areas of her motherliness that she could not enable the implantation and vascularization processes to take place adequately enough".

A new insight is the psychosomatic background to symphysial slackening or pain. Here, profound conflicts in the relationship between the pregnant woman and her mother, stemming from the embryonic and foetal stages, often play a role.

Dealing psychosomatically with overdue birth is a delicate subject and requires the integral consideration of psychological and physical aspects.

The understanding of postpartum mastitis as a typical psychosomatic illness, resulting from the inability to cope with excessive psychological and physical demands, is now common to many obstetricians and midwives.

When ascertaining psychosomatic interrelations in gynaecological consultation, it is

important to have a particular attitude which is open for every methodological level and in particular for the dimension of pre-verbal life. Here is a short explanation of this.

PERCEPTIVE ATTITUDE IN GYNAECOLOGICAL PRACTICE

When ascertaining psychosomatic interrelations in gynaecological consultation, it is important to have a particular attitude which is open for every methodological level and in particular for the dimension of pre-verbal life. Here is a short explanation of this.

Prenatal psychology has taught us how important the early pre-speech stage is. Pre-verbal experience can express itself in dreams, emotions, moods, bodily sensations and feelings as well as in scenic realization. Here, I want to expressly include associations and re-stimulation. We know from the experience of Balint groups that the background of a problematic situation can reveal itself in the group. And it is exactly these aspects, which are sometimes seen as chaotic and perhaps hard to digest, that are of psychodynamic importance. They are therefore an important diagnostic instrument.

This can also be observed in the subsequent case histories. There aren't always instant right answers; some questions remain open. Sometimes it isn't possible to pigeonhole things. This is why openness, enduring not knowing and repeated appointments are so important. What might remain unclear in one session can be understood in a later one. What isn't possible in one session can happen of its own accord in a later one. Gynaecological action can only arise from an understanding of the whole situation based on the interactions of the relationships in consultation. Here the fundamental setting of gynaecological practice is analogous to free-floating attention in psychoanalysis, although there the patient brings into the session the totality of a concrete life situation in free association with different levels of their communications and behaviour, including bodily expressions. As a result of the great responsibility in understanding and taking action, a special intensity develops in the diagnostic and therapeutic situation. This exceeds the bounds of the normal psychotherapeutic situation and requires of the gynaecologist great presence and the permanent re-evaluation of experiences and perceptions.

Case-histories deal with ongoing therapies, as interconnections can then be more vividly and authentically described. I would like to point out that I have to present the complexity of the cases as they exist so that you can comprehend how it is eventually possible to distinguish the really important dynamically effective aspects which then facilitate sensible action.

This happens in a kind of circular process. When one particular aspect becomes comprehensible the therapist can then provide a stimulus relating to it, creating a new situation that facilitates new possibilities of understanding, and this in turn activates a further level. This process repeats itself several times. The whole thing has similarities with the mechanisms of a psychotherapeutic process, only all levels of reality are present. In addition, it could almost be said that the structure of this process is similar to the dialectic process described by Hegel with the progression from thesis to antithesis and then to synthesis, which in turn becomes the starting point for a new dialectic triple step.

Now for the concrete case histories.

Case history I – Denial of pregnancy in the prior history and its repercussions

Mrs A., in the second half of her twenties, lived together with her friend. She came to me in the 24th week of pregnancy with severe morning sickness requiring a certificate of illness. She was

in her third year of nursing training. It soon became obvious that she also had a drugs problem. She had smoked a lot of marihuana. In passing, she said that she had always had problems concluding things. This was a spontaneous statement, the significance of which would later become clear from her biography.

To begin with, I gave her a certificate of illness in order to take pressure off her. She wasn't able to give up smoking for the whole length of the pregnancy. We kept talking about it: sometimes it seemed as if she had managed to stop, then it was clear that she hadn't. Luckily, this point turned out to be not that important as the child was developing well. The ultrasound examinations never revealed any developmental deficits. I gave her an anamnesis questionnaire about her biography to fill in. These questions appeared on it:

1. Particularities during the pregnancy (your mother with you)?
2. How did the birth progress?
3. What about the months afterwards?
4. What do you know about your parents' relationship at the time?

The prior history of this patient is really special because on the questionnaire she described how she had been conceived. Her mother had had her first child at the age of 17. She was the second child, conceived during a chance encounter with a man at a summer festival 200 km away. Her mother had denied the existence of the pregnancy, although she had already had a child and must have been familiar with all the changes and the child's movements within her. Apparently, no one around her had noticed anything. There must have been some awareness somewhere, but it had quickly vanished. In the end, she went to hospital with suspected appendicitis. This was the birth of the woman who was now herself pregnant. Therefore, it was fitting that she said "I can't conclude things". I find this very logical in view of the mother's transference when seen from the trans-generational viewpoint.

Now, this is how it continued: unfortunately, she developed severe gestational diabetes. I am not depicting this from a theoretical viewpoint, but from the practical viewpoint as things developed in my practice where all the background elements of the different levels are always present and significant: the quantitative, qualitative, empathetic and the others. Mrs A. had in many respects, as could be expected from her prior history, a way of refusing to believe things. She visited the diabetes doctor irregularly - I worked together with an internist diabetologist. She also had difficulties keeping to agreements and missed appointments because "her mother or friend hadn't given her a lift". These are obviously the kind of things that frequently happen when there is a background problem with drugs. To begin with, she often didn't have the sheets with her daily blood sugar measurements with her. She gradually managed to improve measuring and bringing the results with her.

For a long time, she was undecided if she wanted to have a house birth or not. But in the end, the diabetes and the necessity of intensive monitoring of the child made delivery in the clinic advisable.

The delivery date was one week overdue which, in the case of diabetes, required greatly increased attention and patience. However, the delivery went well and Mrs A. was really very happy and contented.

I have to add here that it wasn't possible for the patient to come to terms critically with her mother because she was too dependent in reality on her mother and her support. I did, however, keep bringing up the subject cautiously.

I hope it has become clear that the whole situation of the patient and the supportive care during pregnancy was overshadowed by the denial situation in the time before her birth. Knowing

about this facilitated caring for her as well as possible under the given circumstances. Without this holistic approach, there was a danger that individual aspects could cause one-sided interventions which in their turn would cause a chain of further reactions which could have had severe consequences.

Case history II - Repercussions of being unwanted in the prior history

Mrs B. was 43 years old when she came under my treatment two years ago. The friend lived in another flat and she was newly pregnant. It was her second pregnancy. Her first child, a daughter, had been born 17 years earlier. She required prenatal diagnosis on account of her age. Due to anomalies in the region of the neck, I advised further clarification by standardised ultrasound screening with a colleague. He then calculated her risk factor. Going by age alone, this was 1:25 that the child had Morbus Down (Down's syndrome) and after the examination 1:15, i.e. even higher. We then discussed the matter, and after a detailed process of information she wanted no further diagnosis carried out. It was noticeable that she always had a radiant smile on her face when she believed in the intactness of her child. Parallel to this, there was a serious crisis with her partner that led to a separation. She had to go through a lot during the process. In relation to this, premature contractions set in, which, however, disappeared after the strain had been relieved by the discussions and temporary certification of illness.

She was always able to regain courage and bore the child normally. The collapse came 6 months after the birth. She then had a mental breakdown and I made an application for formal psychotherapy. In this context, it first became apparent to what extent the issue of being unwanted was important to her: she was the fourth child; the mother had got pregnant against her will by the child's alcoholic father. She kept arriving at the point where her feeling of security threatened to breakdown, which resulted in her feeling that she simply wasn't able to look after her child. She said she sat in her flat and could do nothing – regardless of whether the child cried or not. She had also started smoking heavily again and wasn't eating regularly so that she finally weighed less than 50 kilos. This depressive psychosomatic reaction had been triggered by the fact that the father of her child had promised her a certain sum of money and not kept to it. She felt that she was just hanging in mid-air. The non-appearance of the money had triggered her own prior history of being unwanted.

Another impression was that when she railed against the father in her distress, often the child was with her and it always screamed. We were then able to discuss this and she was able to understand it. Of course, she still has much to come to terms with and that can happen in the continuing psychotherapy.

Case history III -- Pregnancy after endometriosis

Ms C, 36 years of age, came for the first time to my gynaecological surgery after missing a period on the recommendation of relatives. She was a very well-groomed if somewhat emotionally reserved woman who had worked for more than 12 years in a higher grade of the civil service. She complained of dizzy spells and nausea. While going for walks she had to stop over and over again, "It's as if my feet were being pulled out from under me." A sick line was issued for her. Her previous history: 5 years earlier she had undergone months' long hormonal treatment (artificial change to the menopause) due to extreme endometriosis (dispersion of endometrial mucosa in the abdomen). During several operations in one year the foci in and around the ovaries as well as part

of the large intestine had been removed. It had even been necessary to give blood transfusions during the operation. In an earlier marriage she had not become pregnant despite the wish to have children, especially on the partner's side. Now, in a new partnership and marriage in which she feels very happy, the pregnancy had occurred without further treatment. After one week bleeding had started. The ultrasound examination showed an intact pregnancy. Prescription of a homeopathic remedy (Crocus) was given. This recurrent bleeding remained a problem during the next weeks. Naturally further sick lines (this remained so until the start of maternity protection). There was, however, reason for definite concern, calling for ascertainment of biographical anamnesis (medical history). This included again the anamnesis questionnaire (see above - case 1).

Her past history was really special: her mother had also suffered from severe endometriosis 7 years before her birth. During the operation her ovaries had been so reduced that only one ovary remained in total. She had been told at the time that a pregnancy was not possible after this operation as the rest ovary was only capable of a minimal hormonal function. Unexpectedly she became pregnant with Ms C. There was also recurrent bleeding at the beginning of the pregnancy (threatened miscarriage). Inpatient treatment in the hospital and hormone injections were necessary to maintain the pregnancy.

Ms C's birth was absolutely normal although her mother had great problems in breathing through the contractions, due to the pains in her lower abdomen. Four months after her birth a hip dysplasia was diagnosed which required wearing a splint for a long time.

Ms C's education and social development progressed well through her early years. From the past history it should be mentioned that her father has for a long time been mentally affected by depression, which puts her under mental strain. Noteworthy in her fathers's past history is the very early loss of his father in the war as well as the later loss of his mother through suicide.

To return to Ms C's pregnancy: the bleeding occurred on and off until the 13th week of pregnancy. At the same time we were involved in discussion of her own situation as an embryo; her own endangerment during this time. Her mother's astonishment at becoming pregnant so surprisingly similar to her own, adding to the anxiety about everything would go well. Later, in the 30th week of pregnancy she developed a much shortened cervix: ultrasound length of cervix 26 mm. Therefore an Arabin cerclage pessary was inserted which she tolerated well.

In a discussion with her husband, a prenatal and perinatal traumatic experience also emerged from his past history: his mother conceived him at a very early age. At the same time a pregnancy among his relatives ended unhappily in the death of the child. He himself was born 6 weeks too early weighing 1500 grams (also small for the date) and lost a further 200 grams after birth.

She was introduced early to the chief physician of the obstetric clinic. This proceeding is particularly to be recommended in more complicated cases. The background personal history was mentioned candidly and the hospital colleague related in his very careful and empathic discussion report the plans to enable everything during the birth to proceed as normally as possible. Further progress was normal with removal of the Arabin cerclage pessary in the 36th week of pregnancy. However, a positive test for B-streptococcus in the vagina presented a complication. Ms C reported many dreams with birth scenes in which, although labor progressed rapidly, she would reach the clinic in time.

The pregnancy exceeded the arithmetical birth date. At this time a noticeable drop in the heart sounds (to 85 beats per minute) in the cardiotocograph (CTG) caused some alarm. After faxing the data to the hospital colleagues we came to the conclusion that this occurrence could be interpreted as being caused by a simultaneous continuous contraction of the womb. The next day,

Ms C was examined in the hospital thoroughly and in detail with ultrasound. The plan remained to continue close supervision, but no action.

Three days later a healthy boy of over 3600 grams was born spontaneously. However, due to an infection, he had to be transferred with his mother to a neighbouring hospital with a pediatric clinic. There the inflammation values went down within a few days and Ms A was able to be discharged in good health within a week and went home with a healthy child.

She was very happy about this outcome and was radiant at the first follow-up examination. The child had gained weight well and she obviously had good contact to him. Breast feeding had however not been greatly successful, only partial and for a total of four weeks.

In reply to criticism on this point regarding the short duration of breast feeding, I would point out how many critical obstacles Ms C., her son and her husband had been able to master well despite the very difficult past history. In order to lessen mental stress, I consider it counterproductive to turn the question of breastfeeding into a problem. Perhaps in the case of another pregnancy she can still achieve progress in this respect.

Case history IV – The effects of a lost twin in prior history

Mrs D. was 27 and had got pregnant unexpectedly. She hadn't expected it because she suffers from Crohn's disease and had had 20 operations on her abdomen and intestines – including an anal extirpation - and lived with a stoma. She came recently, in the 24th week of pregnancy, complaining of stomach pains and wanting a certificate of illness. This seemed to me to be a sensible way of relieving strain as she seemed to be overstressed and there was a suspicion of premature contractions despite her fundamentally marked commitment to her job. The emotional and/or physical overtaxing of women is the most frequent cause of premature birth, and this is often underestimated. After two weeks everything had calmed down.

Mrs D's record revealed that she had previously suffered from pronounced neurodermatitis and it transpired that her mother had assumed she had had a miscarriage due to bleeding early in the pregnancy with Mrs. D and thought the pregnancy was over. The mother had turned out to be wrong and in the end the patient had then been born. The situation of the lost twin and her own endangerment was discussed with her at length. She had made it but her twin had not. She was able to take in the interconnections. I think that the therapeutic efficacy of this work lies in the fact that people can talk about the traumas and share the feeling. So it was in this particular case and this is why I'm not really worried about the further progress of the pregnancy. She is now in the 34th week of pregnancy.

The question of the form of birth, i.e. how she is going to deliver the child is still unresolved. Her surgeon, in whom she has great confidence due to her years of illness, has voted for a caesarean section due to the scarring caused by the operations for Crohn's disease. My idea is rather this: the womb is the only undamaged organ so why subject it to this operation? I have now spoken to the chief physician of one of our gynaecological clinics – in this situation you're always the go-between - with whom it was possible to discuss the situation. He agreed with my opinion. It is, however, possible that the patient herself will want to have the caesarean section due to the traumatization of the many operations, in the assumption that her maltreated pelvic floor would be the better spared. There is to be further discussion here.

OUTCOME DATA FROM APPLICATION OF THIS METHOD

For the Cheek Memorial Lecture at the 2009 APPPAH Congress it was possible for me to present my own results. The data of all 1165 pregnant women, taken receiving prenatal care in the years 1986 – 2008 were collected prospectively. Since it was done in a single centre study they were compared concerning the prematurity rate with accessible data of Germany or Baden-Württemberg.\

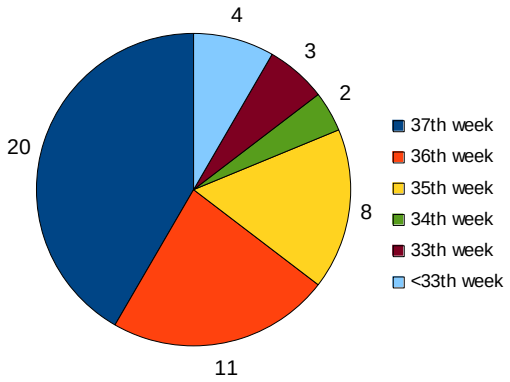
The ***way of delivery*** was in 82% spontaneous, in 12% by c. section und in 6% vaginal-operative.

Fully breast-feeding after 6 weeks were 83%, 17% not.

According the ***prematurity rate*** we have to consider, that there are 2 definitions existing:

1. by the time of duration of the pregnancy (before end of the 37. week) and
2. by the birth weight of the newborn less than 2500 Grams.

In the own collective the prematurity rate (by duration) was 4% (*n* = 48 from 1165). These, however were mainly spread among the higher gestational weeks (as depicted in the Figure below).



The table of comparison looks like that:

	Own results	Baden-Württemberg	Risk reduction to
By duration	4.00%	10.00%	40.00%
By duration < 33 wks	0.34%	2.50%	14.00%

Newborns born before the end of the 33rd week are considered as very early premature births.

By birth weight there are in the own cases 22 with less than 2500 Grams, 2 of them with less than 1500 Grams (very low birth weight).

The table of comparison looks like that:

	Own results	Germany	Risk reduction to
By weight < 2500 Grams	1.89%	8.00%	14.00%
By weight < 1500 Gramm	0.17%	2.50%	7.00%

Additionally it seems remarkable that there was only one premature born baby with five minutes Apgar of less than 8.

From these results the impression is arising that within the own collective there seems to be less children with intrauterine growth retardation. The risk reduction by weight is much higher than by the pure duration of pregnancy. This can be a result of the same intervention measures, which obviously are effective against premature labour, but seems to be also reducing impairment of placental perfusion and intrauterine growth retardation. This issue should undergo future investigation.

CONCLUDING REMARKS

An important observation in bonding analysis is that burdens in the prior history of the expectant mother and her mother are of far greater significance in the ongoing situation than is assumed in the normal view of maternity care, which is so confined to the present situation. This observation can be fully confirmed from the viewpoint of the psychotherapeutic-psychosomatic gynaecological practice, only here there is even more complexity in the consequences of burdens from the patient's own prior history as well as the mother's, among others in the prevailing corporeality. It is evident that the early burdens shape the whole life situation of the expectant mother and the arrangement of her relationships. The awareness of the trans-generational depth of the prevailing situation makes it possible for the gynaecologist to take into consideration the different existential and methodological levels and so find a new balance between these levels. This is what makes possible holistic understanding of the patient's complex reality and so undertake appropriate action for the benefit of all persons involved (mother, father and child). To put it into five sentences:

- During pregnancy there often is a reactivation of early emotional states from the individual earliest life history
- The mother gives home to a new person in her womb. Especially in difficulties it is VERY important that she herself gets support from her close or - alternatively - from her more distant social surrounding
- The regard of the five methodological levels is significantly reducing complications and allows many more options of treatment
- It may be suggested for caretakers in the psychotherapeutic and obstetrical field to recognize and work on self-activating personal backgrounds
- Implementing multidisciplinary teamwork and continuing education in these issues are strongly recommended

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ON TRANSGENERATIONAL PROBLEMS IN PREGNANCY AND CHILDBIRTH
In honour to Jenö Raffai PhD who died on April 3rd, 2015

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Abstract. During the last decades there evolved a range of body therapies for grown-ups, children, and babies to heal the unconscient damages of birth traumata. The prenatal mother/parents-baby Bonding Analysis (BA) is a preventive technique in the realm of psychoanalysis. It was invented by two Hungarian specialists – Hidas and Raffai - who while treating young schizophrenics followed them into their inner intrauterine reality and discovered their separation-anxieties which meant death to them as mother and baby inside only had one heartbeat. The researchers decided to work on a salutogenetic method for pregnant parents and their baby to prevent psychotic states later on in life: for the parents to work on their own prenatal, transgenerational, and birth traumata, for the baby to strengthen his early ego-forces and to feel as a person of his own. As pregnancy is a time of greatest openness in both parents they are able to develop insights in their own families and the burdens they bear but do not want to pass on to their baby. Since ten years we learned and spread this method in Germany, too. Some illustrations from BA sessions will give insight how a transgenerational trauma appears and how we try to overcome it so that the baby inside is not afflicted by it during birth or later on in life. Nine separation sessions in the end of BA help parents and baby to leave the inner community and accept the outside meeting while staying together.

Keywords*: Bonding Analysis, Mirroring Baby´s Feelings, Body Feelings of Mother and Baby, Strengthening of Baby´s Developing Ego, Separation Sessions*

ON EARLIEST VULNERABILITY

I like do dedicate my talk to my friend and teacher in Bonding Analysis and like to quote him as much as possible to make you get acquainted to his ideas.

Sorry that I have to start my talk with problems and not with the the solution for the best birth for every baby. During the last decades we learnt by many investigations how much anxiety and stress of a pregnant woman can burden her child with sickness later on in life. Verny or van den Bergh and many other authors gave overviews on longitudinal studies from the 1. trimester of pregnancy to age 15 of the children or of grown-ups and summed up health effects, such as: Low birth weight, prematurity, congenital malformations, cleft lip, cleft palate, and spina bifida, and later on SIDS serotonin defects in the brain stem, heart disease, hypertension, cancer, depression, schizophrenia, ADHD. "The more you are exposed to stress, the more vulnerable you become to all forms of illness and stress. This applies to all living creatures from conception on", so Verny put his summary.

In every human being there are earliest imprints in embodied memories of his way of being conceived in love or not and of being loved and accepted or not when his mother detects that she is pregnant. If she and the father are frightened to accept the baby and think of abortion, the baby receives this information into his developing neurons and passes it on to the six layers of neurons in migration from 12th to 20th week of gestation. Joanna Wilheim suggested a basic matrix by the existence of a cell-memory which is fixed through all layers and can harm the baby after birth or later on in life, if not soluble as she got to know from her patients. She gave us examples of psychoanalyses which only came to fruitful working together when the deepest layer of the way how conception was reached and earliest vulnerabilities could become mentalised.

Bion said: ”The thing that is forgotten, or put it in more psychoanalytical terms – repressed – then festers in the unconscious. It goes on living out of control, out of our conscious control. There is nothing you can do about it. So the attempt of the analyst is to do the opposite of forgetting ... to unforget what is forgotten. It is not so that the forgotten thing will then be remembered forever and ever but paradoxically you can´t forget something which you don´t remember. So, first of all, you have to remember it and then you can forget it.”

Here I give you a striking example of how this can work very early in life: It only needs an attentive doctor. A young couple with their six days old son come to see a paediatrician to make sure that everything is fine. The doctor hears the baby cry violently and desperately in the entrance hall of the building. He talks to the baby and can calm him. But the desperate crying is repeated in the following visits when the couple enter the entrance hall with their baby. During the fifth visit the mother suddenly grows pale as she remembers: “The entrance hall”, she says, “I did not realize that I had been in this entrance hall already. It was in the beginning of my pregnancy. I went to another storey, to inform about a voluntary abortion. I´d never have thought ... How can he remember that incident?” The doctor explains to the baby that his mother in the beginning of pregnancy with him felt in great trouble but she had kept her baby and forgotten about getting rid of him so only now she remembers that there had been a step of hers without love. Both his parents love him, he is their child being born out of love. The baby stops crying and further visits are without a problem (Titran). The threat has been mentalised and understood.

There is not always such an early and hopeful solution from which the baby can recover. This baby showed his horror of abortion very early, and his parents and the doctor could help to detect why the baby behaved so. What could have become of the baby if his early trauma had not been discovered? Many people live with horrible earliest memories for years until they burst out, and force them to suicide or murder. We remember the hard work of John Sonne treating survivors of abortion in psychoanalysis and found out special traits they showed: “Abortion survivors make limited use of poetical metaphors and metonyms in their speech and have little sense of humour. They have extreme difficulty trusting. They are not thankful, grateful or appreciative. They do not feel present or connected, and do not believe in the soul or in God. They want what they fear, and they are what they hate. Seeing themselves as loathsome, dirty, defective, incurable, unworthy, and discardable they tend in part to regard the traumatic abortion threat experienced by them prenatally, and the poor treatment they often experienced postnatally, as justified. They have identified with the aggressor... Not only are they suicidal, they are also homicidal. In a homicidal mode they will attempt to abort, or sanction the psychological abortion of any potential competitor or potential friend, including their therapist...”.[1]

We have to bring these findings into general knowledge and not keep silent any more about it. Actually we deal still with this problem often, but with problems of IVF/ICSI-produced children as well who show deep traumata in body and soul, though we like to have achieved feel better to think that we have achieved new technical methods to help women who long for a child. But we cannot underestimate their stress to be the object of medical treatment and lose the necessary human nearness of coital procreation which means a great difference to the couple and the baby. Here as well we have to say what a difference it means to be created by a loving coitus or by utmost stress for the mother or both partners which they pass on to their baby.

As since long we know the results of stress and anxiety which a mother passes on to her baby inside it should be the time now to change our way of affecting our children with despair and/or diseases later on in life in that respect. We know about baby therapy after a problematic birth and of body-therapy or psychotherapy later on in life. Certainly they are very helpful. But

all these therapies start only when the damage to the early neuronal development in the antenatal child has been done and becomes manifested later on. Anxiety and stress do not come from a nowhere but they often are results of traumata of the baby´s mother very early in life and from realities or phantasies about too heavy a burden to bear for mother or father of the prenatal child.

INTRODUCING BONDING-ANALYSIS (BA)

In her preface to Alessandra Piontelli´s book *From Fetus to Child* (1992) Elizabeth Bott Spillius said that "she does something no one has done before." Piontelli observed the behaviour of antenatal babies via ultrasound sessions and accompanied these children after birth during four years to show the connections between prenatal and postnatal life. That was really an important step, but psychoanalysis at that time did not change its position. So Piontelli´s approach offered new thoughts for body-psychotherapy and new therapies on perinatal problems only.

There is only one prenatal method we know to hinder the further growing effects of traumata on antenatal babies and their parents. Two Hungarian psychoanalysts, Hidas and Raffai, invented it and worked it out while dealing with psychotic youths who regressed to the prenatal state living in their mother´s body and experiencing enormous fears of death by separation. The two scientists decided not to develop a new theory of schizophrenia but from their insight invented an earliest intrauterine talk between mother and her baby inside to make separation for mother and baby easier and to help both of them to gain a self of their own. For the mother/parents it means to undo the bonds to their former families not being child of their family any more but start to become a parent for their own child. Hidas and Raffai had worked out their method with some thousands BA´s in Hungary when – since 2004 – they offered the method in Germany by teaching BA. Since then we reach many more pregnant couples via BA. Meanwhile we have about 150 BA-practising persons in Germany, Austria, Switzerland with the result of a better development of babies and parents, decreasing pre-term births and Caesarian sections. One of us spread the method to the USA meanwhile with great success. So BA does something, too, what no one has done before. BA does not accompany pregnancy via ultrasound but goes a step further to better inner communication and relationship between mother-father-baby during the prenatal time. BA makes mothers experience their own body first and then learn to understand the baby´s language inside via body-sensations. Raffai (1997) explained the steps to the relationship: "a) taking up relation with the own body and body-sensations; b) melting with the uterus which leads to a connection with the child respectively the personification of the uterus taking up the impulses and feelings of the child; c) melting with the child which enables a differenciated formulation and personification of the child´s sensations. On this level the mother speaks for the child; d) a dialogue in which the mother varies in speaking as the child and as herself depending to whose feelings she is turned" (1997).

Thus we try by BA to prevent mothers/parents and their unborn babies from stress and anxiety and invite them to a loving cooperation before birth, and the baby inside is most willingly to feel loved and accepted and accompanied in his inner life. We can say the baby inside craves for love and acceptance and does not want to feel alone but is delighted by his parents´ help to be a member of their family already when inside which helps all of them.

Raffai often talks about the most important intrauterine development "which leads from unity and sameness to differences, that means to development of the foetal body and further to

ego borders. It does not only mean that the baby grows out of the body of his mother but as well that his ego develops in the interaction with his mother.

Our conscience always contents an other one as without an other one there is no self consciousness. I think that in the centre of the well developing baby before and after birth there is the mother who always mirrors him.

We got the experience that this intrauterine developmental psychological event is very vulnerable. There are two reasons, and they are together with the two most important discoveries of BA. The first discovery is the context between the mother-child disturbance of bonding and the later psychotic diseases. For that BA especially is the method of prevention. A later discovery in BA was the multigenerational-intrauterine realm. This means the baby inside lives in a complicated system of relations; not only his parents but his grand-parents as well can influence him. Sometimes directly, sometimes not. They can determine his fate, too, even against his parents.

Since this last discovery the target of BA is not only to hinder later possible psychoses but as well the control of the whole psychosomatics of pregnancy: prevention of pre-term birth by control of bleedings, pre-term labour etc. As a further aim we can see the psychic development of the pregnant woman which, too, is the precondition of the psychic development of the baby inside" (Raffai 2012).

When a pregnant woman or a couple ask/s for BA at first we do an extended interview starting with the actual pregnancy, then going backward in time to their own birth and knowledge about earliest problems or problems in the family concerning pregnancies.[2] The treatment consists of 1-2 sessions/week. At first the mother talks about what has happened during the last days, about her feelings and her thoughts, then she lies down and tries to get into contact with her uterus and her baby. She tells about her feelings, and what she feels from the baby, or she is silent during the inner contact and tells afterwards. In the 32nd week we introduce the mirror-play: Alternately mother shows the parts of her body to the baby and names them (this is my head) and points at the parts of the baby´s body (this is your head). Then she asks the baby to show the parts of his body to her. This play helps to clear the body boundaries and to sharpen the baby´s observation of his own body as separated from that of his mother. From the 36th week on we have nine separation sessions with special themes and texts formulated by Hidas and Raffai. With the 9th session BA is finished, we invite them to show us their baby after birth and tell about the birth and their feelings and their togetherness with the baby. However, if a mother needs some more psychic help still she certainly can come.

The motives to start BA are diverse, mostly we see mothers/couples who expect their first child and want better conditions for their baby than they formerly had. Or they come after an unhappy first birth or after a miscarriage.

To give you a vivid image of how BA works here I introduce a case study by Raffai at first.

Case study 1

Mariann expects her first child and comes for BA in her third month of pregnancy. Her main motive to come is her fear of a miscarriage increasing to panic attacks. Her second motive: Yet she has not felt anything from her baby and she only knows by ultrasound that there is a baby growing inside her. During the first session her relation to her mother becomes foregrounded: Her mother is a perfectionist with a successful scientific career, a woman orientated on output who educated her two daughters to achieve independence as early as possible. In their relationship emotions were kept in the background. In this first session Mariann feels that she quickened the birth of her baby. We can conclude that her mother´s idea is behind

her wish to get rid of the baby as her mother wanted to be freed from her when she pressed her to most swift independence. We realize that her mother speaks from Mariann when the fear of miscarriage is acute. The living mother inside her wants that Mariann may be freed from the baby as soon as possible; in reaction Mariann becomes afraid of a miscarriage. A long struggle starts with her mother-representative. The more we understand about that the less Mariann is afraid of a miscarriage.

We learn about the childhood of Mariann here: She has been pushed to most swift independence and we can assume that her mother was not glad about her pregnancy as a child might disturb her scientific career but rather wanted to get rid of the baby as early as possible. There is the notion of a mother-representative here. I have to explain to you and we learn about the earliest imprints on the baby by the mother or the parents here.

At first after procreation every mother physiologically attacks the strange intruder to get rid of him. This is meant by the dark side of the mother-representative. Later on these physiological attacks change into help to keep the new being alive and then the receptive side of the mother representative can emerge. More or less are both sides of the mother representative present in every pregnancy and are reflected outside, too: With a pregnancy suddenly the former children and parents have to leave their long-lived positions and change to the position of parents and grandparents. This is such a big leap that many families need a long time to get accustomed to it or are moved by their own earliest unconscious mempries. In BA it can mean a special hindrance to reach the baby if the mother to be is not yet ready to become a mother herself or maybe has missed her mother as a "good enough mother" in her earliest life. So she has no idea how to become such a mother herself. In BA there might be a big dark spot or a hardening of the uterus not to let the mother enter, a dark and heavy wall against immediate contact with the baby which we see due to the mother representative.

I continue with the case report by Raffai. He says:

"To come into contact with her uterus is very difficult. We learn that since she was 14 there is a problematic relation to her uterus. A gynaecologist attested her then a small and rugged uterus and since then Mariann could not love it but rather felt that it was angry with her as she had become identified with the opinion of the gynaecologist" – and with her mother´s we could add here who thought a baby bearing uterus a hindrance to her scientific work.

"Her uterus expressed anger during menstruation via spasms and great pain. After having worked on her uterus all this session during the following session her uterus takes her in deliberately and for the first time in her pregnancy Mariann feels her baby nestling to the uteral wall. The meeting is cathartic. She never imagined that this could occur. Since her relation to the baby is constant. She feels the baby as a cautious one. Mostly it is in the under part of her uterus and it needs some sessions until it dares to move up and makes his mother feel him moving. After some time Mariann feels as if the baby hides. This feeling grows when she repeatedly realizes that the baby takes up her rhythm of speech and nearly melts into her and thus makes himself hardly perceptible. She feels that her baby is threatened by a danger and wants to become invisible to escape. Again the threatening mother is foregrounded who wanted to get rid of the baby. Mariann is desperate as her mother is between her and her baby.

When Mariann dares to buy a baby carriage and the first cloths for her baby, she has to conquer the living mother in herself, the mother representative in herself. Since that moment the baby stopped his trials to melt within her to become invisible and not to be felt in his own. For the first time Mariann feels that she has become the mother of her baby which she could not imagine before."

Case study 2

Now I give you a more detailed example from a BA of mine:

Denise, 28, came when pregnant in the 20th week with her first child, a daughter. She loved her partner but she felt insecure in many ways and did not want to pass this on to her child. In anamnesis I learned that she lost her father suddenly when she was 12 years old, she had not realized quarrels between her parents before. All of a sudden to her her parents had separated, she felt deeply depressed that her father did not care for her personally any more, he only paid for her. She and her two years younger sister stayed with mother. Her partner does freelance activities and is always on the run. He has a two years younger sister like her. She herself works in an integrated kindergarten. She likes to ponder about things while her partner enjoys to be with many people. But he often visits the grave of his father to talk to him since he died three years ago. The memory of a father lost brings them together. Moreover Denise has got a grandmother who is queer, her partner has got a queer mother, they are acquainted to this.

After her first BA session Denise returns from inside crying with happiness that she could reach her baby immediately and they lovingly felt and sang together. But her crying from happiness turns immediately into a crying of mourning the lack of her father. Even more than fifteen years after the separation she bursts out into tears.

Denise tells me that she is often afraid that one of her beloved will have an accident and suddenly disappear, she does not want to think it, but there is a force in her that makes her think so – all of a sudden she could become bereaved from more than her father. We keep that in mind as here we see already that there are two realms in Denise, one in which she feels happy to reach her baby, and another disturbing happiness as there might be sudden losses. I suppose she knows about former losses of happiness during her own intrauterine time in her mother. The loss of father was the last.

The following session shows this divergence in her still more. She feels ashamed what I could think of her but she can tell me: She felt love for her baby, but also an urge to think how easy it would be to hold the tiny throat closed and murder a baby. She did not want to think this thought, it came over her. We could talk more about her own difficult birth, she had had the umbilical chord around her neck and had felt suffocating and near death and had to be born by suction delivery. Her head was misshaped by birth and she trembled with every noise for days, as her mother had told her. What she had felt was a memory of her own birth. “Yes”, she agreed, “the baby was quiet during this attack of my feelings. It was not an attack on her.”

We followed this line in BA further to see what she experienced with her baby and what she experienced in her own regression to birth and her prenatal experiences.

Outside of BA she feels her baby more often and likes the feeling of Lili´s movements inside, her partner, too, likes to put his hands on her belly and talk to the baby and to her lovingly.

In our session she talks about women whose children died in the sixth month or by SIDS. I assure her that it cannot happen as she is in a loving contact with her baby in BA and the same loving relation will continue after birth. No baby from BA ever died from SIDS, they do not want to return to the uterus, so they do not forget breathing while sleeping. Rather they sometimes forget sleeping because they are so much interested in the outside world after birth.

In a BA-session there occurred another strange event: To Denise it was as if Lili had only one eye, the other was like a damaged window-glass. She remembered eye-sicknesses in her family. Her grandfather returned blind from war. Her mother has got different sights in her eyes, an aunt had got a cancer in one eye. It was the week when the babies´ eyes open inside. She remembered a handicapped child in the kindergarten whose parents wanted to take him out but at

the same time wanted the kindergarten to hold the child. These parents show her her own ambivalence as they wanted her to speak for the child to stay in. She told them: “I am not clearvoyant, you have to tell me, what you really want.” By that notion I got the idea to ask her, who has been clearvoyant in her family, and she told me that her queer grandmother spread the idea that she was. I ask her to question her mother again. She is reluctant as she feels that her mother does not like to speak about that topic. I tell her that the image of the baby with only one eye might be an image of herself who does not want to know about secrets in the family.

We have another session. She has had a fight with her partner as she felt neglected by him and finally desperately cried: “Will you only love me when I am dead?” He immediately embraced her. Both felt frightened by her outburst.

In the next BA session she feels her anxiety that her partner might be suddenly so far away like formerly her father. When with the baby she sees Lili born and lying on her belly, but blood flows out of her mouth. Then she sees a graveyard. “It is very strange to me”, she says. Then she tells me that she had asked her mother who reluctantly told her that grandmother had had a stillbirth, a son, after her mother´s birth and became queer after that event. She could not love her daughter but rather accused her own mother to have robbed her everything in life. She got ideas about clairvoyance of the next generation and tortured her daughter that she would have a stillbirth, too. That frightened Denise´s mother, so she became much ambivalent in her feelings to her first child when pregnant, and the problematic birth did not help to make the burden disappear. When Denise got stuck during birth her mother felt anxiety of death. She passed all these feelings from her mother on to her daughter. Here we better understand Denise´s outburst: “Will you only love me when I am dead?” which might reach over generations in her family and as it turned out in the end maybe in her husband´s family, too. So Denise without really knowing whose feelings she transported in herself during pregnancy was guided to finally mentalise them now. Her ´wise baby´ seemed to know and remained unaffected of what Denise had to get clear in herself of her ancestors; Lili could quite well discern what was original and lasting love between both of them and what was the transgenerational burden of her mother.

This might be good news to us, that the baby inside may know much better than his mother/parents how to show problems and how to eliminate them by asking for more informations about grandparents or great-grandparents. Parents to be are often very shy to ask as they want the baby for themselves and wish to hide the baby from being touched by many people. Well, but the baby inside has been touched in his development by many ancestors before.

Denise then wanted to make her partner ask his mother about his birth again as she felt there might be a burden, too which his mother had not yet discovered. He had been a suction delivery, too. His mother had had miscarriages before and after him as she told him only now, which made her feel miserable. Denise and her partner felt shocked by these news about the similarities which only now became mentalised for them. His mother had had no help, she had lost her mother early and grew up with her father and five brothers. That might have made her rough and stubborn and deny her femaleness.

Denise said: “Maybe she had experienced the same what my grandmother had experienced who never talked about her childhood losses. But then her stillborn child was too much a loss. It is good to know both of them better now. My window-glass eye is fading away.” Then she told about a film she had seen about C-sections when she felt an urge to cry all the time. “Here you felt like the desperate baby”, I told her, “whose mother is not there. Like your mother felt being born well but mother´s concern was only on the stillbirth soon after.” Denise feels more directly how via empathy she now can understand in herself something from former times.

In the baby-session she sees Lili crawling in the apartment. Then they play, she throws Lili into the air and she returns to her. Then her partner has got Lili in his arms. She is afraid that Lili might fall. Then she sees her falling from a gondola – a birth image.

In the first session of separation at first Lili is happy to meet her. Since some weeks the baby is in birth position. Denise sees something like a masquerade, maybe a death´s head, something bony. I tell her that grandmother cannot reach her any more since she knows about the secrets in the families halfway – about her father´s and her partner´s father we´ll never know, but what we got to know is very helpful to clear the riddles she saw in those strange images which her unconscious presented her to get rid of them as they did not belong to her love for her new own family. In the next session she sees Lili´s face and red-blond hair. She resembles her father. Then she sees her taller and laughing. Denise tells Lili: "You know that your father and I have been born by suction delivery. You might think that you should be born in the same way. But you can choose your way of birth and I hope that you won´t follow our way to be born because that was unhappy."

Now the couple often is close together with Lili. Father is more often at home, he puts his hand on Lili when going to sleep. When Lili becomes restless at night because father is too far in his sleep Denise puts her hand on Lili and tells her inside that separation, change, and finding each other again belong to life, and Lili and she can go on sleeping.

Father called me to tell that Lili had been born well and safely. Three weeks after birth they visit me. Lili with red-blond hair like her father is asleep. Denise went to hospital early, birth in itself did not take more than three hours, though labour-pain hurt much they could feel togetherness and talk to each other when the contractions paused.

They visit me again when Lili is six months old. Lili looks intensely at me for a long time, then she starts smiling; she remembers my voice from her time inside. Two years later Denise tells me that the kindergarten regards Lili as an exceptional child, very peaceful in herself, clear in her ideas and helping and caring for other children. When I meet Lili at age four again she cares for her small brother and obviously is delighted to have a brother.

What I told you about is the way of a young woman to motherhood with the possibility to reflect her own intrauterine existence and her mother´s fears in pregnancy, reaching further back to her grandmother´s experiences as we could reflect them in BA and understand them. Denise had not to pass them on to her daughter and Lili did not answer to them, she knew and could keep the part of her mother separate from her own. Lili kept quiet when her mother felt desolate with strange images, Lili moved when she felt her mother near to her and they tenderly played together and she gave her the certainty of love which made Denise brave to go on in her inquiery into the past.

Via BA both worked together very well to bring the real and former problem to the surface and to overcome some former transgenerational burdens of Denise to become a good mother for Lili.

What are the special difficulties for pregnant mothers? Raffai gives us advices:

"There are two pillars: The own intra- and extrauterine representations of the pregnant mother by her own mother-representative and his internalisation by her child, and the psycho-analytical experience that the manifesting representations can be transformed by mentalization and personification to thoughts and memories" (Raffai 1997).

Case study 3

In the end I present you another case study by Raffai which does not deal with trans-generational conflicts as such but with cathexis in the here and now with an actual urge to and fear

of repetition. Andrea is 30 years old and until now had two pregnancies. Her first child, Ben, died eleven days after birth by a heart anomaly. With her second child she had a miscarriage after eight weeks. After a bleeding there was a spontaneous abortion. She came to see me to become again pregnant which she could not yet. Andrea was not able to mourn Ben, she could not visit him in hospital nor in the graveyard. "I told her at first she had to mourn Ben, actually there is no room for a new child, otherwise it is difficult to have another and healthy child. Until today it is Ben who is seated in her soul´s uterus. Andrea accepted my advice and we started the mourning process. From the beginning of pregnancy Andrea had a bad feeling as if something was wrong with Ben. She was not able to love him though he was wanted and planned. We came to think that she early was afraid to loose him. In the 8th week with him she began to bleed. The bleeding ceased by medication. In the 23rd week she had heavy contractions, and the cervix opened. She had to lie down until the date of birth. Ben was born by C-section because of breech-position. She saw him only for a moment and observed that he was grey. Then he was transported to cardiology where he died.

The mourning process was very difficult for Andrea, she felt desintegration, had visual hallucinations, extreme emotions, for some times she got psychotic and could not work. After the acute phase of mourning she became pregnant again though I had asked her not to become pregnant before having finished the whole mourning process. Again a boy who was called Norbert. Often she identified him with Ben and had strong ambivalent feelings towards him: sometimes she loved him, sometimes she hated him and wanted to abort him. Only slowly I could explain to her that she was afraid to loose him and therefore was so ambivalent. She hated Ben in Norbert, because he left her. Later on, when she could get into a better contact with Norbert he made her know that he was very angry about Ben as he made his mother suffer so much.

In the eighth week on the same day as with Ben she began to bleed with Norbert. Panicking she went to a hospital, but there was no visible problem. I asked her to come and told her that still Ben was bleeding out of her, not Norbert. The bleeding stopped.

In the following session the baby sent Andrea his first image: He was sitting in a bath-tube. I told Andrea immediately to accompany her son there. Andrea then cried heavily: "He had held me." During this session the baby showed his heart to his mother. Andrea cried again and said: "My Baby makes me feel that his heart is ok." The process of bonding got deeper so in one of the following sessions Andrea said: "I feel as if I were the blood in his heart. I am in a pulse with him. As if I had no body, I am only his joy."

In the 23rd week Andrea got heavy contractions as with Ben. She said that Ben sometimes returned to her uterus. The next time she brought a dream: A baby is born but the contractions do not stop. There came a second child but a retarded one. The healthy child was Ben, the other one Máté, as he was conceived on the day of Máté. This heavy and critical dream consists of a struggle which is not yet decided: make a resurrection of the dead Ben, but the price might be that Andrea makes the living baby sick and looses him. I told Andrea: "Your uterus becomes hard as you put Ben into it again. But your uterus does not want to be the grave of Ben." Andrea understood the context. Ben disappeared immediately, and she felt Norbert as intensely as never before" (2014:137-139).

Alas, we don´t get to know if Andrea herself had had such experiences with her own mother in her prenatal time. Her psychotic episodes give us a hint that it might have been similar. I came to choose this case study in the end as it might be some kind of a continuation of Denise´s transgenerational problem to understand better how much the death of a child can trouble the following one and the following generations if there is no help.

Notes

[1] It is important to know: "What were the family circumstances at the time of his conception and during his time in utero? Was the pregnancy planned or unexpected? What was the family´s reaction upon hearing of the pregnancy? Was he wanted? If so, did both parents want the pregnancy or just one? Does the patient know whether the parents especially wanted a boy or a girl? Was there much talk in general in the family of mothers who became sick during pregnancy or died in childbirth? Were there any abortions in the family? Any miscarriages? Did anyone in the family suggest that he be aborted, or was there an actual attempt or attempts to abort him? Was he given up for adoption, or raised by a family member or members other than his two parents? Were there physical or psychological problems, or serious family conflicts during the pregnancy or during the delivery about which the patient was told? What was his birth like? Were there episodes of physical violence between the parents, or loud verbal battles with a great deal of screaming and yelling? What was the family´s attitude about abortion? One often finds a dysfunctional family tree with several past abortions on its branches, often on the part of extended family members, and often covering several generations" (Sonne 1996, 3: 321).

[2] The interview gives us: Data of the baby (week of gestation, probable date of birth, medical examinations, wanted/unwanted/planned pregnancy, problems, contact to doctor/midwife, contact with the baby: feeling the baby move, talking/singing to the baby, ideas, phantasies, fears, or dreams about the baby); Data on problems of puberty and menstruation, early sexual contacts and feelings about; Data of earlier pregnancies (how many, problems, miscarriage, abortion, feelings about); Data on partnership (since when a couple, living together, crises, way of solutions, wish for children, marriage, planned move, hobbies); Data of mother/father and their surrounding (age, profession, siblings, contact to parents, characterization of father/mother, contact to grandparents, crises in the family, traumata, pregnancy and birth). By all this we try to evaluate how far the process of mother-/parenthood has evolved already or where it needs help to become free from childlike behaviour and wishes for guidance and security by the parents or where it got struck in rebellion and irreconcilability and hardly can move.

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TRANSFER OF TRANSGENERATIONAL INFORMATION AND THE POSSIBILITY OF THEIR MEASUREMENT AND/OR MONITORING

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Abstract. Holistic approach to studies of human development, communication and behaviour is an imperative of modern science. This process can be observed as a complex system of the set of mutually conditioned physical, mental and spiritual processes, which are the expression of astro-geophysical, climatic, sociobiological and psychophysiological processes and subprocesses developed through phylogenetic and ontogenetic sequence, and later on throughout the whole life. Holistic studies of the characteristics of the man's system of development defined in such a way enable more complex and more precise perception of a large number of phenomena associated with the functioning of the system man-heritage-environment-behaviour, which contributes to the promotion of the development of self-management of the stated system and its directing towards the basic goal – optimization of the system on all levels: physical, mental and spiritual. In order to achieve this goal it is necessary to raise awareness of the role and transgenerational and transpersonal influence of an individual on the development of offspring relation parents – children in particular). At the same time, it is necessary to raise competence of different professions dealing with development, health and education of children and young people, in regard with the prevention of all forms of prenatal and birth traumas, which have far-reaching consequences in an individual's behaviour throughout life, including a wider community. In order to successfully realize these goals, it is necessary to increase knowledge and awareness regarding responsible parenthood, from the earliest to the oldest age, with the help of mass media.

Keywords*: Prenatal development, PHS, Speech and language, Behaviour, Learning, Drawing, Emotions.*

INTRODUCTION

Contemporary view of the world requires change in the way we think, which is necessary and inevitable if we want the world to continue developing. Therefore, we need to correct some of the deepest mental representations about the world and man's interaction with nature (Dent, 1999). This interaction creates the feedback by which the system indirectly and/or directly influences its future states and activities. These dynamic interactions and their feedback provide evolution and permanence of emergent systems, such as socio-biophysical or integral natural and social systems. That is why a holistic approach to the study of man, his communication and behaviour, is an imperative of modern science.

The man's communication and behaviour can be observed as a complex system with the set of mutually conditioned physical, mental and spiritual processes, which are the expression of astro-geophysical, climatic, sociobiological and psychophysiological processes and subprocesses developed through phylogenetic and ontogenetic sequence, and later on throughout the whole life. In this system, certain processes are determined, such as anatomical morphological development from a zygote to a newborn, and the very functioning of this system is stochastic. The man's communication with himself and the surroundings and his behaviour do not follow a strictly determined law, but rather depend on a large number of mutually correlated factors, which make the continuously stable and at the same time variable system. In order to provide continuity of optimal development of this system it is necessary to constantly maintain balance of freedom and arrangement i.e. by flexible reacting and moderate centralization (Unković, 2006).

Holistic studies of the characteristics enable more complex and precise perception of a large number of phenomena associated with the functioning of the system man- communication-behaviour, which contributes to the promotion of the development of self-management of the stated system and its directing towards the basic goal – optimization of the system on all levels: physical, mental and spiritual. Optimization of the development of this system requires studying and monitoring from the moment of conception, through the period of prenatal development, to birth and growing up. In order to achieve this goal it is necessary to raise scientific awareness of the roots of human communication and behaviour as an expression of ancestral heritage, through a unique birth of a human being until the development of a truly distinctive personality and Being, as an expression of the highest degree of the synchronicity of the cosmic and personal Self. The promotion of the man's communication and behaviour lies in the complete synchronization of cosmic, spiritual, mental and physical potentials of his development.

The questions *Who are we? Where do we come from? Where do we go?* are as old as humanity. This paper will surely not attempt to answer these questions, but rather to represent the results of scientific researches which can offer an angle of observation and perception of interconnections and interdependencies of the development of human communication and behaviour. Let us start with the hypothesis that the man is created out of an emotion. It is only natural that it should be Love, but unfortunately, it is not always so. Researches in the area of prenatal psychology indicate that it is often: passion, fear, hostility, greed, jealousy, rage, envy, anger etc.

In the preconceptual and conceptual period these emotions basically define the man's behaviour and communication throughout life, through a very extended form of learning during which association (psychological connection) is established between the stimulus and its consequences.

Besides anatomical development of organs and physiological systems and their functioning, the prenatal period also includes initiation of psychological (in that case emotional) life of the prenatal child. The important factor of the man's complete subsequent development is prenatal memory which includes memories of the course of pregnancy and birth. The mother passes the information to the prenatal child via outer and inner environment. Through the outer environment, the mother's voice is partly transferred (emotional speech expression), as well as the stimuli from the outer environment; through the inner environment – the mother's speech and sounds and noises coming from the internal organs (heartbeat, breathing, the bowels, etc) and all the biochemical content from the mother's organism via the blood liquid.

Already in the prenatal period, basic trust or distrust towards the world is formed, based on the information which the prenatal child receives from the mother. According to Milaković's scheme of the "programming of the prenatal child" (Milaković, 1986), the mother teaches the prenatal child through her behaviour, via "blood excitation" about everyday oscillations and models of frustration and satiation, which form the basis of its behaviour and reactability in the later periods of life. The term "blood excitation" implies the change of biochemical parametres in the blood liquid under the influence of a range of factors resulting from the mother's emotions, attitudes, states and behaviour during pregnancy. The mother's emotional and neural transmitter input "tells" fetus how to feel during the influence of certain sounds, happenings, situations, activities, etc.

The simplified explanation would be that prenatal learning takes place on the metabolic level, because the areas of the CNS in charge of metabolic and vegetative control are fully

developed, such as the mesodiencephalon, where integration centers of soma-psyche relation are situated.

There are so-called centres of sensors and detectors, centres for regulation of important functions of the organism, and in their vicinity there are regulators of hereditary schemes of reacting, impulses and activators of motivational behaviour. The mechanism of this structure is very complex and it is based on the autocontrol of the whole range of cybernetic models with excitatory and inhibitory cores, which, together with other autocontrol organs (from other body parts) create very strong systems interconnected with hormonal, transmitter and neural connections. These complex autocontrol systems have a task of maintaining homeostasis in the organism, but their very complex mechanisms will not be discussed in this paper.

Via mechanisms structured in such a way, the prenatal child and the mother communicate via the placenta and information is transferred from the mother's mesodiencephalon to the child's mesodiencephalon in a few seconds, following the principle of the transmitter (mother) and the receiver (child).

One part of instinctive knowledge is genetically inherited, whereas the other part needs to be learned in the prenatal period in order to develop adaptational mechanisms which will provide "survival" during and after birth. These mechanisms are congenital, whereas the acquired ones are developed after birth.

It has been irrefutably proven that a human baby brings considerable experience of feelings and sensations from his intrauterine life, which significantly influence his psyche, his ability to communicate with himself, his parents and the surrounding world, i.e. that besides congenital reactions, innate reactions also develop in the prenatal period, depending on the inner environment (the mother's organism) and its interaction with the outer environment, to which reactions from the postnatal period of development are superimposed. Thus, both congenital and innate prenatal reactions represent the basis of behaviour throughout the whole life (Chamberlain, 1988, Sovilj, 1998, 2010, 2012; Brekhman, 2000, 2001).

Having in mind that both transgenerational and transpersonal mother-child-environment information are transferred, by memorizing and learning them, primary patterns of behaviour are developed with a far reaching influence on the behaviour throughout life.

This paper will present one part of the results of the projects "Interdisciplinary researches of verbal communication" with the subproject "Prenatal communication", one of the goals being to study interconnections and interdependencies of transgenerational and transpersonal transfer of information and the possibility of their monitoring through the behaviour of: the grandmother, the mother and the prenatal child and representation of basic typology of personality in the prenatal and adult population.

RESULTS

Monitoring of transgenerational transfer of information

The results of the following researches were selected.

1. In order to monitor transgenerational transfer of information, we selected the responses from the constructed questionnaire which contained 62 questions which enabled comparison of the responses of mothers-daughters and their mothers-grandmothers. The questionnaire was completed by N= 124 mothers-daughters who had one or more children.

Table 1. Length of contractions at birth of mothers-grandmothers and mothers-daughters

	AM	SD	M
Mothers - grandmothers	7.31	6.480	5
Mothers-daughters	7.56	6.073	5

Comparison of the length of contractions at birth showed no statistically significant differences between mothers-grandmothers and mothers-daughters i.e. between mothers and daughters ($p>0.05$), Table 1.

Table 2. Length of breastfeeding a mothers-grandmothers and mothers-daughters

	AM	SD	M
Mothers - grandmothers	9.3486	8.85728	8
Mothers-daughters	10.88	9.656	10

Comparison of the length of breastfeeding of mothers-grandmothers and mothers-daughters showed no statistically significant differences ($p>0.05$), Table 2.

Table 3. Postpartum mood of mothers-grandmothers and mothers-daughters

Postpartum mood	Mothers - grandmothers	Mothers-daughters
positive	62 - 50%	65 - 52.4%
neutral	49 - 39.5%	48 - 38.7%
negative	13 - 10.5%	11 - 8.9%

Comparison of the mood immediately after birth of mothers-grandmothers and mothers-daughters showed no statistically significant differences, Table 3.

Table 4. Was the born child of a desired gender

Baby's gender desired	Mothers - grandmothers	Mothers - daughters
yes	114- 91.9%	119- 96%
no	10-8.0%	5-4%

Comparison of the responses to the question whether the born child was of desired gender showed no statistically significant differences in the responses of mothers-grandmothers and mothers-daughters, Table 4.

The presented responses clearly indicate that information about the mother's distinctiveness, her bahaviour and attitudes are transferred transgenerationally, including physical, biological and psychological level. Further data processing within the project is ongoing.

Monitoring transpersonal transfer of information

In order to monitor transpersonal information we compared the results of PHS (Prenatal hearing screening), and the results of Spielberg tests 1 and 2 of pregnant women's anxiety degree (N=123 pregnant women).

1. Prenatal hearing screening (PHS) was developed at the IEPSP and is performed by Sovilj-Ljubic method (1992), as a standard ultrasound examination with amplification of a defined sound of 1500-4500 Hz frequency range, 90 dB intensity and 0.2 sec. duration by MIM tone generator, and monitoring of the values of pulsatility index by measurement of the speed of blood flow in a. cerebri media. Before and after sound amplification, 5 cm. from the mother's belly, pulsatility index (Pi) is measured, basic (before stimulation) Pib and reactability (after) Pir. In PHS there are two directions of reactability – increased (+) and decreased (-). PHS can be reliably applied from 27-31 gestation week. Normal PHS values range up to 14.6, whereas higher values indicate present problems in the auditory system which can cause disorders in verbal development, behaviour, learning and socialization. This paper will present only the results of reactability direction at PHS examined on N=123 pregnant women. At the application of PHS, 75% prenatal children reacted with increased (+) reactability, and 25% with decreased (-) reactability after the sound stimulus. These results indicate that bases of basic characteristics of the personality typology can be observed in the prenatal period.

Comparison of the obtained results of reactability with the results of MBTI test of the presence of extrovert and introvert persons in the global population indicates percentage congruence, i.e. 75% has basically extrovert and 25% has introvert typology of personality. Of course, this is basic predominant typology which additionally confirms that the mother and the community (collective consciousness) influence prenatal definition of basic typology of personality.

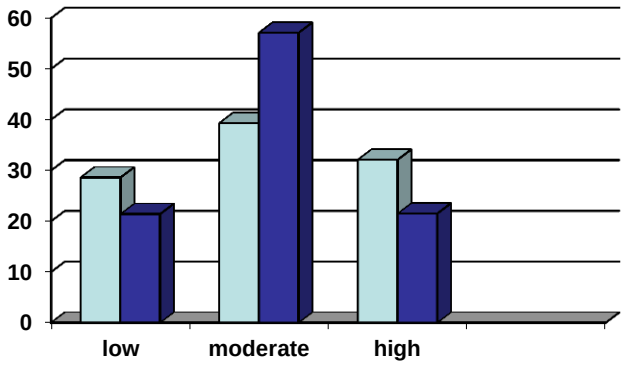
2. During the realization of the project, risk factors during pregnancy were monitored and recorded, including the anxiety degree by Spielberg tests 1 and 2. Spielberg anxiety test 1 assesses the current condition of a pregnant woman, whereas Spielberg test 2 assesses her condition within a longer period of time, i.e. the frequency of the listed conditions in her life.

We tested N=123 pregnant women. The obtained results indicate 71% pregnant women showed high and moderate anxiety, and 29% showed low anxiety (Spielberg test 1). At Spielberg test 2, 78.6% pregnant women showed high and moderate anxiety, and 21.4% showed low anxiety throughout life (Verny and Weintraub, 2002; Janus 2001), Table 5 and Graph 1.

The analysis of the given results indicates that transpersonal transfer of information mother-child is obvious and in the example of the anxiety degree and increased reactability of the prenatal child at PHS, there is positive correlation ($r=0,039$ $p<0.05$) C1-71.4, C2-78.6: 75% PHS(+).

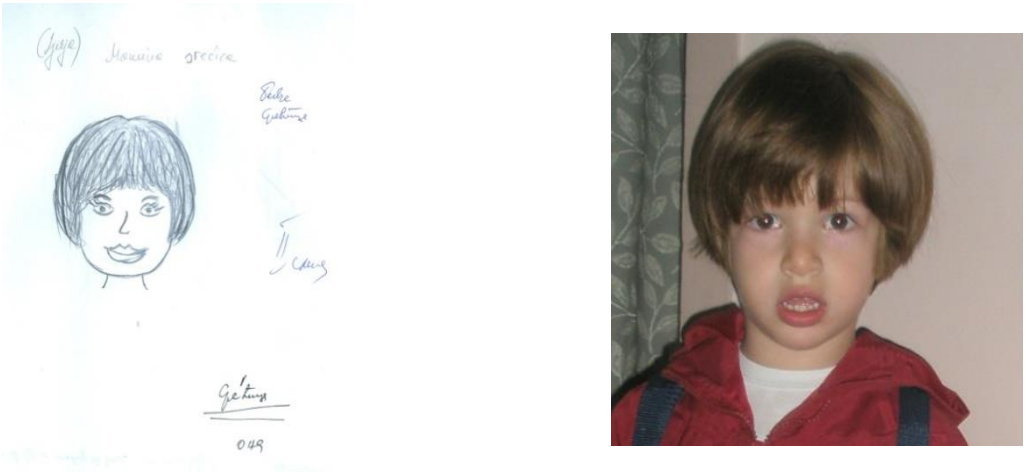
Table 5. Results of Spielberg test 1 and 2

Test	Low	Moderate	High	Moderate and high
C1	28.6	39.3	32.1	71.4
C2	21.4	57.1	21.5	78.6



Graph 1. Anxiety degree of pregnant mothers – Spielberg test (light-C1, dark-C2).

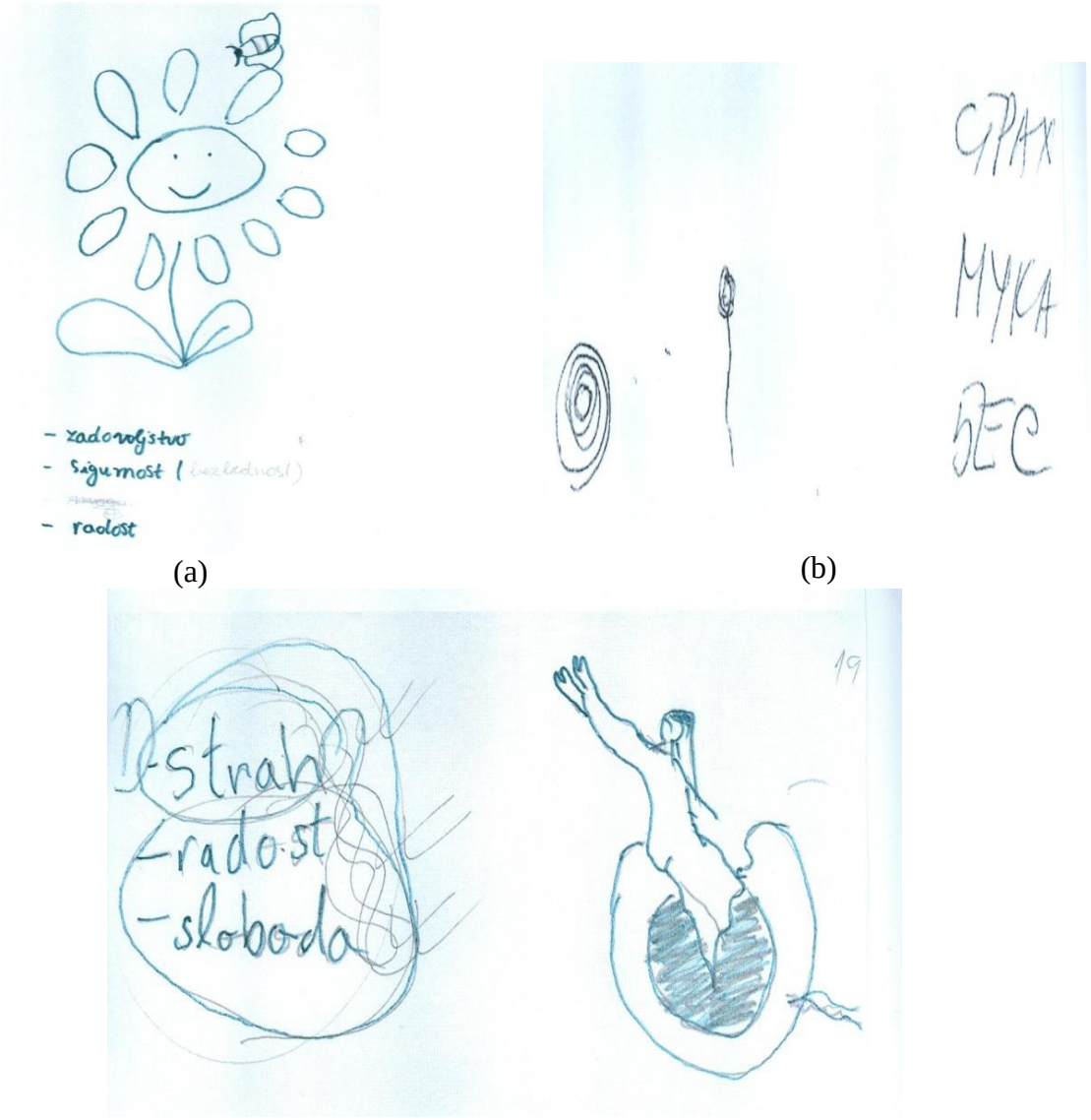
Transpersonal transfer of information is best reflected in the following example. Have a look at the drawing of a mother who came to the IEPSP school of Educational parenthood – prenatal education. She was 4 months pregnant when she made a drawing of her future child (Figure 1a,b).



(a) (b)

Figure 1. (a) Mother's drawing of a future child; (b) The actual photo of the child.

3. In order to perceive interconnections of emotions related to personal conception and deep prenatal traces fixed in memory, which are considered to be in the sphere of sub-consciousness and can be evoked and analyzed through a drawing and types of listed emotions (Figure 2a-c), and the number of basically extrovert and introvert population, we designed an experiment "How I see and feel my conception". The experiment was carried out on an independent sample of N=174 examinees with high education, aged 25-56. The experiment used a drawing made by examinees who were expected to draw on an empty sheet of A4 paper following a defined instruction: "Draw the moment when a sperm penetrated the egg and you were conceived and write down the first three emotions which appeared". Test time was limited to 3 minutes.



(a) (b) (c)

Figure 2. (a) Positive attitude: Contentment, safety, joy; (b) Negative attitude: Fear, anguish, rage; (c) Mixed attitude: Fear, joy, freedom.

The experiment used a drawing since it is the first human writing and a reflection of an idea, mental image and the concept of the world that surrounds the man, and his attitude, understanding and sensation of that world. It is a reflection of the man's inner world and his environment, his inner state, content of fantasy, experience, imagination etc. and that is why it represents powerful means of expression. A drawing is also a part an individual's life picture i.e. his reflection coming from his hand and complex sensitivity. Therefore, it is a very powerful tool for integration of all the stated levels and is very frequently used in psychology. It is considered that a drawing opens one's soul. That is why a drawing was chosen for this subtle moment in one's life.

Analysis of drawings according to the usage of the free surface of the paper indicate the following.

Examinees with positive emotions:

97% examinees used the middle or the right side of the paper, which indicates optimistic attitude, openness to change, curiosity etc.

Examinees with mixed emotions:

48% examinees used the middle or the right side of the paper (optimistic attitude, openness to change, curiosity etc.);

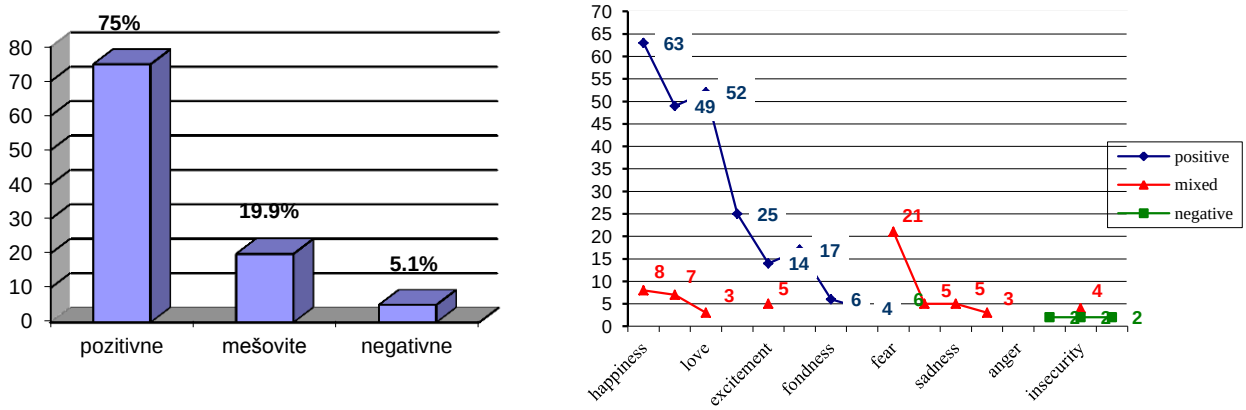
52% used the left side of the paper - which indicates that they are reserved, have a problem with establishing contact with others, pessimistic etc.

Examinees with negative emotions:

23% examinees used the middle or the right side of the paper (openness, optimism etc);

77% examinees used the left side of the paper (reserved, a problem with establishing contact with others, pessimism etc.).

Results of the global analysis of drawings and types of expressed emotions indicate that 75% of examinees had positive emotions about the "moment of their conception", whereas 25% had mixed and negative emotions (Graph 2a,b).



(a) (b)

Graph 2. (a,b) Distribution of emotions related to the moment of conception.

The results of the analysis according to the criterion of the usage of free surface of the paper and expressed emotions are in full compliance, which confirmed accordance between visualization of the event and emotional expression related to it.

Beside the presented research results, we also considered researches throughout the world dealing with types of personalities in the world population in order to observe complex multi-dimensional and dynamic system of interactive connections in defining development and causal relations, communication and behaviour of an individual-society,. By application of MBTI test (Myeps-Bpiggs Type Indicatop), numerous authors analyzed typology of personality, adducing different number of personality types, depending on research goals, cultural, economic and social characteristics of the examined groups etc. Tiegep and Tiegep (1995) presented global data for general world population, which indicate that 75% of the world population is basically extrovert and 25% introvert (Myeps, 1980, 1990, 2009; Myeps et al., 1998), Tiegep and Tiegep (1995).

Tiegep and Tiegep (1995) present this percentage in relation to two basic typologies of personalities, indicating that the system of rewarding and word recognition is set to the extrovert value.

Unlike extrovert types, introvert ones mostly work in a quiet environment, enjoy working independently, reluctantly accept to be delegated, and if it happens, they offer very little information, work well without supervision, think seriously before taking action, sometimes share ideas but only when asked, are good listeners, remain calm under all types of pressure and usually have essential knowledge.

Analyzing the results of the stated researches it can be noted that the observed parametres unequivocally indicate, almost in all relations, the frequency rule of 75% : 25%.

Observing the obtained results we can conclude that the emergent communication system and behavior man-society contains transgenerational and transpersonal information and shows a proportional regularity, mostly 75% : 25% interactive connectivity: behaviour of the pregnant woman – increased reactability of the prenatal child to PHS – positive attitude towards one's conception, and representation of extrovert persons in the global world population. Observing the percentage ratio of the stated parametres, it can be concluded that that an adult genetically passes typology of personality onto the descendant, and the mother's anxiety is then superimposed during pregnancy, which consolidates the final ratio of extroverts and introverts in the general population.

CONCLUSION

For an in-depth understanding of the development of human consciousness and behaviour, holistic psychophysiological and sociobiological approach should be applied from the prenatal period–conception, because a man represents a multitude of hereditary traits of his ancestors and interaction with narrower and wider environment. For this reason, it is necessary to educate the youngest generations about the importance and the way of collecting and adequate usage of transpersonal and transgenerational information.

Due to transgenerational transfer of information, an individual is at the same time the "consequence" of previous conditions and states of his ancestors. If this fact is not perceived when considering the development of communication, then a Person (consequence) does not have essential insight into his own state and behaviour, and even less in the state and behaviour of others.

The results of the stated researches indicate that the basic type of personality can be established already in the prenatal period. Obviously, a human being forms two types of perception under the influence of transgenerational hereditary genetic factors and heritable, epigenetic ones, which develop under the influence of inner environment (the mother's behaviour) and wider outer environment. This offers new possibilities of studying more subtle regularities of the onset and development of communication, behaviour and learning of an individual and a society and promotion of their development.

Observing the emergent system man-society i.e. their communication and behaviour, both individual and social, we note that the influences from the micro level of the system – an individual on the macro level – a society, result from interactions of its parts. This dynamic interaction creates the feedback which forms future states of the system, thus providing evolution and permanence of this emergent system as an expression of interaction and integration of individual psycho-physiological and social-sociobiological. This standpoint requires more subtle studies of possibilities of promotion of human communication and behaviour, since the basic type of personality can be detected already from the prenatal period, thus offering a framework for understanding individual differences and offering a possibility for optimal dynamic model of

individual and social development. The stated regularities can be a sign post for the development of adequate and timely models for better interpersonal communication and behaviour, through a higher degree of self-knowledge, self-respect, respect of others and creativity.

At the same time, results confirm the statements that collective consciousness influences individual consciousness and vice versa, but also far more than that. Having in mind peculiarities of extrovert and introvert persons, it is to be expected that prenatal training and work with pregnant women on raising consciousness about the necessity of establishing and maintaining positive mood (attitudes) in pregnancy, would result in the balance of extrovert and introvert reactions and decrease aggressiveness in all fields of human activity on the global plan and provide more adequate reactability in different life situations, higher degree of creativity and tolerance, as well as higher level of personal and collective responsibility.

Experts dealing with human development, health and education need to raise the level of their professional competence in order to gain insight into overall potentials and development of a person, from the moment of conception, using holistic approach to adequately look after the development, health and education of posterity and thereby the future of the human race and our planet.

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CONSEQUENCES OF PRENATAL AND EARLY POSTNATAL TRAUMAS IN INDIVIDUAL'S ADULT LIFE

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Abstract. The notion of injury (Gr. Trauma) in its broadest sense – is the damage to living tissue in violation of its defense mechanism, which arose as a result of violence. Trauma can be both physical and mental. And both can combine signs of violation of the physical nature, malfunction of the functional interaction of the organs and disturbance of the adequate state of mind. Physical trauma treatment removes violation of the integrity of the physical nature, restores the function of damaged organs and even the adequacy of mental state affected by the injury. However, the effects of trauma for a long time continue to affect the quality of life affected by injury due to the fact that the injury affects not only the mind, but indirectly affects the unconscious perception of the person. It is capable of causing structural dissociation of the personality, when dissociated personality without the help of a therapist is not able to integrate back into the overall personality. The main function of dissociated personalities, along with the central figure of the personality – is adaptation of the individual to the society and internal mental communications. Aftereffects of injury are caused by the existence of the memory and the possibility of its separation from the central figure of the personality. In particular this possibility of memory isolation is noticeable in the study of the prenates' memory contents up to the time of formation of the central nervous system. Consideration of memory as a **process** of action and interaction of the data carrier with the space and time has allowed us to make a number of assumptions. In this case, the "storage" of the prenatal memory may be not fully formed in the brain of the prenate, but the interaction of a individual data carrier with the general information field. The central nervous system is not necessary storing information, but for processing it when selecting it from the general information field. Formatting and processing of such information during the age regression when the patient is fully awake allows to neutralise the effects of prenatal and early postnatal trauma in adult life. Further the expanded report provides verified set of examples.

Keywords: *Prenatal Traumas, Early Postnatal Traumas, Age Regression Psychotherapy in Awaked State, Image-or-Fantasy Plots-Puzzles of the Memory*

The concept of trauma (from Ancient Greek *τραῦμα*) embraces damage of the living tissue in conjunction with impairment of its defense mechanism. Damage arises as a result of a subject violation. There are physical and mental traumas. Both of them combine traces of malfunctioning physical nature, internals interoperability and adequate condition of psyche. Physical treatment of trauma removes the impairment of integrity of the physical nature; it recovers the internal's normal functioning and may even recover the adequacy of injured person's mental state. However, the consequences of trauma have a long-lasting impact on the quality of individual's life, because trauma has the strong influence not only on consciousness of the individual but also (indirectly) on his/her unconscious perception. It may cause structural dissociation of personality [1], when the dissociated person is not able to re-integrate back into its common system without the assistance of a qualified psychotherapist.The main purpose of dissociated (sub)personalities – and of the central personality as well – isto adapt person to society and to inner communications of his/her psyche.

The after-effect of trauma may exist because there exists the memory with its ability to isolate itself from the central personality. This ability for isolation becomes particularly prominent while exploring the memory content of a person who had experienced the act of violence. In this case, as a response to trauma, there may arise several structurally dissociated personalities at once. As an example, in case of sexual violence combined with real threat to life there may arise several dissociated personalities with various type of behavior. In one of such types a person,

trembling for own life, doesn't show any resistance and obeys violator's will completely. In casethe subject of violation is a woman and she has sexual satisfaction within the process, then the occurrences of this behavior type are accompanied with the strong sense of guilt, which may often cause suicide. The opposite type of behavior is described with desperate resistance which may be inadequate to the level of violence. The third type of behavior contains uncontrollable and unconscious itch to revenge all the men, especially the close ones (for example, the husband). We have a case in our practice, when a woman **M.** had been physically violated with various traumas starting from the period of her intrauterine development. As a result, she had problems with her private life in adult state. The father of **M.** often argued with her mother using physical violation. Once, when **M.** still was in her mother's womb in the age of 4 months, he had thrown the massive keychain in her mother and hitthe area of her belly-button. Later, during the age regression session, **M.** had seen and sensed that this keychain has stabbed her right into her face. Later on, in her postnatal period **M.** had been exposed to both physical and psychological violence up to her legal age. During one of the sessions of age regression **M.** said: «I've been alwaysdriven by revenge, through all my life». Session host had asked her: «Were you revenged or somebody revenged you?», and **M.** replied that she revenged both her fist and second husband (for this moment she has four unsuccessful marriages).

The next case of sexual violence we would like to present here had occurred at the third month of pregnancy. A woman had been violated by her own husband, who was drunk at that moment. The act of violence had taken place before the formation of central nervous systemof the prenate (we will call him **A.**). 28 years later during the session of age regression already grown-up **A.** had clearly described all events from that period. Additionally there had been revealed that **A.** had an older brother, who died unborn in the womb. It is worth to mention that all of our patients stay in fully awaked state and preserve their critical perception at the sessions of the age regression [2,3]. Then the revealed facts are checked by hearing the witnesses (parents in this case), or analyzed for the purpose of establishing the causal relationship with the pathology that exists in the postnatal period. In the grown-up state **A.** experienced severe pains in his back, which were incurable with any medical procedure. The relief came only after the session of age regression, when he had worked out this prenatal situation with his mother's rape. Furthermore, this situation has caused the complications of his delivery process due to strong resistance of the prenate. He didn't want to be born and resisted by all available means.

Our next patient **E.** during the session of age regression had described in details the Kristeller accouchement method, which she had never heard of before. When the doctors had applied this method to her mother she felt a strong pressure in the area of lumbar spine. Later in grown-up state she was diagnosed with the spondylosis of thoracic and lumbar vertebra acanthas.

There are also some recollections which can be described as psychological trauma. For example, here is a reaction on the situation described above: *«My body is weak and powerless, sagged shoulders, mom is very tired, and this tiredness is transferring to my body»*. Moreover, there are recollections like: *«Head is overturned to the back, body is brokenly straightened, as a column, and this state lasts quite long»* (in the moment when the parents argue without assault and battery). Or: *«I loudly scream inside»*; *«I cry from my powerlessness»*; *«I have kinda tears of joy»*; *«I haveuncanny sort of fear. I cringed in horror… I'm turned to the mother's stomach, looking at father and feel that I have no protection at all. Even my mother can't defend me»*; *«I've turned my face to mother's back in her womb, want to get warm, there is much less light there. There emerge prerequisites to falling asleep»*; *«I touch mother's belly with my shoulder, with my face to her side. I feel so scary»*; *«I am with my head to the up, there is a sense of*

pressing me down, they want to push me out» (the last is caused by parental dilemma to keep the baby or not).

And here is the other situation: the mother is at the doctor, and she was told she could have the miscarriage: *«Such a strange sensation… Mom smokes. She doesn't smoke as far as I know… but she does. Some nervousness because of my father… she is waiting for him…* (**E.** has a fit of coughing while working out this period of her intrauterine existence) *…waiting when he is back from work, in the evening… I've never seen her smoking… I feel the discomfort not so much from her smoking as from her evident agitation… There is no connection with the father, he had not spent the last night at home… I am 4 weeks old… Face to back… I am 9 weeks old… mother drinks wine… it is quite hard to explain this physical discomfort, it feels likea crust of bread sticked to my head, and also there, where the stomach is (not sure I already have it) – there is also some discomfort… some wildness and severity. I don't know, maybe, this sense of distinct warmth in my feet is caused by all of these… and there is a passage below, and something is kind a pull me down into this passage… Wow! feels like… I can fall down, but there is no sense of danger»*.

Among all the cases presented, the ones which could be described as psychological traumas had generally negative consequences in the adult life. These consequences were eliminated or reduced by working out certain prenatal moments with assistance of psychologist or psychotherapist, that allowed to operate them further using more traditional therapeutical methods.

And here arises the question: what this *working out* is and, how is it possible to work out the events of the past, which may often take place during the period of human perinatal development, when the human brain is still not developed well? The modern scientific paradigm presumes that the human psyche cannot be fully functional without the normally operated nervous system as a whole and the higher nervous activity as a part of this whole. It also presumes that is impossible to store, extract or reproduce any dynamic memories in case we consider them to be akind of a frozen, encoded record stored in some element of the central nervous system. The practice of psychoanalysis (interpretation of dreams, revelation of pre- and postnatal imprints), data received from transpersonal psychology [4,5] and age regression therapy [6,7] – especially data concerning the revelation of memories from the perinatal period – all this is the total contradiction to the paradigm that exists to the moment. It appears that we have to do some assumption to harmonize the data received from transpersonal and perinatal psychology with the concept that central nervous system and higher nervous activity are the must-have things for fully functional memory. Both central nervous system and higher nervous activity are more necessary for interaction with the memory (it means the extraction and reproducing – the dynamic exposition of real and virtual[8] «plots» of memory), than for storing it; they both are necessary for a «duplex connection» between the human consciousness and the plots of memory, when these systems are already well-developed and matured.

The following types of memory are known for the moment: explicit, implicit, picturesque, aural, musical, associative, the memory for pre- and postnatal plots driven by consciousness, foreconscious, unconscious and collective uncounscious parts of the psyche. There exist some other classifications of memory. But the classification mentioned above is quite enough to make the following proposition. There is a Red string going through all listed types of memory – this is the idea of their dynamism. In other words, memory activation requires some stimulus, while its further development in time is relatively independent from stimulus that have caused it and, furthermore, this development gets some «power» on that stimulus [8]. We propose this may be

the mechanism for emergence of neurosises and neurosis-like states. That is, the memory could be considered as an interactive process between its carrier (because memory doesn't exist without the carrier) and the space-time continuum. In this case the «storage» for prenatal memory can be located not only (and even not so much) at fully developed prenate's brain, but also at certain specific informational morphofunctional fields like the ones postulated by Rupert Sheldrake [9]. We could also imagine the virtual reality postulated by N. Nosov and Y. Yatsenko [8,10] as some field structure. The theory of these fields is not yet well-formulated. We propose that morphofunctional fields and virtual reality, with their polymodal nature, are not bounded with some certain time. They interoperate with the incoming stimuluses and can respond to them by means of revealing some specific information, depending on stimulus properties. This may happen in some virtual space or some space based on images and fantasy – and this is the place where the space-time binding occur. Maybe the fantastic plots of dreams are formed likewise, but the character of stimulus that have caused them is *persona non grata* for the conscious perception. For that reason this is quite hard for these imagery plots to find «their» carrier in the «material» world, and as a result people forget them rather quickly. That is, when we speak about any image plot of «memory» that begins to develop in time as a response to stimulus, the only thing worth to know is the attitude towards that stimulus from the side of our conscious and unconscious perceptions and our criticism as well. These entities perform the bonding to time and scene of the actionthereby finding the carrier in the real material world. The stimulus is most likely formed every time either in central personality or in one of its dissociates, hence the stimuluses may differ.

The formation of imprint or, in other words, of structural pathologic dissociative personality in human psyche gives hypothetical probability for impersonal stimuluses (for instance, the ones from the virtual reality or from the reality of morphofunctional fields) to intervene in the higher nervous activity of a human and become the reason for neurosises and neurosis-like states. This becomes possible because human psyche doesn't resist the transition of information from virtual reality to real world, as there is no time continuum in the virtual reality and morphofunctional fields. Stimuluses generated by them call to live virtual negative imprints [10], which imprints are able to traumatize psyche and somasubsequently. We had encountered this mechanism of forming the psychosomatic pathology of adult people for many times in our sessions of age regression. As an example, one of our patients called **E.** (26-y.o. woman with the strong sense of guilt) had asked our attention with the overcoming depression. According her own words, the depression was caused by pregnancy from a married man.She was afraid and didn't want to have an abortionespecially since she loved that man sincerely. All the mentioned circumstances have finally led her to the deep depression and suicide thoughts. During the session of age regression she has seen the picture of underworld, which is more typical to muslim religion, while **E.** was a christian. When we've asked for the reason of such demonstration the virtual voice replied: «You just should know this». After three sessions of age regression her depression was completely arrested and suicide thoughts have gone as well. For now she is a mother of two healthy and beautiful children, living in happy marriage with her husband.

In our new theoretical and practical approach to patients we are able to create any new imageor fantasy plot which may help us to arrest every painful stimulus coming from both central nervous system and virtual-field reality.The core of our approach is to stimulate the patient's imagination while he/she is in fully awaked state with preserved criticism. Image thinking begins with neutral images that don't traumatize psyche; then patient's perception is being step-by-step redirected to the images of his/her «own» virtual reality – most often this

happens as a kind of a game. From the point of his/her living experience patient in awaked state can seamlessly switch to the conscious dialog with the traumatizing situation and arrest it using some hints and skills of psychotherapist. That is, every negative image or fantasy plot can be completely reformatted to the positive one using the method of dialog. We use this very oftenin our work in cases when the patient has an imprint that prevents the comfort living in adult life, and this imprint is caused by a violent parental quarrel or the patient was punished at his/her early postnatal period. As an example, the patient **A.** had regularly come across the various obstacles in his life – both private and corporate. During the age regression **A.** had seen the plot in which his father has violently punished him for almost nothing. We had worked out the sense of guilt and have forgiven the father. Then we have get back in time a little and «discarded» that punishment. The results had overcome all our expectations. Earlier **A.** couldn't decide to get married for a long time; now he has a successful marriage, and even his job flows in the best way possible. Unexpectedly for both of us he had once got to the plot where he was hired to some prestigious job. Thus, there have occurred the legalization of the method for future prediction by means of our methodology of age regression in awaked state. In other words, this method extends the accessibility of working with various types of psychosomatics and psychology of relations.

Working that way with hundreds of patients we have proved the high productivity of our approach to treat the neurosises and neurosis-like states. Furthermore, there had appeared that the plots from the collective unconscious that sometimes arise during the psychotherapeutic work (like the case of **E.** described above) may have the high healing potential.The next case of patient **G.** is worth to be mentioned here. When **G.** was 35 she was seriously ill, literally between life and death. As a true believer she had praised God to give her the ability to bring up her children to the age they could be self-dependent. She had get better, her children have grown up and become self-dependent and successful. The misfortune came unexpectedly: **G.** was diagnosed the pathology of the internal carotid arterythat required surgical intervention. The procedure went successfully, but the mental condition of **G.** was truly grave. «God kept his promise» – now it is the time to leave. The second session on which we've worked out the plot of **G.**'s prayer to God has restored her normal mental condition. For now she nurses her grandchildren with care and love. After the cases like this we began to provoke the emergence of image or fantasy plots from the collective unconscious, if it seemed necessary – with truly overwhelming results. Let us provide here a single example of a patient of the intensive care (we will call him **J.**). **J.** desperately tried to commit suicide. He constantly pulled out any catheters and tried to switch off every intensive care unit he could reach.He has get to the hospital after a car crash: while overtaking the transport in front of him **J.** has entered the wrong side of the road and collided with the oncoming car. As a result of this accident his pregnant bride was killed, and **J.** hasfound himself at the intensive care. While working with **J.** we have called the image from the collective unconscious in a form of space where the dead live. **J.** has managed to establish a dialog with his bride, and she asked him to help her mother who has been left all alone. From this moment **J.** has felt much better, and his suicide thoughts have gone away.

Thus, on the basis of all the mentioned above and the provided links to scientific literature we may set the new hypothesis. **The initial memory** is a subject that includes the reality perceived with our anatomic senses, the virtual reality, morphofunctional fields and, probably, not yet well-explored «unpersonal» realities that include the material of conscious experience, unconscious experience and experience of the collective unconscious. This initial memoryalways existed and continues to exist as image-or-fantasy «plots-puzzles». Any image-or-fantasy plot can be exposed in time as a certain process and perceived by human consciousness on the

assumption of fully developed central nervous system and normally functioning higher nervous activity. To reproduce these image-or-fantasy plots (i.e. to connect these plots-puzzles adequately) we need the respective stimulus from any of dissociated personality, either embedded to system of the main personality or the standalone one. In their turn, any of image-of-fantasy plots can produce the stimulus that is able to arouse pathologic dissociation of the common system of personality, causing neurosises or neurosis-like state. All the image-or-fantasy plots are labile and can be reformatted. Patient is able to affect any unwanted imprint or integrate pathologically dissociated personality into the common system of personality by interacting with the image-or-fantasy plots in awaked state.On the basis of the facts gathered in our research of the age regression in awaked state tested on more than 600 patients and scientific literature as well we can draw the following

CONCLUSIONS

The new method is developed: this is the effective psychotherapeutic method of regression therapy which is applied to patient in awaked state preserving the critical approach to the surrounding reality.

There is also the new addendum for the concept of memory: this addendum makes the work of psychotherapist a lot easier and also reveals the mechanism of deliverance from neurosises and neurosis-like states with the method of the age regression.

The borders of the process of working with negative imprints are widely extended for the purpose of more effective treatment: up to the spaces of virtual reality, morphofunctional fields and the reality of the collective unconscious.

The keystone is set for the scientific approach to researching the facts that were the traditional taboo in the world of science up to this moment. These facts are the timeless image-or-fantasy spaces of the collective unconscious and the ideas of a religion.

The new hypothesis is developed: this is the hypothesis of image-or-fantasy plots-puzzles of the memory and their possible purposeful development in many kinds of psychotherapy.

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PSYCHOLOGICAL PURSUIT FOR STABILITY AS A FACTOR OF SOCIAL EVOLUTION AND THE SOURCE OF THE FORMATION OF MENTAL, PSYCHOLOGICAL AND PSYCHOSOMATIC TRAUMAS

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Abstract. A distinctive feature of all living things, including humans, is the presence of specific needs. Needs can be divided into vital (they are involved in the preservation of life) and higher needs for mental and spiritual properties of living. However, the study of the properties of some needs, even vital, remained outside the purview of science. For example, need to expand into the outer environment. The lack of an adequate response to this need leads to extinction and termination of any living systems, including humans. Expansion of some species always involves violation of the personal interests of others. This requirement is directly linked with other needs, such as the psychological need for stability of the established environment. Stability is a consistent and stable state of the environment with the unchanged comfortable, favorable circumstances. As stability as such in a global sense of the term does not exist in the nature, this need cannot be satisfied. Addressing the need for expansion, on the one hand, ensures the survival of the human due to the release of the old, obsolete, and access to new sources of energy and building material (vital functions). On the other hand, it creates indestructible contradictions that contribute to evolutionary processes in the physical, psychological and mental development of the person and also applies to the higher needs. Meeting the needs of "the expansion into the outer environment" creates a positive relationship between the conscious and unconscious realms of perception. This also applies to higher manifestation of this need. The psychological need in the pursuit for stability of the established environment belongs to the group of higher needs. The pursuit for stability creates motivations and at the same time promotes recycling and motivations change over the time, that is, ultimately evolves. Thus, it provides: the emergence and development of derivative components of human activity in the external environment, such as society; and the emergence and development of man's inner world, that is, its mental, spiritual component. Improper satisfaction of these needs is a source of formation of mental, psychological and psychosomatic traumas.

Keywords: *Vital Needs, Higher Needs, Psychosomatic Traumas, Psychological Traumas, Mental Traumas*

The distinctive feature of all the Animate including a man is existence of certain needs. Needs can be nominally divided into vital (they contribute to life sustaining) and growth needs of the Animate's psychological and spiritual qualities development. However some needs, even vital, were left beyond the science vision.

For instance, expansion to external environment. The absence of proper satisfaction of this need leads to extinction and to the interruption of the development of any living system including a man. When we speak about the absence of proper satisfaction we mean nearly total consumption of compensatory survival mechanisms of an organism, in other words distress formation. Through special psychophysiological mechanisms distress in its turn gives possibility to unconscious perception elements to join in the process of organism's survival and to increase its resistance to stress. Sometimes it becomes a new step to organism evolution if an acquired characteristic is inherited.

Expansion of one species is always interconnected with borders violation of other species that contradicts with personal interests of the latter [1]. This need is directly connected with other needs, for example psychological need in circumstances stability. Stability is the lack of changes in productive environmental circumstances. As stability naturally doesn't exist it is not possible for it to be satisfied neither individually nor socially.

The satisfaction of the expansion need of the one part provides a man's survival due to release from old outdated things and due to access to new sources of energy and to construction

material (vital functions). Of the other part it forms undestroyable contradictions conducting to evolutional processes in physical, psychological and psychic development of a Man and it forms links between conscious and unconscious spheres of perception. In this context this need refers to growth needs.

Psychological need in circumstances stability also refers to the group of growth needs. Need for stability creates motivations, works them out and transforms them when necessary through the time.

Thus need for stability indirectly provides:

- Secondary components of a man's activity formation and development in external environment, for example in a socium. The socium in its turn stimulates motivation activity and causes personal growth of a man due to his/her inborn abilities development;
- Man's inner world formation and development, in particular its spiritual component when the feeling of the transcendental presence occurs, before which a man was just one more creature among other creatures and could easily get lost in the material world;
- Man's individualisation and absolute identity formation, that is the Cosmicality of a human character, of his/her informational immortality when every his/her step becomes a cosmic scale event due to principal impossibility to repeat its essential information [2].

Taking into consideration that everything existing in the Universe has its own informational importance and that information can't exist without a carrier it is possible to suppose that inappropriate satisfaction of the mentioned needs regularly creates conditions for the distress and becomes the source of psychic, psychological and psychosomatic traumas formation. Traumas natural overcoming becomes the source of new evolutional transformations of the Animate and its derivates. Traumas correction with the help of different psychological and psychotherapeutic means of the modern science and practice quickens evolutional transformations of the Animate and its derivates.

The relevance of this work is that it investigates the mechanisms of psychosomatic pathology in all the aspects of a man's development (starting from prenatal, natal and early postnatal period) and so it opens up possible mechanisms of psychological and psychosomatic traumas formation giving opportunities to their effective therapy.

The aim of this work is the investigation of the connection of the specific reasons of psychological, psychic and psychosomatic traumas revealed in man's adult life and of the time of these traumas' background formation (prenatal, natal and early postnatal periods) with a man's undestroyable need to achieve a stable position in life.

This work is the pilot study of background formation in the sphere of connection between earlier traumas (perinatal, natal and early postnatal periods) and the traumas of adult period of a man's development. Moreover the accent of our attention is shifted to inappropriate satisfaction of such needs as expansion need and psychological need for stability that is better monitored among children born with the help of the emergency Caesarean section.

Let's monitor all the mentioned above at our two patients who took part in the session of age regression in the state of full consciousness according to S. Tashaev [3].

Patient R., twenty-four-year-old woman with graduate degree, aspirant of the first year of study, two years of civil marriage. She came to us to ask for help to live through the sense of guilt towards parents and to stop the attacks of hidden aggression towards them and to restore warm family relations.

In anamnesis there is premature (8 months) twins' birth by means of emergency Caesarean section (together with her twin brother). The case is interesting by the fact that in age

regression "materials" all classical sides of trauma "plots" were present starting from perinatal period and till the present time when the patient came to us to ask for help. Below we will give some extracts from the plots in the form how they appeared during the age regression but with my (L. – the Leader) and her (R.) comments given while the discussion of the regression materials.

L. What would you like to let yourself (a traditional question before involving a patient into the process of the age regression)?

R. Perhaps to love mother.

Further there will be extracts from the plots of the age regression:

L. Mother is saying to father that she is pregnant. Where is it going on?

R. At home in the evening.

L. How is father reacting?

R. He seems to be happy but not completely. Something was wrong there …

L. But what's wrong?

R. He doesn't want children.

L. And how could he get happy then?

R. It seems to me that he was playing for mother, but he doesn't want children indeed. + His desire passed with time as if he fell out of love with mother and the question with children fell out.*

L. When you feel it in the womb, what is your attitude towards father?

R. I'm very angry with him, I'm not satisfied. + I despise him for this, I feel abandoned, unneeded. I feel offended for his treason and betrayal.

L. And what is your attitude to mother there?

R. + Having watched the video I felt offended by mother.

L. Now you are 3 months old in the womb, may be about four.

R. Mother and father are quarreling again. It seems to me that father hit or pushed mother, it became bad.

L. She felt bad or you did?

R. Mother did and this influenced us with my brother somehow.

L. Isn't there a feeling that now there will be a miscarriage?

R. No, there isn't. There is a feeling that it influenced our health, or even not health but it influenced the conditions of our life in the womb.

L. You are 4-4,5 weeks old in the womb when you feel that mother doesn't love.

R. I see father came home drunk, mother wants to divorce. + I've got a feeling that she wants to have an abortion again, but it doesn't worry her any more.

L. And why doesn't she have it?

R. She believes that he will change, children will be born and this will strengthen the relations.

And why do you feel that she doesn't love you? Are you like "coins to exchange"?

*R. Yes we are. That she doesn't really love us, but leaves us for her benefit. Her attention is more concentrated on relations, on father. * mark "+" means that the regression material was discussed later.*

L. And now your discussions with your twin brother. What do you talk about there?

R. My brother and I want to do something bad. We want to take revenge.

L. But how? How is it possible to take revenge in the womb?

R. Only through mother. To make her feel bad.

L. And what instruments do you have to make her feel bad?

R. We are kicking, pushing, we kick mother in order to get her attention and care… + There came a feeling that we made harm to our health.

L. And what talks do you have with your brother in the womb? At least some of them.

R. He asks me that maybe we shouldn't do so.

L. And you?

R. I have a feeling that I am revenge-driven.

L. But it can't be so that everything's bad. And now you have a very bright moment there in the womb. Where did you get to?

R. I feel that mother's situation improved somehow and there is no any threat at the moment. Her relatives support her. Mother supports. I have a feeling that her mother and father are near, but I'm not sure they could have come at that moment, I don't know. On the whole she had some support.

L. Where is she now when she feels good, how does she look like?

R. At work. She is talking to her colleagues, complaining to them, she doesn't know what to do. + I feel big offense towards mother.

L. But now do you feel good when your mother is talking to colleagues?

R. Well yes, a little calmer, but there is a risk that she will decide something wrong. I had a feeling that I was fed up with mother and father's problems, I was tired of suffering. She made us feel worse on purpose.

L. What caused the necessity of the Caesarian section? What situation?

R. Mother struck the abdomen against some corner or a jamb.

L. How old are you there in the womb?

R. We are already quite big. Six months.

L. She struck herself and what then? How does she feel? Or she didn't even notice?

R. No, she noticed. The stroke more reached brother and also reached me somehow because I feel not well now, my neck is aching now. + I feel strong aggression and offence because my parents are so careless to us, they don't love and also make us feel pain, I mean beat us. I have a feeling that when mother struck herself exactly this caused the Caesarean; there is a feeling that amniotic water became less around brother.

L. Good, she lay down, rubbed the injured place… Was she scared?

R. Yes, she was scared, but there is a feeling that she continues may be to fight, some activity appeared somehow.

While analysing these extracts from the regression it can be easily noticed that nearly from the very beginning from the moment of impregnation this prenate was constantly stuck with unfriendly environment (mother's womb) due to mother's distress and father's inadequate attitude. In other words it didn't get the adequate satisfaction of its need in care. If to accept that mother, father and the prenate are relatively independent subjects it is possible to state that nearly all the time during prenatal development R. and her brother were constantly in the zone of parents' expansion need satisfaction. While adrenaline rush it is impossible not to take the anger out on somebody, and that is the violation of another subject borders or expansion need at the expense of another subject. In this case it was the expansion for account of the prenates. Of course it was in a contradiction with prenates' personal interest and caused R. and her brother's response. There is a very big probability that exactly these circumstances led to the necessity of the Caesarean section and prenates' birth at eight months gestational age.

In this case there is an interesting fact that at the moment of being born and after it prenates' distress continued and here interferes the psychological need for stability.

With a view to keep the publication size we'll describe the Caesarean section process without the Leader's questions separating the plots' fragments by omission points.

My brother and I are with our heads up. I'm closer to the exit; there is no childbearing activity, mother felt bad and got into the hospital. They did stimulation but activity didn't start… they pressed mother's abdomen… pressure was upon our heads as we are with our legs down… They want me to come out and I don't want because I feel anger, revenge and offense. It is not about the world I don't like but these people and mother I don't like. + And father.

After the first stimulation they did the second one … it didn't help … I feel the lack of space and the heat now, such a pressure now.

Doctors are talking that don't want to come out. They are trying to push us out by force. And I don't want to come out; I want to do it to spite them… And my brother at this moment is passive, somehow weak and sluggish. Here after a push he feels not good… Here they are pushing us and I am holding on and don't want to come out, as if I'm holding and resisting.They say that no result, let's make the Caesarean… brother becomes bad, before he also felt very bad, maybe that's why mother came to the hospital.

Mother also feels bad… when they were pushing us out mother didn't have anaesthesia, later on they understand there is no use to push; they give anaesthesia to mother and make a section… "Danger, something is happening quickly. The condition is getting worse" … "everything is bad for my brother and me. + I felt my mother and my brother's condition worsened at the same time. They have something to go wrong" … "The Caesarean is emergency. + I felt that the doctors wanted to have vaginal birth, but something went wrong quickly.

The situation changed to worse, it is worsening quickly, it is urgent to take the babies out"… I hear: "quicker, quicker! We need to take them out"… "I hear one baby will die"… "+ Having watched the video I felt offense towards mother because my brother and I felt bad there inside"…

Mother got asleep; they are making a section… My pressure is rising, I'm all in fever. + It's difficult to breathe… I'm very angry. + The unknown scares…

I want to take revenge, to do something right now …

"Doctor is making a cross section under the umbilicus"… "I feel fever, much heat. + The back part of the neck and a leg are starting to ache. This lag has been aching now for many years under the left knee and the calf"… "their hands took my ribbons, I'm scared and I'm hot, faster out of the abdomen. + I feel not very good, fever remained, I'm crying loudly, I want to jump out of doctors' hands, I feel uncomfortable, I don't like how they are holding my ribbons, and the environment is uncomfortable. Now I feel my back between shoulders under the neck is aching. As if I've got a strong stroke"…

They are spreading the skin and taking me out by the axils… It is easier to breathe but asphyxia remains… I was taken out and my brother was taken out … My brother was taken out right after me… My pressure went down and it became a little easier. "They haven't cut the umbilical cord but they are taking my brother out, they are in a hurry"… + Why I feel bad inside my mother and after having been out? At first they took me out and did something, then they took my brother out and cut our umbilical cords. Something made them hurry"… Yes, but my revenge hasn't been finished. I want to hurt her. I'm very displeased with my mother… Now they did a very sharp puncture in a heel and some energy went through the leg like when you get a struck in

a nerve. + At this moment my left calf moved, right where it hurts now"… + All this is going on so quickly… they said everything was ok and something like this…

"I was washed… "Despite that I was taken out of there I feel hot"… "+I worry about brother… Doctors are not satisfied with something. They say that the children are weak… with such a despise "Ough, children are weak"… "+He is breathing but very slightly nearly at his last gasp. They spank his buttocks. +His head is inclined down, legs also down and bent. He is coughing. He says "Do something with me" (asking for help)"…

"They took also blood from his right heel"… "They do not swaddle him, they are checking his condition, it is very bad, they are worried, they say he is very weak.

"For feeding I was brought alone to my mother, she is puzzled. She asks: "Where is the second baby? But they find some fake excuses in order not to show brother… He is under medical treatment, he is being cured…

"Mother latched me on to the left teat, the milk is not very tasty"… "I felt bad inside. But when I was taken out I didn't like it either. I feel unprotected. In the womb I feel in some degree that mother already doesn't love me there, and I don't want to believe it"

The analysis of regression material about being born to our opinion is evidence to absolute absence of psychological need in stability satisfaction.

Early childhood is also full of the scenes of abuse from parents' side. Resulted from the described above situations, which influenced not only children but also parents, father left the family soon when R. and her brother were 1,5 years. According to mother's words father drank too much, beat her and she divorced. Also according to her words father beat us, he lifted us up by any part of the body and threw to the end of the room; but I don't remember it… During the regression this scene emerged:

Here father's left hand is holding my back and the right hand – my chest. And so father is throwing me to the sofa. Mother is very frightened … She is shocked. She wanted to bury him. I feel I'm crying, but nobody comes to me, I don't feel warm, I don't feel care. Mother started beating father…

Next scene is mother's abuse: She gripped me in a corner and beating … I'm very scared… it's painful, but more painful inside…

It's offensive… I see that mother is very angry with me. She has gone to another room; I'm running after her and saying that I will never do it again. But I don't see what I've done. + While watching the video I felt that mother punished me several times more than she should, so I felt injustice of the punishment. All my attention was pointed to this injustice; I couldn't understand why me… It seems that she caught us with my brother in a wardrobe smocking mother's cigarettes as a joke. I don't understand why she reacted so then. I see this scene already while watching the video… I asked her why she doesn't love me so.

Mother says that I'm naughty. + bad. Later she regrets partly… I go back to the corner and say to myself that I hate mother, that I wish her all the bad things… I want to hurt her. I want her to die.

After psychological work with all the plot lines of the age regression inner psychological state of our patient changed to better and the relations with close people including parents started to improve.

Analysing the final fragment of the age regression of postnatal period we can make one paradox supposition that aggressiveness, the sense of revenge and the sense of guilt may appear as a compensatory reaction to the inadequate satisfaction of expansion need and psychological

need for stability. It is probable that other needs which were not properly satisfied in perinatal, natal and early postnatal periods of a man's development also participate in this process.

We will describe shortly the age regression session with our second patient K. (32 years, degree in economy, two civil marriages and one official marriage) as all the main conclusions about our patient R. are proved completely. In K.'s anamnesis there is allergic bronchial asthma + chronic tonsillitis though tonsils were extirpated in childhood. She was born by means of the emergency Caesarean section. Here we will use regression therapy plots description on behalf of the third person (a leader) with some inserts of K.'s direct speech marked with different font. K.'s mother official marriage was for love and together with her husband she was building a successful career and setting up housekeeping. Pregnancy was wanted; however relations between K.'s mother and her mother-in-law were tense. As soon as mother-in-law (K's grandmother) stayed with her daughter-in-law alone she immediately started psychological attack and pushed her daughter-in-law about without any mercy. As example we'll give some plots from the age regression when K. prenate is 4,5 months old in the womb:

L. What do you here now?

K. Mother and grandmother are quarrelling… I hear the word "bitch"… Grandmother says, "You are nobody for my son, just a freebie"… I hear many rude words...

L. How do you feel inside at this time?

K. I feel as if I have a rope tightening around my neck, it is stifling me and pulling to the spine… I can't make a move…

L. Did mother try to complain to father?

K. Yes she did, but father can't do anything. He tries to persuade her to tolerate because my grandmother is his mother…

This situation repeats quite often; and on the leader's question if this situation may become the reason of the Caesarean section K. confidently replies that it was one of the basic reasons. Another reason which worsened the serious conflict of the prenate and mother's needs (need in care and protection, expansion need and need for stability) could be father's negative reaction for K's sex.

L. During ultrasound scan how did mother react to the news that you are a girl?

K. She got happy because she wanted a girl. And father even made a grimace… He wanted a son.

L. How do you feel then?

K. I feel unpleasant. I feel as I'm a girl and a boy at the same time… I want to please both father and mother. I feel that I got to the wrong place…

After birth K. will express this idea again, *"I should have been born not here, I got to the wrong place!",* and she will repeat it for long even after our hard work with her.

Childbearing process: contractions are on, they are strengthening. K. is with her legs down to the exit. Mother became bad…

K. I hear, "the baby is not going to anywhere"… But I shouldn't go because I should be born not here… I hear then, "necessary to save", but I can't understand yet whom to save. It seems that I feel bad inside my mother, she is eating all my energy up, I can't breathe, I'm gasping…

They make a section, blood is running … Ohhh! My ears are hot… I'm afraid… Ohhh! They are cutting the umbilical cord… At last I can breathe in… Away from mother! She has nearly killed me.

Analysing the first plot (the conflict during the prenatal development right up to first contractions) and the second plot (the Caesarean section) of K.'s age regression we come to the following conclusions: Also in this case distress occurred in both mother and the prenate, though mother's expansion was passive due to aggression from the side of mother-in-law. However it came to sharp contradiction with K's personal interest and caused strong resistance expressed as refusal to accept the reality. There is a great probability that exactly these circumstances caused the necessity of the emergency Caesarean section.

CONCLUSIONS

A man has got needs since the moment of impregnation.

Inadequate needs satisfaction in early periods of a man's development leads to serious psychological, psychic and psychosomatic traumas.

Inadequate satisfaction of the expansion need and the need for stability in perinatal and early postnatal periods of development influences a man during the whole life.

Overcoming of personal interests' contradictions of parents and children leads to personal growth of children as well as parents.

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FETAL UMBILICAL CORD ENTANGLEMENT AS STRESS-ASSOCIATED PHENOMENON

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Abstract. *Objectives.* To find out the frequency of fetal umbilical cord entanglement (FUCE) occurrences and the resulting perinatal complications; To study FUCE association with heliobiological, medical, demographic and psychosocial factors within the setting of a clinical and epidemical study; To explore the condition of the fetal-placental complex and the possibility of the prognosis of the FUSE perinatal outcome; To reduce the frequency of negative outcomes attributed to the cord entanglement. *Methods.* The study was conducted in three stages: First stage utilized a randomized controlled study of population data based on 4,074 labor and delivery records obtained from a database at the Maternity Hospital No.6, Kharkiv; Second stage surveyed a sample prospective observation study of 179 women after 32 weeks with uncomplicated singleton pregnancies (87 women with FUCE, 92 without FUCE); Third stage conducted a sample prospective observation study of 60 women at the end of the second or third trimester of diagnosed FUCE pregnancy. The index group A consisted of 34 women, who had undergone with special psychological support. The control group B consisted of 26 women, who had refused psychological support for various reasons. *Results.* The link between the increase in the FUCE frequency and perinatal mortality level has been established. A strong inverse relationship between the annual ratio of births with FUCE and solar activity has been also identified. Negative consequences of FUCE are more probable in certain clinical situations which have been identified. The analysis of the data of the psychological study showed that pregnancy with FUCE is a complex, stress-associated condition: a combination of the woman's psycho-emotional stress and the negative variants of childbirth motivation. *Conclusions.* Thus, we have reasons to conclude that pregnancy with FUCE is a stress-induced phenomenon, which requires the application of a comprehensive diagnostic and prognostic-analysis in addition to a psychological support system. We believe that the best option of FUCE prevention is the education of women before conception with the purpose of wanted, conscious motherhood.

Keywords: *Fetal Umbilical Cord Entanglement, Emotional Stress, Psychological Correction.*

INTRODUCTION

In recent decades in Ukraine and other post-Soviet countries there has been a rapid growth in various clinical forms of neuropsychiatric disorders in children and adolescents [1].

Currently there is no doubt about the causal relationship of such diseases to the events of the perinatal period. In turn, perinatal pathology is influenced by a wide range of physical, social, economic and spiritual factors. Thus, it is important to identify stress factors in early ontogenesis, clarify the risks they pose for the fetus and their role in the newborn pathology [2].

Impaired fetoplacental flow, caused by ***fetal umbilical cord entanglement (FUCE),*** has a significant effect on the outcome of pregnancy and delivery process, since it is directly attributed to perinatal hypoxia and birth injury, which are the main threats to the fetus [3,4].

The social aspect of this problem is reflected in the fact that functionally mature, full-term babies with good viability potential suffer intranatal injuries or frequent death in these cases [2, 5, 6].

At present, the FUCE causes are unknown and the clinical significance of FUCE is ambiguous. Cord entanglement is not looked upon as an abnormality in the case of a satisfactory outcome for the newborn [6]. But the significance of this factor is often greatly exaggerated with adverse outcomes [7].

Existing literature does not provide data on the FUCE occurrence in the general population and the FUCE effect on perinatal morbidity. There have been no studies of FUCE association with

external factors and environmental processes, no studies specific to the health and lifestyle indicators of the expectant mother. The aim this study was to find out the frequency of FUCE occurrences and the resulting perinatal complications; to study FUCE association with heliobiological, medical, demographic and psychosocial factors within the setting of a clinical and epidemical study; to explore the condition of the fetal-placental complex and the possibility of the prognosis of the FUSE perinatal outcome; to reduce the frequency of negative outcomes attributed to the cord entanglement [7].

METHODS

The study was conducted in three stages. *The first stage* utilized a randomized controlled study of population data based on 4,074 labor and delivery records obtained from a database at the at the Kharkov (Ukraine) Maternity Hospital No.6. At this stage the history of FUCE occurrences for 2000-2010s had been established; the FUCE association with heliobiological factors had been determined; medical, demographical and socio-psychological characteristics of women and outcomes of FUCE pregnancies within the population study have been reviewed. The heliobiological factor, represented by solar activity, is expressed by the Wolf number for Kharkiv region. This number is a cyclical variable with 11-year period. The solar activity data recorded by different observatories is available on NASA server.

The second stage surveyed a sample prospective observation study of 179 women after 32 weeks with uncomplicated singleton pregnancies (87 women with FUCE, 92 without FUCE). At this stage clinical, ultrasound, psychological, morphological and functional studies were used.

The third stage conducted a sample prospective observation study of 60 women at the end of the second or third trimester of diagnosed FUCE pregnancy. The index group "A" consisted of 34 women, who had been provided with special psychological support. The control group "B" consisted of 26 women, who had refused psychological support for various reasons. At this stage clinical, ultrasound, psychological and functional studies were used.

RESULTS

The link between the increase in FUCE frequency and perinatal mortality level has been established. A strong inverse relationship between the annual ratio of births with FUCE and solar activity has been identified. Negative consequences of FUCE are more probable in certain clinical situations, which have been identified. The analysis of the data of the psychological study showed that pregnancy with FUCE is a complex, stress-associated condition: a combination of the woman's psycho-emotional stress and the negative variants of childbirth motivation.

DISCUSSION

The incidence of FUCE in the studied time frame was 20.3% on average, with a significant increase from 7.7% in 2000 to 29.3% in 2010 (Figure 1).

The link between the increase in the FUCE frequency and perinatal mortality level has been established (Figure 2). This allows the researchers to state the direct effect of FUCE on perinatal

mortality statistics: the lowest perinatal mortality numbers (2.8‰ in 2000, 3.8‰ in 2001, 4.2‰ in 2002) coincide with the lowest level of deliveries with FUCE (7.7%), whereas the highest perinatal mortality level (12.3‰ in 2010) coincides with the highest ratio of deliveries with FUCE (29.3%).

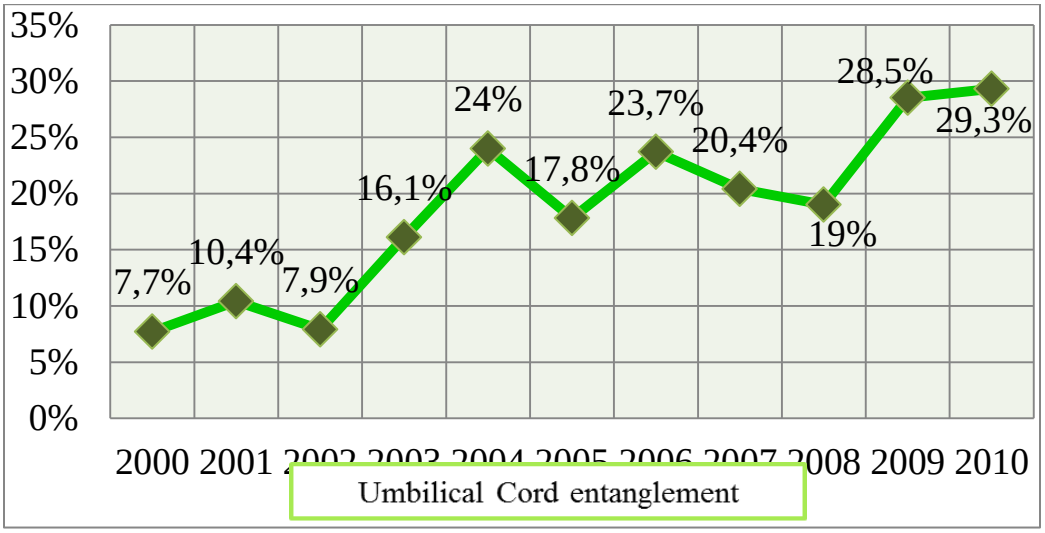

Figure 1. The incidence of births with FUCE during 2000-2010s

The overall perinatal mortality rate of 0.9% (9.0 ‰ for the unselected population – 36 cases per 4,074 deliveries) was associated with FUCE in more than a third of the cases, whereas asphyxia at birth (96 cases per 4,074 deliveries, 44 of them being in the group with FUCE) – was associated with FUCE almost in every second case.

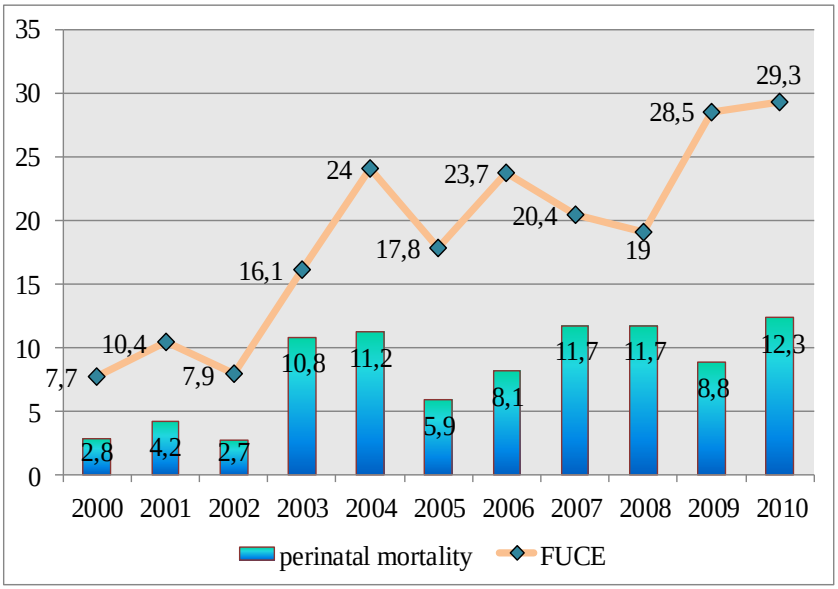

Figure 2. The occurrence of delivery of the Fetus with FUCE and perinatal mortality

A parallel relation has been established between the FUCE occurrence and the overall number of surgical deliveries, mainly emergency vaginal surgeries: a 3.5-fold increase in FUCE

incidence from 7.7% to 29.3% resulted in the increase in emergency vaginal surgeries from 0.5% to 7.4% (Figure 3). The overall frequency of Cesarean section turned out to be 2.5 times higher in the group with cord entanglement. The ratio of planned and emergency surgeries in the group with cord entanglement turned out to be 2.5 times higher in favor of emergency surgeries. Notably FUCE was diagnosed during the surgeries in 2/3 of the cases of Cesarean section conducted at labor. In every second case intranatal distress combined with a lack of delivery progress was one of the major indications for C-section.

These facts demonstrate the negative effect of FUCE and the resultant umbilical blood circulation disorders on prenatal indicators. Closer attention to FUCE in the process of pregnancy monitoring may lower the number of perinatal complications and mortality.

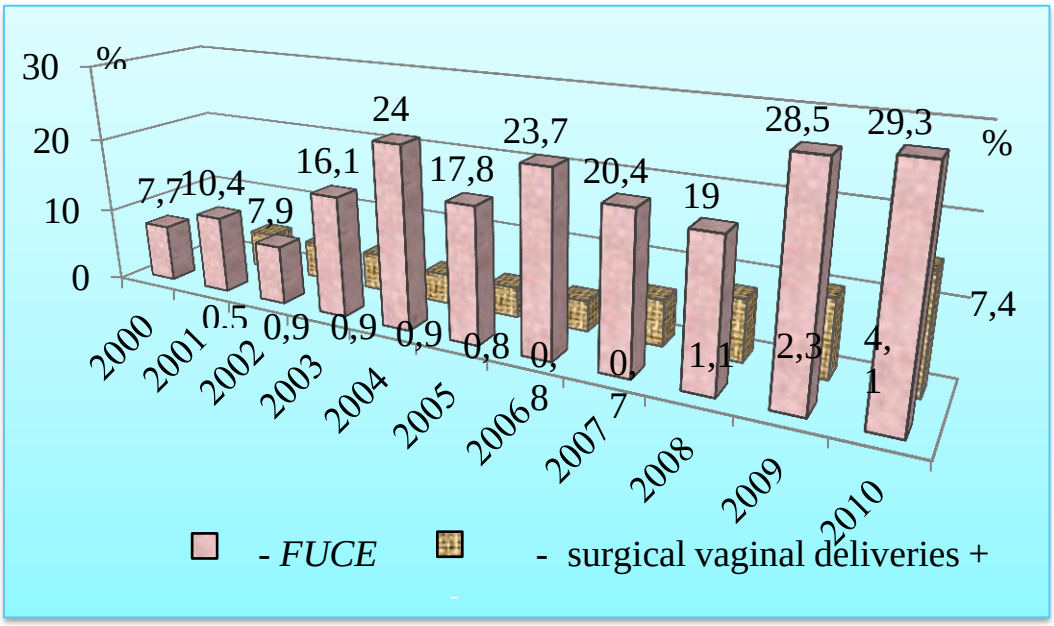

Figure 3. The proportion of vaginal operative deliveries in relation to FUCE occurrence

A parallel analysis of the dynamics of FUCE frequency and heliobiological factors has shown that the maximum percentage of births of children with FUCE is projected at the minimum value of solar activity (Figure 4). A strong inverse relationship between the annual ratio of births with FUCE and the Wolf number has been identified ($r=-0.866$, $p<0.001$).

The Sun with its magnetic field has an influence on the human nervous system, behavior, emotional stress and conditioned reflex activity [8,9]. The modern conditions of accumulation of machinery and metal structures have resulted in an anomalous redistribution of magnetic fields, which may perhaps explain the fact of a pronounced human magnetic field deficiency during low solar activity periods [10].

At the second stage of our study, the prospective survey of sample groups, we paid special attention to the actography test results. It is known that fetal motor activity – which is the most important fetal health indicator and an element of the biophysical profile assessment (as well as so-called **“**behavioral status”) – reflects the temper and behavior of the woman and the functional state of prenatal child. It is also a subject to circadian rhythms.

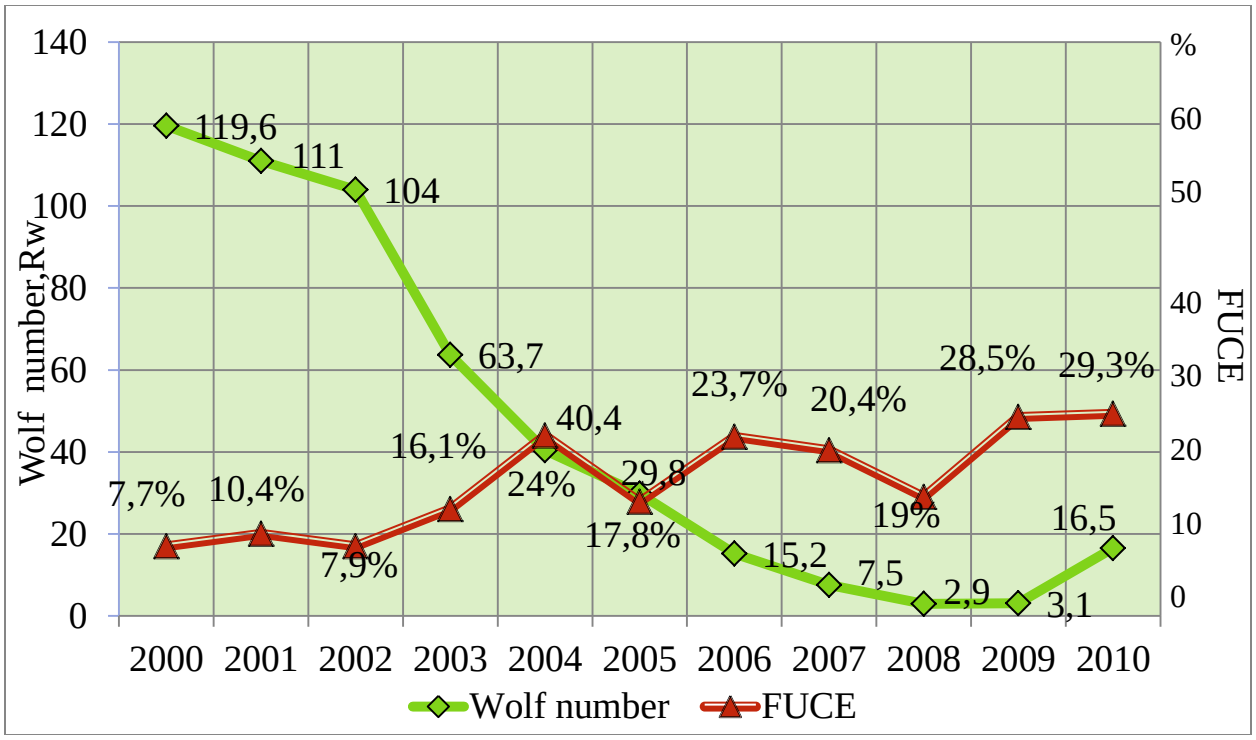

Figure 4 The number of births with FUCE and geomagnetic activity
(Wolf number is indicator of solar activity)

It was shown (Figure 5) that the sweeping type of its motor activity is highly specific with regard to FUCE, its sensitivity amounting to 0.66 (66%), specificity to 0.67 (67%).

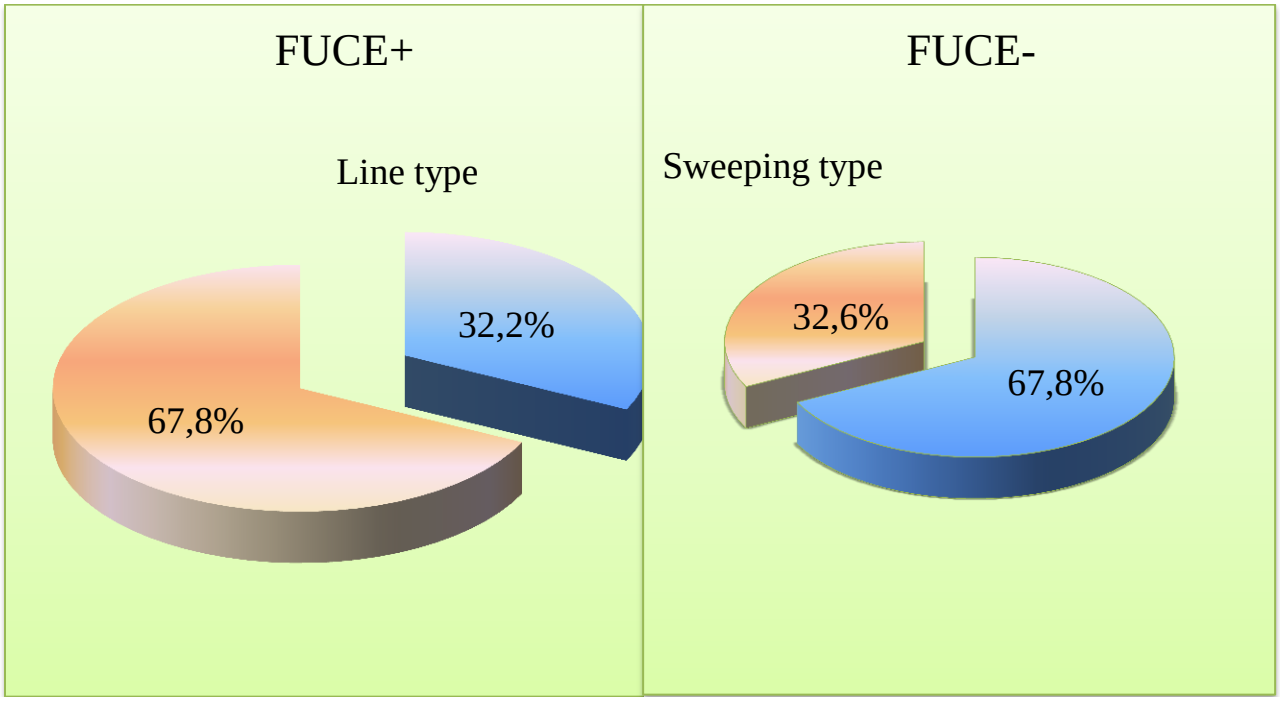

Figure 5. Characteristics of the motor activity of the fetus

In the group with FUCE, we identified a relative increase in the number of "lean" umbilical cords, which allows to track a relationship between these phenomena (χ^2 = 5.88; p=0.015).

It should be noted that the variants of lateral and velamentous placenta are reliably more frequent in the group with FUCE (p<0.001).

The number of cases of anomalous umbilical cord helix formation (Figure 6) obtained by us in the group with FUCE is related to the typical number as 1:8.2 against the similar relationship in the group without cord looping, 1:3.6 allows the researchers to identify a reliable relationship between anomalous umbilical cord formation and FUCE (CI 1.10-8.09; χ^2 =8.72, p=0.003).

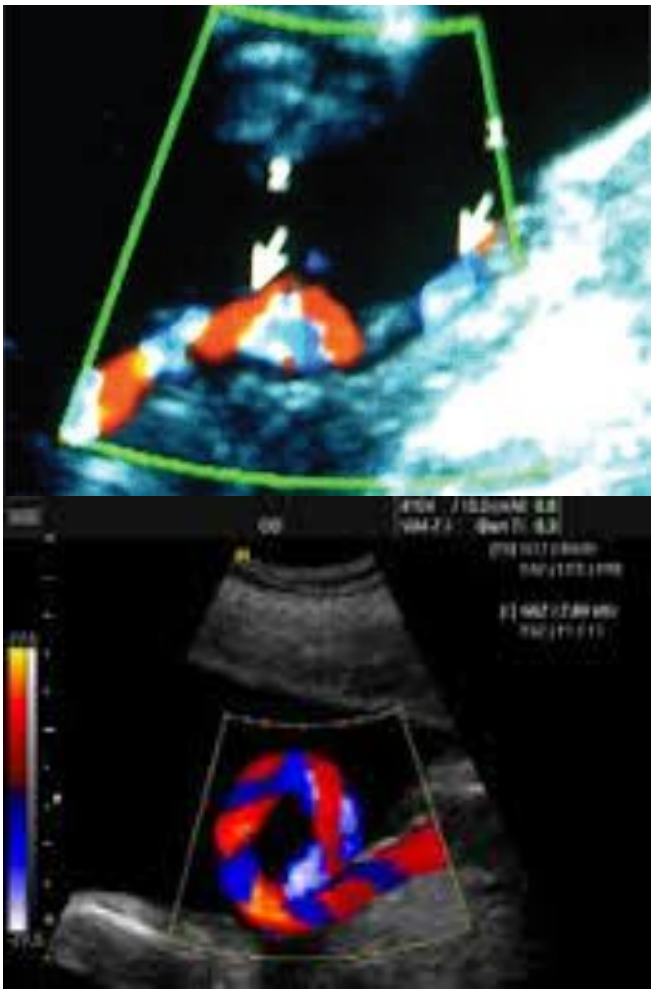

Figure 6. Study of the umbilical cord with the spiralisation vessels index

The cerebroplacental ratio (CPR), whose decrease is characterized by the redistribution of blood in favor of vital organs and evidences the phenomenon of blood circulation centralization, proved to be of clinical and diagnostic significance. This phenomenon has been identified and is reliably associated with cord entanglement in the cord entanglement group (p<0.001).

Thus, we have completed a significant group of specific ultrasound studies in case of suspected cord entanglement consisting of the following steps:

- Doppler ultrasonography for FUCE and its looping ratio around the neck, the torso and the limbs;
- Identification of the place where the umbilical cord enters the placental disk with special attention to lateral and velamentous placenta;
- Determining the helix formation index of the umbilical cord;
- Measurement of the cross-section diameter of the umbilical cord in three segments.

Also, we found that the negative consequences of FUCE are more probable in the following clinical situations:

- With an abnormal quantity of Wharton's jelly ensuring the existence of a collagen coating around blood vessels and having cushioning properties;
- With the development of the signs of fetal blood circulation centralization;
- If venous pulsation is identified in the umbilical cord;
- With hyper helix formation of a "thin" umbilical cord;
- With low twist combined with a "thick" umbilical cord;
- With multiple FUCE, where the so-called loss of active length is most probable.

Thus, we concluded *that it is not FUCE by itself that has perinatal significance*, but rather a combination of FUCE with other anomalous phenomena. It should be emphasized that these phenomena are mostly detectable with an ultrasonography of the umbilical cord in the second and third trimester of the pregnancy with a normal amount of amniotic fluid.

The morphological and functional studies of the placenta with FUCE showed a number of changes characteristic of placental disorders rather than umbilical cord disorders.

Destructive and necrotic changes in the placenta increase with the FUCE looping increases and are manifested in the following ways:

- Increase in the share of immature villi,
- Significant decrease in the pronouncement of low-molecular cytokeratin,
- Placental alkaline phosphatase,
- Growth factor of the vascular endothelium.

According to our data, despite the lack of clinical signs of the pathological condition, FUCE is always accompanied by chronic umbilical cord blood circulation disorders, which are manifested in the following ways:

- Depositions of type IV collagen in the adventitious membranes of umbilical cord vessels,
- Muscular layer edemas and hypertrophy,
- Venous stasis.

These data allow us to substantiate the conclusion that the development of chronic placental dysfunction underlies the significance of prenatal FUCE and increased probability of the pathological condition of the fetus.

The analysis of the data of the psychological study showed that pregnancy with FUCE is a complex stress-associated condition: a combination of the woman's psycho-emotional stress and the negative variants of childbirth motivation. A correlation between the high personal anxiety of the pregnant woman and the fact of cord entanglement has been identified (χ^2=93.05; $p<0.001$), which gives reason to identify it as a causative factor.

A psychological portrait of a woman with cord entanglement has been established: a high level of neurotization and anxiety (Figure 7), an emotional background dominated by euphoric or negative emotions, low self-control, prone to conflict, a negative attitude to family members,

pronounced egoism, a high proportion of destructive variants of the gestational dominant and a mostly neurotic motivation to motherhood.

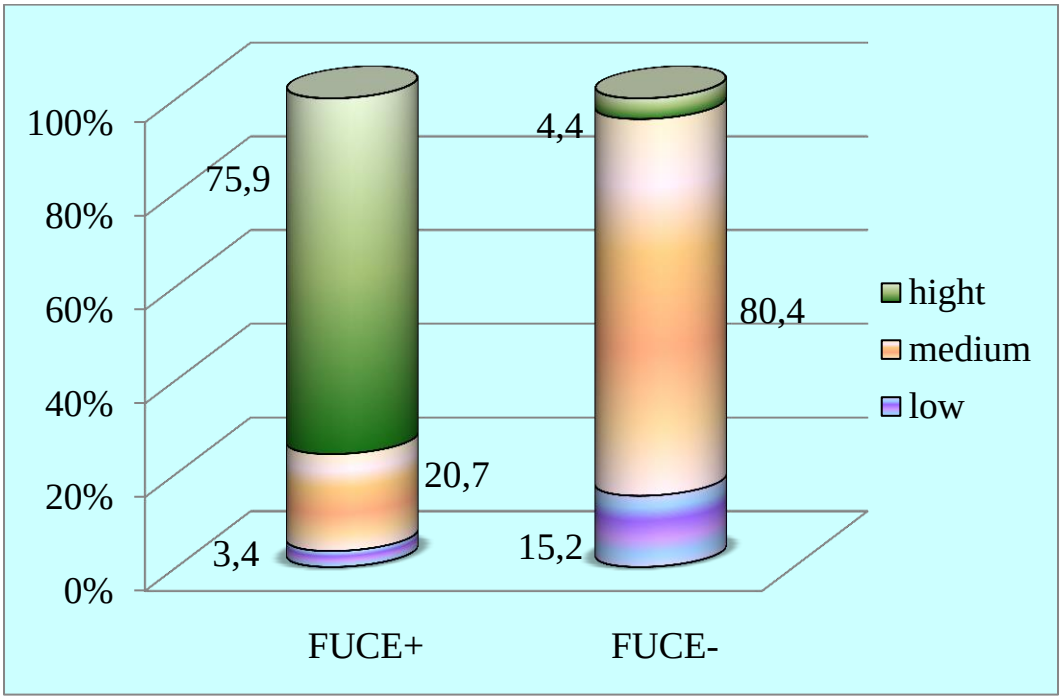

Figure 7. The level of anxiety in pregnant women

The question "What is this pregnancy's motivation?" is considered one of the important factors of the successful development of the fetus, due to the close emotional connection of the mother and the fetus. The answers to this question varied within the group of women with FUCE.

Unfortunately, the best motivation for pregnancy, "pregnancy as a desire for motherhood", is not as likely among women of FUCE (by a factor of almost two), as among women without FUCE.

Likely with women experiencing FUCE, a negative motivation prevailed, such as "pregnancy as self-fulfillment" or "pregnancy for the sake of a relationship." It was also found that women with FUCE are characterized by the prevalence of the anxious type of the gestational dominant. Women without FUCE are characterized by the "optimal" version of the gestational dominant component.

The psychological component of the phenomenon of cord entanglement was substantiated in our study of the anterior abdominal wall muscle stress.

We established a relationship of anomalous anterior abdominal wall muscle compression (by the abdominal muscle compression test [11,12]) in pregnant women with signs of both emotional stress and asthenoneurotic syndrome with the existence of FUCE (Figure 8).

Anomalous anterior abdominal wall muscle stress can serve as a barrier for the free movement of the fetus and encourage the rotation of the fetus in one direction.

Thus, we suppose that "nervous abdominal wall stress" acts as a factor stimulating FUCE.

All of this allowed us to consider FUCE to be a stress-induced condition accompanied by a negative pregnancy motivation and gestational dominant structure abnormalities.

We believe our studies make a compelling case for the creation of a medical support system for women with FUCE.

Its major tasks must include:

- Elimination or minimization of emotional stress;
- Elimination of pathologic anterior abdominal wall muscle stress;
- Arrangement of the motor activity of the fetus through the self-control of the pregnant woman, developing an optimal positive motivation for motherhood, the reduction of the anxiety level.

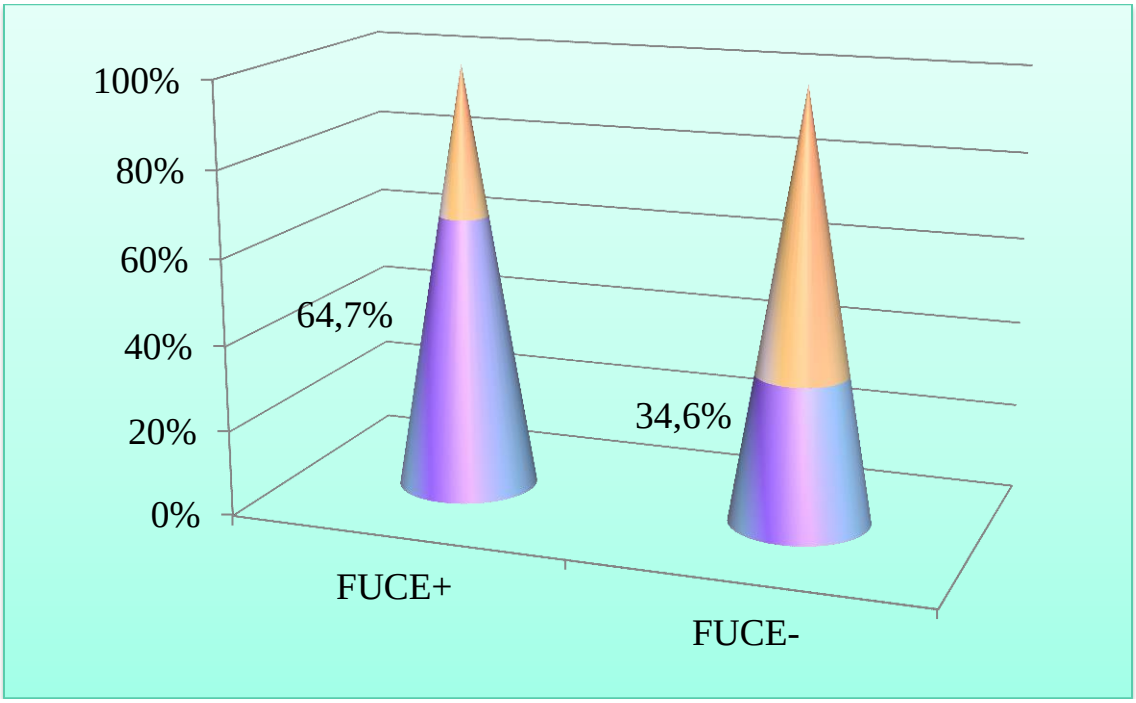

Figure 8. Abdominal muscle compression test (М.В.Швецов, Н.В.Старцева, 2003)

The restoration of the normal position of the umbilical cord can be expected with a statistical probability if such a system is implemented.

The comparative analysis of perinatal outcomes in two groups of women with FUCE diagnosed in the third trimester of pregnancy and with various psychological support, revealed a twofold decrease in the frequency of births of babies with FUCE among women who had undergone comprehensive psychological pregnancy support during the III stage of the study. The study compared index group *A – 34* (women who had undergone the psychological support) to control group *B – 26* (women who had not had the special psychological support for various reasons).

The frequency of hypoxic-ischemic injuries of newborns decreased reliably – 2.9% in the index group against 11.5% in the control group. We consider the decrease in abdominal delivery a result of the positive effect in the form of umbilical cord blood circulation normalization – 5.9% in the group of the women who had undergone special psychological support against 11.5% in the group without psychological support, as well as a decrease in vaginal operative deliveries – 5.9% against 15.4%.

CONCLUSIONS

Thus, we have reasons to conclude that pregnancy with FUCE is a stress-induced phenomenon, which requires the application of a comprehensive diagnostic and prognostic analysis and a psychological support system. We believe that the best option of FUCE prevention is the education of women before conception with the purpose of wanted, conscious motherhood.

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EFFECT OF PSYCHOLOGICAL CORRECTION ON ABNORMAL FETAL POSITION

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Abstract. *Objectives.*Breech presentation and malposition most often justify the indications for cesarean section. Global recognition of the need to reduce the number of operations performed for the first time requires finding safely ways to the transfer of the breech presentation and other anomalous position of the fetus in cephalic presentation. *Results.* In the study of dependence of the position of the fetus in the womb of the mother's psycho-emotional state in 168 women with abnormal fetal position (with a term of 31 weeks and later) we have established the presence of individual traumatic situations in each observation and negative variations of motivation for the birth of a child - every second. Two clinical groups of 84 people were formed. In group I, pregnant women held sessions with a psychologist in order to resolve stressful situations and to resist adverse external influences. In group II pregnant women performed corrective gymnastics. As a result, in group I normalized fetal position was observed in 47.6% of the cases, including 9.5% at ≥37 weeks of gestation, 25% at 34-37 weeks, and 13.1% at 31- 34 weeks. In group II, the location of the abnormal fetus survived in 69% of the cases. *Conclusions*. We believe the psychologicalcorrection should be considered as a necessary element of pre-gravida prevention of abnormal fetal position.

Keywords: *Breech presentation, Correction, Psychological trauma.*

INTRODUCTION

Further advancement in understanding prenatal psychological state of a baby calls for reconsidering a number of clinical obstetric problems from the point of view of psychological and emotional ties between the mother and fetus. One of the most interesting questions is what causes the fetus to take abnormal positions leading to complications during the delivery process. Such positions include breech, oblique and lateral presentations, and extensor insertion of the fetal head.These conditions often require C-section delivery due to the high risk of baby injuries at vaginal delivery. Concurrently, the requirement to reduce the number of section cesarean in primagravida women calls for new methods allowing natural delivery. So, it is important to find a way of safely correction abnormal positions to cephalic presentation.

Our clinical experience shows that quite often a full-term prenatal baby inan abnormal position can take cephalic presentation just a few days and even hours before delivery, which alloweda natural delivery. Also, the empirical evidence shows that in such cases women attributethe fetal position correction to the restoration of emotional balance, establishing a positive "dialogue" with the baby, which constitutes internal reevaluation.

The subject of our study concerns applying psychodiagnostic and psychocorrective methodologies during pregnancy monitoring in patients with abnormal fetal positions to determine if such methodologies can lead to a safe turn of the fetus to cephalic presentation.

METHODS

The study was designed to review the pregnancy experiences of 168 women, who were divided into two clinically homogenous groups.The group I included 84 women with abnormal fetal positions (breech, oblique and lateral presentation), who underwent a comprehensive

psychological and emotional evaluation and agreed to undergo psychological correction for fetal position adjustment. The group II included 84 women who did corrective physical exercises recommended by I.I. Grischenko and A.E. Shuleshova [1] at home on their own.

The first stage of the study was diagnostic by nature and consisted ofthe comprehensive psychological testing of pregnant women along with studying the specifics of the current pregnancy, including the discovery of pregnancy motivations. A special emphasis was made on identifying any possible traumatic situation significant for the pregnant women and exploring any self-defense mechanisms.

Psychological diagnosis tools selectively included the following methodologies:

- *Dobryakov Types of Attitude Toward Pregnancy test* [2]. This method evaluates specific attitudes in a pregnant woman and defines those requiring correction. There are five types of gestational dominant psychological component: optimal, euphoric, hypogestognostic, anxious and depressed.
- Projective techniques (see pictures My Pregnancy; My Baby) [3];
- Q-sort Method of attitude towards oneself[4];
- Dembo-Rubinstein Method of Self-esteem Measurement engaging additional scales for family relations assessment [5];
- Measures of anxiety based on Taylor Manifest Anxiety Scale (adapted by Nemchinov) [4];
- *Spielberg* State and *Trait Anxiety Scale* (adapted by Ju.L. Khanin) [4];
- Express-diagnostics of Psychoemotional Tension and its Sources (O.S. Kopina, E.F. Suslova, E.V. Zaikin) [5];
- *Family Adaptation and Cohesion Scales* (D.H. Olson) [6].

The assessment data allow designing individual approach for each patient. The projective techniques (see pictures My Pregnancy; My Baby) and their discussion were of special importance since they served as a start for corrective process.

The second stage of the study was corrective by nature and included: educating the patient about modern scientific approaches to the psychology of the fetus; attempting to correct psychological trauma; developing skills necessary for resisting negative outside influences; developing skills necessary for correcting the affective-volitional process, behavioral abnormalities and inter-personal relations; creating a positive self-image; developing skills of perinatal pedagogy.

RESULTS

Individual psychological trauma was present in each case of the 184 observed patients. The assessment of the gestational dominant type (euphoric, hypogestognostic, anxious and depressed) demonstrated the necessity for correction in 100% of the cases. The study also showed high levels of psychological and emotional tension in 58%of the women, disharmony in family relations in 53%, negative pregnancy motivations in 46%, high levelsof state anxietyin 32% of the cases.8% of the patients reported new stressful situationsemerging during pregnancy.

As a result of the psychological treatment in group I, the fetal position changed for cephalic presentation in 40 women (47.6%). This includes 8 women (9.5%) with the term of 37 weeks, 8 women (9.5%) with the term of after 37 weeks, 21 women (25%) with the term of 34-37 weeks, 11 women (13.1%) with the term of 31-34 weeks.

In the control group II the abnormal fetal position was unchanged in 57 women (69%) and in 27 women (31%) it was changed for cephalic presentation.

DISCUSSION

The lower number of successful outcomes in group II, compared to 75% shown by the authors of the corrective exercises [1], can be explained by the difference in modern medical monitoring of the pregnant woman compared to the one used fifty years ago. Special clinics for fetal position correction were established at that time. These clinics conducted regular fetal position correction classes for women with abnormal fetal position. These classes provided sets of physical exercises in a supportive environment and thus temporarily isolated the pregnant woman from her habitual and possibly stressful environment. This allowed the women to concentrate more on pregnancy, to interact more with the fetus, which contributed to creating optimal gestational dominant in pregnancy. It may be assumed that the high success rate in changing fetal position according to Grischenko and Shuleshova [1] confirmed the psychosomatic theory of prenatal attachment.

In all cases where the fetus turned to cephalic presentation, the patients stated that shortly before the change, their psychological problem had ceased to be the source of anxiety and had become a solvable ordinary problem, due to either engaging internal resources or outside circumstances. It is possible that a problem becomes solvable as a result of recognizing it on the conscious level, and this move has a positive effect on fetal presentation. Women often describe their psychological state in terms like "As if a stone fell off my soul,"and "I started feeling light and joyful".

Several clinical cases are considered bellow:

Case 1

A woman, primagravida, was hospitalized at full-term pregnancy. The fetus was in breech presentation. Assessment revealedan anxious type of thegestational dominant towards surrounding people and a low score on the Family Cohesion scale. The patient expressed rigid requests concerning maternity care, a low level of trust to doctors, showed ahigh propensity for conflict.After she became acclimated to the hospital and underwentrational behavior and family therapy, at 39 weeks of gestation the fetus turned.

Case 2

A woman, multigravida, had a lateral fetal presentation. She mentioned complicated relations with her husband, who was against the birth of the fourth child in the family. His actions were causing an ongoing stress and destabilizing the mother's wellbeing. Psychological correction started immediately after her hospitalization at 38 weeks. As a result of family therapy, the couple reconciled and the fetus turned threedays before the delivery. The fetus turned to cephalic presentation 20 minutes after a phone conversation with another family member. Communication with a loved one, which the patient regarded as final and complete tension release, was a precursor of fetal presentation correction. Contractions started in 2 hours and ended with successful natural baby delivery.

Case 3

A woman, multigravida, experienced a turn of the fetus from oblique to cephalic presentation one day before the delivery as a result of a psychological correction of the anxious type of gestational dominant, expressed in the mother-baby system. The patient later described her release

from anxiety as: “I suddenly realized that I would be able to love this child as much as the first one and that we all would be happier if there were four of us.”

The study of women with abnormal fetal positions allows identifying several destabilizing stress factors, which have causative effect on the abnormal fetal position. Those factors are:

1. Prolonged emotional and physical fatigue, which overloads the internal resources of the woman and leads to irritability toward the outside environment and people. In this case, the woman transfers the responsibility for mental wellbeing from herself to negative environmental factors. As a result, her endurance and overall vitality decreases, her psychological defense weakens and the woman starts utilizing the strategy of failure avoidance.For example, after restoring her vitality and wellbeing, Patient T recalled her previous attitude to life as “I wanted to turn to everybody with my posterior. ”The fetus turned at 35 weeks within one day after the woman recognized the reasons for her temporary hypogestognostic type of gestational dominant.
2. Severe stress situations emerging during pregnancy and resulting in ahigh level of psychological tension, observed in every fourth case. If the therapy for improvement of the gestational dominant psychological component was successful, the fetus turned to a normal position. In other words, we have achieved concurrency of psychological component improvement with fetal turning.
3. The existence of internal family conflicts significant for the patient, that may be outside the patient’s ability to resolve. For high anxiety levels, low family adaptation and cohesion levels, confrontations inside the family have been observed. Quite often the destabilizing agent is the relations with the grandparents of the baby, as the prospective mother recalls *inharmonious parent–child relationships*. In these cases, the success of a possible psychological correction of the emotional state of the patient without family therapy is not likely.
4. Negative attachment of the prospective parents to the future child. Such parents are doubtful about their ability to be good parents, express present or past consideration of abortion, reject the baby on gender grounds, believe there is a lack of space for the baby in their heart, family, and home.
5. Certain “genetic predisposition,” when there is a family history of abnormal fetal positions. This may also be attributed to other circumstances. From the point of view of classical obstetrics, it is either the disproportion of the fetal head size relative to the mother’s pelvic width or a fetal genitalia anomaly that causes an abnormal fetal position. If destabilizing facts can be inherited, the fetal position can often be inherited too.

Our observations show that both *morphological and functional predictors* (uterus abnormalities, clinically narrow pelvis), and same type of psychological stress factors, affect the fetal position.

According to our study, it is the personality of the mother and the inherited, biologically-defined attitude towards the environment, both of the mother and the baby that play the key role in fetus’s “choice” of position.Twin behavioral studies showing different reaction of each twin to a certain events can be an indirect support for this statement [7].

At the commencement of this study we expected to obtain better results, however, the individual cases revealed the complexity of diagnosing the psychological sources of abnormal fetal position. Disappointing results may also be explained by the patient’s lack of determination to resolve the internal problems. The study demonstrated that the pregnant woman does not always have a desire or ability to solve all her potential internal conflicts in the duration of her pregnancy.

Personal characteristics, lack of resources, lack of support from loved ones, personally significant events in an adverse social situationall play important role [8]. The timing of psychological correction and the availability of counseling during the earlier term of pregnancy should also be considered in future.

The study also encountered either unwillingness of some patients to disclose all the information pretending social wellbeing, or a lack of objectivity in self-assessment resulting from factors such as: immature self-awareness, inflated self-concept or possibly perfect self-control. It is quite possible that these behavior strategies are a form of psychological self-defense: they provide a comfort zone.

Note that psychological support for the purpose of turning the fetus was not very effective in cases when the fetus mobility was restricted by some physical obstacles, such as uterus abnormalities and umbilical cord entanglement. Notably, patients were minimally engaged in physiological correction in such cases. While speaking about the baby, patients often say that "he is comfortable this way," or "I envisioned him sitting like this. "The lack of the internal urge for the baby to turn may signify the subconscious understanding that such turn would be undesired and impossible.

The study also warns against the shallow and simplistic attempts to load the full responsivity for fetal turning on the woman. Declarations like "You were too nervous and that's why the baby is in the wrong position" or "Ask your baby for forgiveness for everything that has happened since the beginning of pregnancy" should be avoided. According to the psychosomatic theory of prenatal attachment, the cause of a fetal abnormal position is the depletion of resources and the inability to self-regulate. As such, blaming the woman for possible complications at delivery may become an additional iatrogenic influence depleting the already low adaptive resources of the mother and baby.

This study also raises the possibility that a fetus may choose his position in uterus. It may be assumed that other abnormalities, such as extensor and asynclitic insertion of the fetal head, are in the causal relation to fetal psychological discomfort during prenatal period. Further studies are needed to investigate the methodologies of the safe turning of the fetus into cephalic presentation.

CONCLUSIONS

1. The cases of abnormal and breech fetal position can be seen as a pregnant woman's response to the psychological and emotional stress.

2. Improvement of the gestational dominant in the whole course of the pregnancy is an effective way of preventing abnormal fetal position atthe time of the delivery.

3. Psychological correction should be considered as a necessary element of pre-gravida prevention of abnormal fetal position.

The results of the study can be viewed as impetus for further and more intensive studies of the significance of emotional ties between mother and fetus in providing perinatal care.

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TRAUMATIC MEMORIES OF A SPERM CELL

A personal experience of deep psychotherapy session with psychedelic drug ketamine hydrochloride

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Abstract. The research work of Athanassios Kafkalides and few other contemporary psychiatrists (Frank Lake, Stanislav Groff a.o.) who started in the 1950s and 1960s using psychedelic drugs like the LSD-25, psylocybine and ketamine hydrochloride, in deep psychotherapy sessions led to conclusions that fundamental traces of memory, engraved in the human nervous system in an unconscious state, can be revealed. The findings of these deep psychotherapy sessions, related serious psychiatric disorders of adult patients, like depression, neurosis, and psychosomatic reactions, to traumatic intrauterine conditions. I will present this very personal experience, in deep psychotherapy session with Ketamine Hydrochloride (a general anesthetic). That session, took me further back in time reactivating cellular memory. A reactivation of memory as a sperm cell. It is my very personal testimony where I relived a traumatic experience at pre-conception stage, a pre-conception rejection, due to my mother's fear about being left pregnant risking her life, having already previously an almost deadly labour giving birth to my older brother. The information about my mother's fear was told to me after the above deep psychotherapy session took place. The two hours session was undergone 25 years ago and was recorded. It will be heard in a conciced form of 19 minutes, neglecting revelations of secondary importance plus emotional and physical reactions long lasting, (cries, vomiting). The presentation will be divided in three parts, the introductory part where, the methodology of Dr Athanasios Kafkalides, the so called "Autopsychognosia" will be described and the reasons for which I have undergone in Deep Psychotherapy Session. The second part is the hearing of the session in Greek language, through loud speakers followed simultaneously by slides, containing in subtitles exact translation in English of what is been heard and the third part will be focused on the evaluation of the findings revealed, the realizations that have been made, step by step and how all that functions therapeutically.

Keywords*: Psychedelic Drugs, Ketamine Hydrochloride, Cellular Memory, Cellular Consciousness, Albert Hofmann, Frank Lake, Stanislav Grof, Athanassios Kafkalides, Thomas Verny, Graham Farrant.*

According to Dr A. Kafkalides, a psychedelic drug is a drug whose intake by the human body may bring about the manifestation or exteriorization of the unconscious. A basic pharmacodynamic property of the psychedelics is that they reactivate the memory of the nerve cells. This results in:

(a) The vivid emotional and physical revival of past events, some pleasant but most of them unpleasant;

(b) An amazing improvement in self-observation and introspection.

The term "psychedelic" was introduced by the psychotherapist Humphrey Osmond in 1957. That is derived by the Greek words psyche=soul and delo=manifest.

Through the ages of human existence, contact and use of psychedelic plants was inevitable, since they were part of nature. We assume that in the beginning they were taken accidentally, when man was in search of his nutrition and later in order to experience something beyond everyday life, as a deep spiritual experience.[16]

In ancient societies the role of leader in this effort was played by the shamans. The shamans were the healers of body and soul. Somehow, acting in a pre-rational science. With the

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[16] Terence McKenna, *Food of the Gods, A Radical History of Plants, Drugs, and Human Evolution*. Bantam Books, New York, 1992. Richard Evans Schultes and Albert Hofmann, *Plants of the Gods. Their Sacred, Healing and Hallucinogenic Powers*. Healing Arts Press Rochester, Vermont, 1992.

help of psychedelic plants (like *ayahuasca, mescaline, peyote and others*) they led the subjects undergoing healing, to a new kind of ecstatic experience during which the boundaries between the subject and the environment were repealed.

Among other cultures using psychedelic drugs were the ancient Greeks. The Eleusinian mysteries were the sacred centre of an initiation which was induced through the help of *Warren,* a kind of psychedelic drug. According to Albert Hoffmann, Warren seems to be similar to the famous *LSD-25*, a toxin produced from grain contaminated by a fungus named "*Claviceps purpurea*" well known in Ancient Greece.[17]

When the properties, related to the reactivation of memory of the famous drugs *LSD-25 and Psilocybin* (composed by Dr Albert Hoffmann) became known to the Psychiatric world, the approach to the unconscious seemed to be possible. Their basic capacity to activate human memory seemed to be a powerful factor in psychotherapy.[18]

Many psychiatrists around the world started using the drug, in the 1950s and 1960s, but without following any specific methodology, so the majority were soon disappointed abandoning their researches, except very few ones, among them Frank Lake, Stanislav Groff, Athanassios Kafkalides,[19] each one of them developing his own methodology.

The findings of these researches, related serious psychiatric disorders of adult patients, like depression, neurosis, and psychosomatic reactions, to traumatic intrauterine conditions. In these patients, relived emotions caused by stimuli emanating from the maternal body during their intrauterine life, emotional stimuli which set into question the existence of the persons themselves (unwanted/rejected) or in some cases, opposed the identity of their own gender (rejected for their sex).[20]

Regarding the process of a deep psychotherapy session, I would like to point out the following.

Before a subject undergoes to deep psychotherapy with Psychedelic drugs, a profound trust must be established between the subject and the assistant. Preparation for sessions with Ketalar begins with a questionnaire on the case's history to which he/she responded in written form. This is followed by two free communication sessions during which the case is informed of the causes of resistance which would very likely occur during and in between the Ketalar sessions, thereby inhibiting the process of the sessions and thwarting emotional-intellectual realizations regarding the content of the unconscious and the motives of behavior.[21]

The selection of cases for a deep session of autopsychognosia with Ketamine is made on the basis of the following criteria:

- The absence of permanent schizoid behavior, bipolar disturbance or psychotic one.
- A certain sensitivity in communicating with their fellow man and with their environment in general.[22]

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[17] R. Gordon Wasson, Albert Hofmann, Carl A.P. Ruck, *The Road to Eleusis – Unveiling the Secret of the Mysteries.* Harvourt Brace Jovanovich, Inc., New York & London, 1978.

[18] Athanassios Kafkalides M.D, Intra - Uterine Security: the Cause of the Oedipus & Electra Complexes in Two Cases Treated with lsd-25. Communiqué at the VI International Congress of Psychotherapy, Wiesbaden, Germany 1967**.***Causes Of Sexual Conflicts-Effectson Behaviour*. Open communication at the VII Panhellenic Congress of Neurologists and Psychiatrists, Athens 1975. *The Effects of Emotional Disturbances in the Pregnant Woman on the Developing Fetus.* Paper presented at the International Congress of Preventive Psychiatry, Athens 1979.

[19] I was fortunate to have Dr Athanassios Kafkalides as a father and as a tutor and I have assisted with him in dozens of similar sessions, for other patients.

[20] Athanassios Kafkalides M.D, *The Knowledge Of The Womb, Autopsychognosia With Psychedelic Drugs*, Authorhouse, USA, 2005

[21] Athanassios Kafkalides, *Autopsychognosia*, Odysseas Editions, 1989

[22] Athanassios Kafkalides, The Knowledge of the Womb, 2005

The following are mandatory conditions and restrictions:

- The assistant must have has his own experience in deep psychotherapy sessions with psychedelic drugs and be able to lead the patient with the appropriate questions to profound states.
- Minimum interference during the session, on behalf of the assistant.
- The patient must not be hypertensive (ketamine hydrochloride increases blood pressure)
- The session is undergone in a sound proof room, barely lighted.
- The whole session must be recorded, in order to be heard afterwards several times, by the patient.
- ***Ketamine hydrochloride*** is administrated in subanesthetic doses, 0.8-1.5 mg per kg of body weight, injected ***intramuscularly*** and the submitted is not allergic to the substance.
- The patient must be with empty stomach to avoid lung intake in case of vomiting.
- Last meal taken 6-8 hours before the session.

It is important to mention that before 1992 ***Ketamine hydrochloride*** (a general anesthetic used in surgery by the name of Ketalar by Park Davis) was available in Greece without any restriction. As you would probably know, all research programs with psychedelic substances have been suspended for decades due to the image of psychedelics, severely damaged by the 1960s drug culture, which explains the current lack of knowledge among psychiatrists.[23] Today, though, the academic circles are returning to psychedelic research. There are now at least eight U.S. universities returning to psychedelic projects: Harvard, UCLA, Johns Hopkins, UCSF, NYU, SUNY, the University of Arizona and Stanford University - they all have projects.[24] Ketamine assisted psychotherapy has been in progress at Bekhterev Research Psychoneurological Institute, St.Petersburg, Russia.[25]

In this presentation you will witness, for the first time in public hearing, the content of a deep psychotherapy session with the psychedelic drug ***Ketamine hydrochloride***, based upon the methodology of Dr Athanassios Kafkalides, the so called ***"Autopsychognosia"*** (the term comes from *auto=self*, *psyche=soul* and *gnosis =knowledge*). Autopsychognosia with psychedelic drugs is a process where traces of memory and repressed emotions are reactivated from the unconscious.[26]

That session was undergone 25 years ago, with the assistance of a young physician Dimitri R. who unfortunately two years later was killed in a motorcycle accident. At that time I was in a state of an emotional rejection by a loved one, combined with my monotonous and lifeless engineering duties.

The specific session, took me further back in time reactivating what I will call cellular memory**.** It is my very personal testimony where I relived a traumatic experience at pre-conception stage, a preconception ***rejection***, due to my mother's fear about being left pregnant risking her life, having already previously an almost deadly labour giving birth to my older

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[23] *Can psychedelics have a role in psychiatry once again?* The British Journal of Psychiatry, 2005 Jun; 186:457-8. [http://www.ncbi.nlm.nih.gov/pubmed/15928353] Jansen, Karl L.R., Ph.D., *Ketamine: Dreams and Realities*, 2004 Ben Sessa, *The Psychedelic Renaissance: Reassessing the Role of Psychedelic Drugs in 21st Century Psychiatry and Society*. Muswell Hill Press, 2012

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[26] Athanassios Kafkalides M.D, *What is A Pharmaceutical Autopsychognosia Session?* in *The Power of the Womb and the Subjective Truth*, Triklino House, 1987 (ISBN 960-7624-14-9)

brother. The information about my mother's fears, at preconception stage, was disclosed to me after the session took place.

The session was recorded and lasted more than two hours. It will be heard in a concise form of 20 minutes, neglecting findings of secondary importance plus emotional and physical reactions long lasting (cries, vomiting). The hearing of the session is in Greek language, followed simultaneously by subtitles in English, with the exact translation of what is being heard, plus comments in brackets.

THE SESSION

[***K****: my self (Kostas)* ***D****: my assistant physician (Dimitri). Everything in brackets are personal comments. Twenty minutes elapsed since 70mg of Ketamine Hydrochloride have been injected intramuscularly*]

K: Fear! Oh…. Ah…I don't know...what kind of a storm is this in my brain? A storm swipes out everything… Why such a deformation? Why such a distortion *(of reality in order to see the truth)*?… Why? Ah… ah… There is something irrational in here… Faces everywhere! What is happening? What swept through my brain? Kostas… what is happening to you? *(addressing to my self)*. Kostas you have nothing, absolutely nothing! You are alone… I am about to blow out my heart. The heart must always beat softly and in calmness not like crazy. Something is happening to me!!!...

D: What is happening to you? Tell us… *(Please notice the role of the assistant, the discretion of his interventions and the tone of his voice in order to lead the session as possible in a profound state without disturbing my trip way back in time)*

K: Everything has been swept away… I feel….vibrations… and my palpitation why?… why palpitation? Why have I denied the truth so much? I have to break down those shells… they must break *(the shells represent defense mechanisms and resistance to express repressed emotions)* I don't want much… I want just to play lightly... to fly like a little bird… I feel the heaviness of my body… my body lays heavy on me... my existence… lays heavy on me! Castles are falling down! Defense *(mechanisms)* is meaningless *(Defenses and resistances are collapsing in front of the revelation of profound traumatic memories. Bursts of vomiting lasted for more than 2 minutes)*. I cannot continue defending myself any more. Oh God! Fading faces… I refuse to give them any shape… …the shape is J. *(the initial of the woman from which I was rejected emotionally at that time).*

D: What inhibits you from giving them shape? What other figures are present?

K: C! *(another person)* a bad face. J. and C. They both hurt me deeply. I have been hurt much Dimitri… I have been hurt too much *(The above faces seemed to be responsible for my psychic pain, disappear giving place to a deeper hidden truth).* I don't know what has happened? Such a big mess…

D: Try to begin from somewhere, to clarify what has happened… to realize deeper… to see what has happened.

K: What has happened?... What has happened? But of course… this is what happened! …I am A SPERM CELL which moves IN INFINITY! This is the MOTION… this is the motion, the MOTION that has to be completed, the MOTION, the MOTION Dimitri, the MOTION can't be stopped! *(the motion towards the egg, obeying to the biological irreversible creative process*

of conception). THE MOTION CAN NEVER BE STOPPED! The MOTION is to penetrate… to penetrate into a body. There is no other meaning besides that... I am terrified... I can't continue…

A lot of damage has happened in there! It is a big mess in there… fibers… foreign bodies… objects that obstruct the way… THE WAY TO THE LIGHT!

(given that the mother was under the state of panic of getting pregnant, the storm, expressed in different forms, is created by the maternal body in order to extinguish my existence as a sperm cell, obstructing the way to conception, the way to life). Matter… matter holds me back!

D: What is generating the fear in there? Where you are?

K: Tissues, fibers, all jumbled up together on me, they choke me… they don't let me function… Everything is concentrated in a sphere… Sea battles, guns, smoke coming out. I WANT SILENCE. I want a little golden box, to get in… to lock me up and stay there for ever… stay there for ever… *(A state totally away from human conflicts. The little golden box excludes physical dimensions, maybe a divine condition beyond matter, beyond time and space…).* That's it, I have developed the conditioning of palpitation whenever I think of J. *(back to the recent emotional rejection from J.).* Here comes the idea of my erected penis into her… and I feel sick... my penis is dominant, but in the same time it is so weak! *(maternal emotional rejection, "castrates", inhibiting mind and body both genders. The same is true with the maternal substitute if her behavior becomes rejective like in my case).* Ah…Ah… Dimitri…the body of J. makes me feel sick! But I need it.

D: Does she have any real connection with the little golden box?

K: They are identical!! (*The body of J. is the means to reach that divine condition)*

D: Why do you need it?

K: In order to penetrate into there and give an end to my existence….

D: Is she the golden box you said earlier?

K: She who has given me life should take it back!

D: Into her body? Is there where you are going to meet with golden box?

(Dimitri's question is ignored. Body of J. does not symbolize any more the golden box. Here we have self destructive thoughts, in order to satisfy the maternal wish, for intrauterine death)…

K: The same body which created me, the same body will destroy me… to make me vanish Ah, Dimitri… I am getting close to something extraordinary, but I don't let it come out….. I am afraid……..

D: But you have approached it…

K: There is something so rotten... but I doubt if I will endure to let it come out…

D: But you have approached it and doesn't look so threatening… get closer to it…

K: The motion…THE MOTION OF THE SPERM CELL… *(falling back to deeper state)…* I AM A SPERM CELL THAT FOLLOWS A (predetermined) COURSE!

D: Follow its motion…

K: I am moving my legs… because I am weak…… I have nothing else to move… nothing else… only my legs, my lower limbs… *(the flipping of the legs together, on the couch, can be heard clearly, it is the motion of the sperm cell…).* I am trembling… I am shocked from the vibrations… vibrations are shaking all my body… TELL HER TO STOP IT! Stop that! …enough!… stop it… stop it… stop it… *(full awareness that the storm emanates from the maternal body).* Sickness... All my body is trembling, I am trembling Dimitri… I am trembling all over… *(bursts of vomiting lasts more than a minute)…* I AM A SPERM CELL THAT IS TREMBLING ALL OVER! IN A WOMB WHICH IS INCAPABLE *(unworthy)* TO ACCEPT IT! *(a rejective womb).* IT CANNOT FINALLY FIND PEACE IN THERE! *(as a sperm cell in*

the maternal body). BECAUSE THIS WOMB IS SHAKING… IS SHAKING ALL OVER!… I AM THE GOOD SPERM CELL WHICH HAS BEEN EXPOSED IN THAT VICIOUS STORM, WHICH SWEEPS OUT EVERYTHING!… I am still afraid, I feel tired… I feel tiny and unprotected. I feel tiny and weak… I AM LITTLE KOSTAKI… *(= little Kostas).* KOSTAKI IS ALWAYS A SMALL CHILD… KOSTAKI IS ALWAYS A LITLE CHILD… THIS IS THE ROLE GIVEN TO ME, TO ALWAYS BE A LITTLE CHILD… do you perceive that… *(For a lifetime I was dominated by this unconscious feeling of being rejected as sperm cell, accepting the role of being small and weak. It was triggered usually by emotional rejection from women turning me unhappy and making me loose my self confidence).*

D: It is important that you know it…

K: THIS CHILD HAS BEEN EXHAUSTED… I AM TIRED OF BEING A CHILD, I AM TIRED… I AM TIRED OF SEEKING FOR ACCEPTANCE FROM WOMEN! **D:** Does the storm of mind, the storm in the womb that received you as a sperm cell have any connection with this, *'seeking for acceptance*'? *(Seeking for acceptance on behalf of women means seeking acceptance from the womb).*

K: Ah... Back to the motion… back to vomiting that lead's me... back to that body… *(back to the maternal body which rejects my existence)…* I couldn't stand anymore that sickness… I had to stop it... I couldn't any more… I couldn't… stand this rottenness... I couldn't any more… Here comes again… Spirit get your freedom… spirit get liberated from all that… go away from all that… go away…

THROW UP all that… throw up all that, oh fuck… throw up all that… they are not yours! They are not yours! *(This is the desire of the deeper self , to be expressed, seeking for an existential identity. Throwing away any foreign traumatic memory stored against our will and against natural programming)...* Ah Dimitri I am in a state of delight… as if… as if my whole body regresses into a warm condition… It's warm in there, it's warm… oh… God… *(Delight and warmness it's a reactivation of the feeling of the accepting womb. My body took unconsciously the position of the fetus, with a deep feeling of serenity… a serenity reflected on me from mother during my intrauterine life, after her decision, against the risk for her life, not to abort me as an embryo, falling her self, into a state of serenity.)*… Oh God, I have been left hanging in mid-air… there is a sort of tension, an intellectual alertness. Something will occur, something MUST occur to differentiate things… A DOCK OF A BAY… A SHIP… A SHIP READY TO SAIL-AWAY…

D: A trip into knowledge!

K: A long journey my friend… My little heart is still beating… like crazy… I DO NOT WANT TO EXHAUST MY BODY ANY MORE… AWAY FROM ROTTENESS… AH… DIMITRI I WANT TO FEEL WARM AND CUDDLED… AND DO NOTHING… *(the desire to return to the accepting womb).* FACES ARE OF NO IMPORTANCE! I WANT TO LIVE FROM NOW ON *WITHOUT PAIN*, DIMITRI… AND THE JOURNEY IS VERY LONG…

D: The fact that you have reached this realization is already a step away from pain.

(The above realizations had therapeutic results, taking me out of the dead end in which I was and leading me to very important decisions regarding my life, among which decisions one was to study medicine).

END OF SESSION

Is all that was brought up under the effect of the psychedelic drug, hallucinations? This is a very rational question. In fact all the above experience became a part of me, it is my possession, it is my truth.

After all, the outcome was a realization towards truth. My whole life has changed dramatically after this session.

As a conclusion I would like now to mention the following theoretical views concerning human memory made by five eminent psychotherapists.

Frank Lake, who used as well the abreactive agent *LSD-25* stresses the importance on the first trimester following conception and the unbearable *transmarginal pain* experienced by the rejected fetus. He underlines that: "we must begin at conception, through the blastocystic stage, to implantation and the events of the first trimester. It is here, in the first three months or so in the womb, that we have encountered the origins of the main personality disorders and the psychosomatic stress conditions."[27]

Graham Farrant, through Primal therapy, he relived as an egg and his own conception. In his interview to Steven Raymond,[28] he claims that: *"*when memories of conception were achieved, expressed, relived and integrated, and there followed by a dramatic, sudden and sustained change in personality, behaviour and interactive life experiences, it became convincing to me that the experiences relived in therapy must have had some basis in a concrete reality".

Athanassios Kafkalides in his treatise "*The Knowledge of the Womb – Autopsychognosia with Psychedelic drugs*" writes: "I believe that the matter of which the human body is composed preserves the memory of its origin and evolution. The reactivation of this memory by *LSD-25* transports a person back through the limitless past, creating in him levels of consciousness corresponding to various stages in the evolution of matter. The revival of the very distant past which may be brought about by psychedelic drugs (as seen in the example just mentioned) is the result of reactivation of a latent memory of matter, the matter from which originated all our ancestors on the zoological scale"[29]

Thomas Verny in his paper "*What cells remember; Toward A Unified Field Theory of Memory*" refers to evidence from studies on genetics, epigenetics, organ transplants, immunology, unicellular organisms, planarian flat worms, nano computers and clinical psychology in support of the hypothesis that memory can also be stored in all the cells of the body, not just nerve cells. The relevance of this theory to pre- and perinatal psychology is explored… [30]

Stanislav Grof, a pioneer in the field of *LSD* psychotherapy, believes that biological birth is the most profound trauma of our life. It is recorded in our memory in miniscule details down to the cellular level and it has profound effect on our psychological development.[31]

[27] Maret Stephen, *The Prenatal Person, Frank Lake's Maternal Distress Syndrome*, University Press Of America, 1997

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PRENATAL STRESS

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Abstract. One of the risk factors for adjustment problems following adult traumas is experiences with trauma early in life. Prenatal stress generally produce significant psychological and physical alterations later in life, which may, but need not be accompanied by corresponding changes in the functions of some of the stress system. Pregnant women exposed to uncontrollable stressors have a higher incidence of babies with physical, developmental, and behavioral problems (malnutrition, eczema, bronchitis and other respiratory system problems, ability to walk and speak, irritability, antisocial behavior). It is even possible that early trauma may affect developing brain. There are gender differences in the effects of stress, and so the effects of prenatal stress is often higher in female embryos/ fetuses.

Keywords: *Prenatal Stress, Physical Disorders, Developmental Disorders, Behavioral Disorders*

INTRODUCTION

Stress is a state of the body caused by a tension of the body and/or mind. Stress is usually interpreted as a physical, chemical or emotional factor that is consequence of the load in the body, soul and mind, but also indicates the current situation that creates tension and "stress" feeling [Đorđević D.M., et al, 2015]. By definition, stress represents a state of real and/or imaginary threat of disruption of homeokynesis of organism at all levels of its organization [Đorđević D.M., et al, 2015]. Stress is direct aware or indirect subconscious sense of threats to the stability of the organism, which depends on the individual capacity of adaptation [Đorđević D.M., et al, 2015].

One of the risk factors for adjustment problems following adult traumas is experiences with trauma early in life. Prenatal stress generally produce significant psychological and physical alterations later in life, which may, but need not be accompanied by corresponding changes in the functions of some of the stress system.

MECHANISMS OF PRENATAL STRESS

The adaptive changes made by the fetus in response to the intra-uterine environment result in permanent changes in physiology, structure and metabolism, a phenomenon termed early life programming [Reynolds R.M., 2013]. The programming involves epigenetic, neuroendocrine, hormonal receptor, and metabolic alterations involving the placenta and fetus [Dattani M.T., et al., 2011].

Evidence from epidemiological, experimental and clinical studies has shown that the origins of many adult diseases begin in early life, such that *in utero* environment regulates not only the fetal growth trajectory, but also ‘programmes’ subsequent health [Reynolds R.M., 2013]. There is extensive documentation of the association of intrauterine growth retardation (IUGR - low birth weight for gestational age) with an increased risk of later hypertension, insulin resistance, diabetes, cardiovascular and coronary heart disease [Dattani M.T., et al., 2011]. This relationship is independent of lifestyle factors such as smoking, social class and obesity, and occurs across the normal birthweight range [Reynolds R.M., 2013]. Low birthweight, a marker of an adverse

intrauterine environment, is associated with increased mortality and a range of cardiometabolic diseases, neurological and mental health disorders in adulthood [Reynolds R.M., 2013]. These associations do not apply exclusively to low birth weight babies but also to newborns within the normal birth weight range [Reynolds R.M., et al., 2013]. Early life stress, including stressors in the prenatal and early postnatal period, is a key factor that can have long-term effects on offspring health [Reynolds R.M., et al., 2013]. Prenatal stress may also be compounded by early postnatal stresses such as childhood maltreatment with resultant adverse effects for the offspring [Reynolds R.M., et al., 2013].

There are several mechanisms through which prenatal stress may affect fetal development. First, cortisol in the mother's blood stream might directly reach the fetus through the placenta [Tollenaar M.S., et al., 2011]. Cortisol can cross the blood–brain barrier of the fetus and may affect brain development. Second, stress may reduce the expression and activity of 11 beta-hydroxysteroid dehydrogenase in the placenta, leading to higher cortisol concentrations reaching the fetus [Tollenaar M.S., et al., 2011]. Third, stress may reduce blood flow to the placenta through the activation of the autonomic nervous system, leading to a decreased availability of nutrients and oxygen [Tollenaar M.S., et al., 2011]. Furthermore, prenatal stress may cause the mother to change her lifestyle (e.g., eat less healthily, drink alcohol or smoke), and hence, indirectly affect the development of the unborn child [Tollenaar M.S., et al., 2011].

GLUCOCORTICOIDS

In response to stressors, the human body will react in two important physiological ways, with a quick release of (nor)adrenergic hormones by the autonomic nervous system, and with a slower release of glucocorticoids, mainly cortisol, by the hypothalamic pituitary adrenal (HPA) axis. Early life factors can shape the development of the HPA axis. Maternal prenatal stress might constitute such an early environmental factor. Human studies have shown that early life experiences are associated with functioning of the HPA axis in later life [Tollenaar M.S., et al., 2011].

The HPA axis starts to develop prenatally and fully matures after birth, including the development of a diurnal cortisol rhythm in the first year of life [Tollenaar M.S., et al., 2011]. One of the key hypotheses to explain programming, namely over exposure of the developing fetus to glucocorticoids, lead to permanent alterations in the neuro-endocrine development of the fetus resulting in long-term changes in the set-point of hormonal axes (HPA and others) that induce and maintain the adult health sequelae (metabolic profile and behavioural phenotype) [Reynolds R.M., 2013]. Maternal stress, undernutrition, and placental dysfunction are associated with increased maternal and fetal glucocorticoid levels, which contribute importantly to IUGR and programmed alterations in adult endocrine systems and metabolism [Dattani M.T., et al., 2011]. Generally, higher maternal stress, particularly if the stress is extreme (such as death of a loved one, exposure to terrorism or natural disaster – as floods, hurricanes or earthquakes) is associated with lower birthweight and/or shorter gestation [Harville E., et al., 2010]. High maternal stress or glucocorticoid overexposure and low birthweight are associated with altered setpoint of the HPA axis (Fig. 1) [Reynolds R.M., 2013].

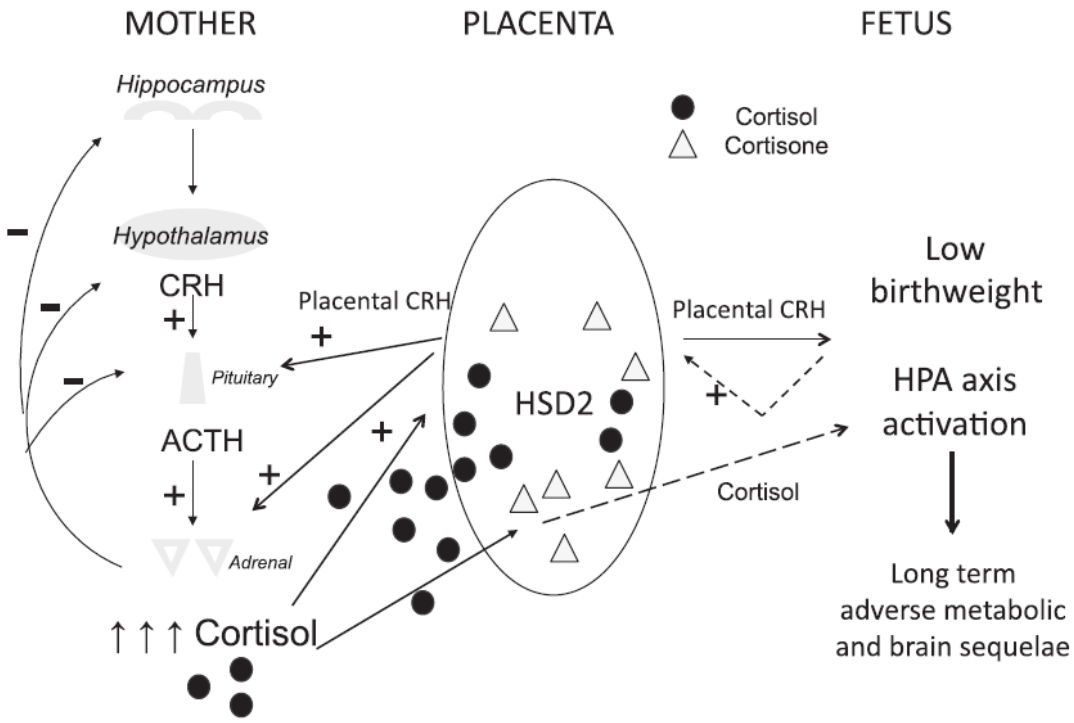

Figure 1. Glucocorticoid signalling between mother, placenta and fetus [Reynolds R.M., 2013]. CRH — corticotropin releasing hormone, ACTH — adrenocorticotropin hormone, HSD2 — 11β hydroxysteroid dehydrogenase type 2.

CARDIOMETABOLIC DISORDERS

Glucocorticoids cause hyperglycaemia by increasing insulin resistance and inhibiting glucose-stimulated insulin secretion from pancreatic beta cells. Insulin resistance is further exacerbated by glucocorticoid-induced obesity and liver fat accumulation, but development type 2 diabetes. Glucocorticoids also produce dyslipidaemia, hypertension and vasoconstriction, increasing the risk of cardiovascular diseases as myocardial infarction, stroke and heart failure.

There are gender differences in the effects of stress, and so the effects of prenatal stress is often higher in female embryos/ fetuses. Maternal cortisol levels during pregnancy are also associated with changes in offspring body composition at 5 years, with higher maternal cortisol being independently associated with higher fat mass index in girls and lower fat mass index in boys, suggesting gender differences in offspring vulnerability [Van Dijk A.E., et al., 2011].

Stress during pregnancy can impair biological and behavioral responses in the adult offspring and some of these effects are associated with structural changes in specific brain regions. Furthermore, these outcomes can vary according to strain, gender, and type and duration of the maternal stress. Indeed, early stress can induce sexually dimorphic long-term effects on diverse endocrine axes, including subsequent responses to stress [García-Cáceres C., et al., 2010].

BRAIN DISORDERS

Maternal stress correlates with high concentrations of stress hormones [epinephrine, norepinephrine, adrenocorticotropin hormone (ACTH)] in the fetal circulation, which act directly on the fetal neural network [Sadock B.J., Sadock V.A., 2007]. The developing brain is particularly susceptible to the adverse effects of glucocorticoids. The developing brain is susceptible to excess glucocorticoid exposure *in utero* which has detrimental effects on brain development [Reynolds R.M., 2013]. Decrements in verbal and visuo-spatial abilities and narrative memory have been reported in the 8 year old children of women who consume large quantities of liquorice (Glycyrrhiza glabra), which contains glycyrrhizin, an HSD2 inhibitor [Räikkönen K., et al., 2009]. The placental enzyme, 11β - hydroxysteroid dehydrogenase type 2 (HSD2), oxidises biologically active cortisol into inactive cortisone [Reynolds R.M., 2013]. These children, who are potentially exposed to more glucocorticoids *in utero*, also have significant increases in externalizing symptoms, attention, rule breaking and aggression problems with notably a 2.26-fold increase in attention deficit-hyperactivity disorder (ADHD) [Räikkönen K., et al., 2009].

Higher maternal cortisol levels measured in earlier but not later gestation were associated with a larger right amygdala volume measured by MRI in girls at age 7 years, but not in boys [Buss C., et al., 2012]. The higher maternal cortisol levels in early gestation were associated with more affective problems in girls (fear, depression, anxiety, etc.) and this association was mediated in part by amygdala volume, which is important for emotional memory processing and emotions [Buss C., et al., 2012].

There are trends for poorer cognitive function in other domains including mental flexibility, non-verbal memory, immediate and delayed memory and general cognitive ability in association with higher cortisol level [Reynolds R.M., et al., 2010b]. Another study showed increased placental HSD2 methylation in infants with lower birthweight and poorer infant quality of movement, a marker of adverse neurobehavioural outcomes [Marsit C.J., et al., 2012].

Intriguingly, in a pilot study recently has been showed that methylation of GR and HSD2 in peripheral blood in adulthood was associated with both early life parameters and with adult cardiovascular risk factors, suggesting that programming of disease susceptibility may depend on epigenetic modifications at specific loci [Drake A.J., et al., 2012].

OTHER FACTORS

The maternal HPA axis becomes gradually less responsive to stress as pregnancy progresses [Glover V., 2015]. And there is only a weak, if any, association between a mother's prenatal mood and her cortisol level, especially later in pregnancy.

Cytokines are alternative possible mediators [Glover V., 2015]. An additional explanation is that stress or anxiety causes increased transfer of maternal cortisol across the placenta to the fetus [Glover V., 2015].

There is some evidence in both rat models and in humans that prenatal stress can reduce placental 11β-HSD2, the enzyme which metabolises cortisol to inactive cortisone [Glover V., 2015].

The level of cortisol in the amniotic fluid, surrounding the baby in the womb, has been shown to be inversely correlated with infant cognitive development [Glover V., 2015]. However, several other biological systems are likely to be involved [Glover V., 2015].

Serotonin is another possible mediator of prenatal stress induced programming effects on offspring neurocognitive and behavioural development [Glover V., 2015].

The role of epigenetic changes in mediating alterations in offspring outcome following prenatal stress is likely to be important and starting to be explored [Glover V., 2015].

In modern society maternal obesity and low socio-economic status are examples of pertinent physiological and social stressors for women during pregnancy (Fig. 2) [Reynolds R.M., et al., 2013]. Despite a substantial heritability, ADHD (5-10 % of all children) [Buss C., et al., 2012] is also associated with several prenatal factors [Chen Q., et al., 2014]. High maternal pre-pregnancy body mass index (BMI) is associated with increased risk of offspring ADHD [Chen Q., et al., 2014].

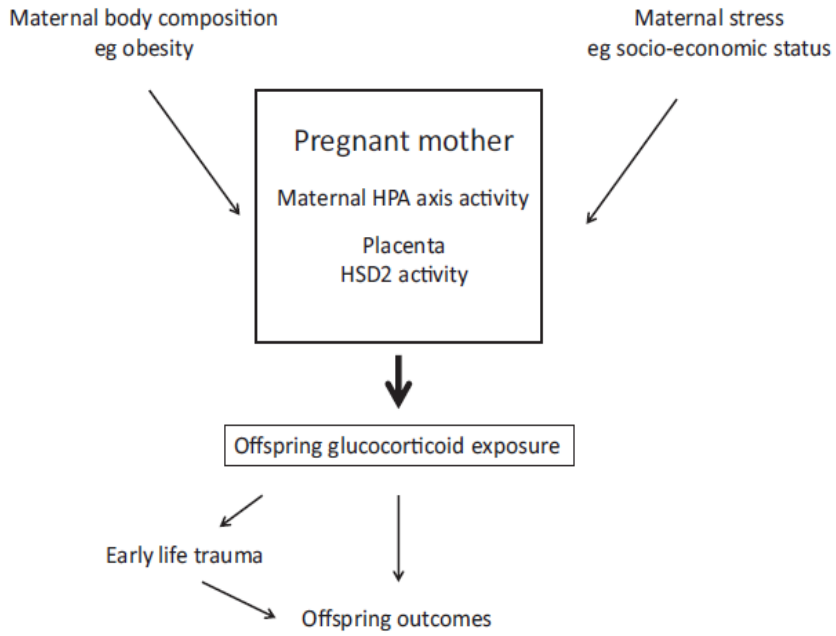

Figure 2. Schematic diagram showing how the contemporary physiological and psychosocial stressors of maternal obesity and low socio-economic status may influence maternal hypothalamic-pituitary-adrenal (HPA) axis activity and/or placental activity of 11 beta hydroxysteroid dehydrogenase type 2 (HSD2) to influence fetal glucocorticoid exposure and subsequent offspring outcomes; stresses such as trauma in the early postnatal period may also further influence offspring outcomes [Reynolds R.M., et al., 2013; modified].

Among the major pre- and perinatal factors that have been associated with ADHD are adverse birth outcomes such as low birth weight and preterm birth and excess exposure during the index pregnancy to maternal smoking, alcohol consumption, gestational diabetes and psychological stress [Buss C., et al., 2012]. It is well-established that a fetus developing in an inflammatory milieu is significantly more susceptible to subsequently developing various neurodevelopmental disorders [Buss C., et al., 2012].

The risk of childhood obesity is associated with maternal smoking during pregnancy [Grün F., Blumberg B., 2006]. Smoking before or during pregnancy, but not afterward, increased the odds ratio for obesity approximately 2-fold in school-age children [Grün F., Blumberg B., 2006]. Maternal smoking during pregnancy may influence brain development, including deleterious effects on neurotransmission, neuronal differentiation, and migration [Skoglund C., et al., 2014].

Animal studies implicate prenatal nicotine exposure as a possible factor for this postnatal weight gain through modulation of cholinergic and catecholaminergic systems [Grün F., Blumberg B., 2006].

Animal experiments have shown that alcohol reduces the number of active dopamine neurons in the midbrain area and ADHD is associated with reduced dopaminergic activity in the brain [Sadock B.J., Sadock V.A., 2007].

Studies have shown that non-ionizing radiation of the radiofrequency electro-magnetic field (RF–EMF) induces expression of estrogen receptor beta (ER-β), just as well as the 17-β-estradiol, which modulate connexins and integrins, that points to their individual operation of the trophoblast differentiation and migration [Cervellati F., et al., 2013]. RF–EMF from mobile phone can affect on the integrity of DNA in human trophoblast HTR-8/SVneo cells [Franzellitti S., et al., 2010], which may have consequences on the physical and mental offspring health.

CLINICAL STUDIES

Number of studies have shown that increased day-to-day hassles, pregnancy specific stressors, moderate increases in maternal anxiety and psychosocial stress are associated with preterm birth and other adverse perinatal and developmental outcomes [Reynolds R.M., et al., 2013]. These include a range of cognitive, behavioural and emotional processes, including ADHD most consistently [Reynolds R.M., et al., 2013].

Prenatal maternal mood is also associated with her child's brain and neurocognitive development with findings noted at birth and persisting to adolescence [Buss C., et al., 2010, 2011]. Raised maternal anxiety during pregnancy is associated with increased risk of adverse neurodevelopmental outcomes for her child and with a downregulation of placental 11β-HSD2, [O'Donnell K.J., et al., 2012].

Maternal hypertensive disorders in pregnancy predict lower cognitive ability in the offspring and greater cognitive decline up to old age [Tuovinen S., et al., 2012]. Maternal hypertensive disorders during pregnancy are accompanied with adaptive functioning and psychiatric and psychological problems of the older offspring [Tuovinen S., et al., 2014].

In non-pregnant state, activation of the HPA axis increases the risk of metabolic and psychiatric disease of the offspring [Reynolds R.M., 2013]. In subjects with schizophrenia, obstetric complications have been associated with a reduction in the volume of the hippocampus, a key region that is involved in memory processes that are affected in psychoses such as working memory [Reynolds R.M., et al., 2013].

In several studies the findings are independent of other potential confounding factors such as maternal smoking, adverse birth outcomes and postnatal maternal depression [Reynolds R.M., et al., 2013]. Smoking during pregnancy is associated with both premature birts and below-average infant birthweight [Sadock B.J., Sadock V.A., 2007].

Maternal infection with influenza and other pathogens during pregnancy has been associated with increased risk for schizophrenia and neurodevelopmental disorders [Short S.J., et al., 2010]. Influenza infection during pregnancy affects neural development in the monkey, reducing gray matter throughout most of the cortex and decreasing white matter in parietal cortex [Short S.J., et al., 2010]. These brain alterations are likely to be permanent, given that they were still present at the monkey-equivalent of older childhood and thus might increase the likelihood of later behavioral pathology [Short S.J., et al., 2010].

Maternal smoking during pregnancy has consistently been associated with increased risk of ADHD in offspring, but recent studies indicate that this association might be due to unmeasured familial confounding [Skoglund C., et al., 2014].

Some studies sugest that alcohol use during pregnancy may contribute to ADHD [Sadock B.J., Sadock V.A., 2007]. Fetal alcohol syndrome affects about one third of all infants bor to alcoholic women [Sadock B.J., Sadock V.A., 2007].

Marijuana is associated with low infant birthweight, prematurity, and withdrawal-like symptoms, including excessive crying, tremors, and hyperemesis (severe and chronic vomiting) [Sadock B.J., Sadock V.A., 2007].

Crack cocaine use by women during pregnancy has been correlated with behavioral abnormalities such as increased irritability and crying, and decrease desire for human contact [Sadock B.J., Sadock V.A., 2007].

Infant born to mothers dependent on narcotics go through withdrawal syndrome at birth [Sadock B.J., Sadock V.A., 2007].

Prenatal exposures to various medications can also result in abnormalities. Common drugs with teratogenic effects include antibiotics (tetracyclines), anticonvulsans [valproate (Depakene), carbamazepine (Tegretol), phenytoin (Dilantin)], progesterone-estrogens, lithium (Eskalith), and warfarin (Coumadin) [Sadock B.J., Sadock V.A., 2007].

Neonatal behavioral syndrome was described that was linked to *in utero* selective serotonin-reuptake inhibitor (SSRI) exposure during the mother's last month of pregnancy [Sadock B.J., Sadock V.A., 2007]. The CNS was affected with seizures occurring in severe cases [Sadock B.J., Sadock V.A., 2007].

When a woman is exposed to severe ionizing radiation between weeks 2-15 of her pregnancy, the baby will be born with gross deformities, stunted growth, abnormal brain function, or cancer that may develop some time later in life [Sadock B.J., Sadock V.A., 2007].

Mobile phone harmful impact on pregnant women abdomen has postnatal children's health effects: hyperactivity, diminished memory, reduced anxiety - symptoms associated with ADHD [Aldad T.S., et al., 2012].

CONCLUSION

Pregnant women exposed to uncontrollable stressors have a higher incidence of babies with physical, developmental, and behavioral problems (malnutrition, eczema, bronchitis and other respiratory system problems, ability to walk and speak, irritability, antisocial behavior...).

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PREGNANCY AND PSYCHOTHERAPY

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Abstract. Pregnancy is a big event in the life of every woman who manages to carry pregnancy till its end and to give birth to a healthy baby. From the beginning, followed by a big blow of hormones and changes in the physical and mental level, moving within a wide range of health, often in areas of psychopathological forms of reaction and behavior, which are usually less intense and of shorter duration in terms of mild depressive reactions or mild dysphoric disorder often associated with sleep disorders. However, in a number of pregnant women, due to unwanted, unplanned, untimely pregnancies, the immaturity of the mother, non-acceptance of partner or relationship problems with the partner, chronic illnesses, disability or poverty, there may appear moderate or severe forms of depression sometimes with suicidal ideas, eating disorders like anorexia or bulimia nervosa, and behavior disorders. All of them may lead to rejection and non-acceptance of the pregnancy and childbirth, and appropriate psychotherapy or social interventions aimed at preserving or improving the mental health of mothers and babies are necessary. In the framework of modern interventions in the rehabilitation of psychopathological forms of mother reactions in pregnancy, a special place belongs to psychotherapy and its many techniques, as opposed to psychopharmacological drugs which can have adverse effects on the development of the baby. Therapists working with pregnant women need to be calm, patient, tolerant, with a great deal of empathy and understanding, so that they are able to understand that they are accepted by the sincere person and that they can freely express their feelings, problems, conflicts and dilemmas, and that they can expect and get the full support and adequate assistance, including psychotherapeutic interventions or treatments. Use of modern psychotherapy in pregnant women with psychopathological forms of response, carries a number of specific features, starting with the transfer, resistance, interpretation, setting, outpatient or inpatient setting, to the progress and outcome of the treatment. Especially useful for treatment are: non-directive counseling, supportive psychotherapy, psychodynamic psychotherapy, behavioral, cognitive and cognitive-behavioral therapy, integrative art therapy, occupational therapy, music therapy and bibliotherapy, in individual or group work.

Keywords*: Pregnancy, Psychopathological Reactions, Psychotherapy*

A modern knowledge about pregnancy mostly considers only the biological aspects of its physical and mental health, while it completely neglects others very important psychosocial problems which are crucial for the proper dynamics of the relationship between mothers, babies and their environment. If they are present in prenatal, perinatal and postnatal period, they can disturb the proper psychophysical development of babies, and can also lead to disorders or illnesses. So maintaining and improving of their mental and physical health become imperative, respecting attitudes of the primary and secondary prevention, of the modern social dynamic oriented psychiatry and mental health protection. In this essay we present some of the modern views on the psychology and psychopathology of pregnancy, on the psychodynamic relationship of mothers and babies, on the social and economic problems, and on our psychotherapeutic experience gained in the consultative work with pregnant women in private medical practice in outpatient health protection.

EXPERIENCES OF THE BABY AND MOTHER – PRENATAL PSYCHOLOGY

Modern achievements of prenatal psychology deal with the question when really start personal experience of baby in the uterus, through which the embryonic stages of development it is passing, and what kind of information is ready to register with the changes in mother's metabolism. It is considered that in the first embryonic stage the baby does not receive any

information from the mother and her internal environment, except for the possible influence of radiation and psychoactive substances. After that stage, the baby goes into next embryonic stage of its development, when it starts to receive information from the mother and her internal environment; it is gradually adapting and becoming ready to make adjustments in its surroundings. Experiences of the embryo in the uterus can be pleasant and unpleasant, and they depend on its own occupied position, but also depend on the emotional state of the mother who through her blood vessels and placenta gives more or less food. So, in a state of harmony, peace and composure of mother, the baby is quiet and it experiences pleasant moments, while the state of agitation, stress, worry, depression or anxiety, mental or physical illnesses, usually leads to a convulsion of the blood vessels in the uterus. In this situation, the baby receives insufficient food; it becomes anxious and definitely acquires negative experience. Where are these experiences of the baby present? Are they kept in some kind of memory? Is there any kind of consciousness in the baby? These are some of important questions that prenatal psychology try to answer.

PSYCHOPATHOLOGY OF PREGNANCY

There are ***lot of risk factors in pregnancy*** in prenatal, natal and postnatal period, which can seriously disrupt mental health of pregnant woman and her baby, and also can make difficult their functioning and adaptation to the new conditions of life. Many social and economic challenges and stressful life events, like death, divorce or abuse, can also adversely get to them. However, there are ***many high-risk pregnancies***, and it is necessary to pay attention to them: ***conflict pregnancy*** – unplanned, untimely, in other words, wrong – incest and rapes; ***emotional sensitive pregnant women*** – who have got unfavorable obstetrics history, a previous stillborn or a neonatal loss, also neurotic persons who excessively accept or refuse their babies; and ***complicated pregnancy*** – chronic illness of pregnant woman, abuse of alcohol, cigarettes, drugs or coffee, eating disorders, possible miscarriage or presence of unfavorable life events (sadness, moving out, adverse test results) and finally, social-economic difficulties (unemployment, inadequate housing, poverty, absence or insufficient social support, mother's disability…

Social pathogenic factors in modern conditions of life are usually separated living of young parents, fast divorce, deficiency of mother's milk for breastfeeding, too long breastfeeding, emotional emptiness where the baby grows, excessive grandparents' involvement in raising and upbringing the baby, later child, or their unfavorable influence on the matrimony and the young family.

Psychological research about many aspects of pregnancy is limited and it is aimed primarily at negative aspects and problems of pregnancy, maternity and sterility. Although, development of the positive psychology and multicultural research, we believe, can represent its positive aspects in the future. Rothman made a very important research, during the 1970s, examining attitudes of 140 mothers to their unborn children during the pregnancy. He has noted that there are four types of mothers – an ideal mother who consciously and unconsciously wants a child (33%), an aloof mother who consciously does not want a child, but unconsciously she does (16%), an ambivalent mother who consciously wants her child, but she unconsciously does not (23%) and a catastrophic mother who consciously and unconsciously refuses her child (27%).

Sometimes, ***present latent mental disturbance***, during the pregnancy, can lead to exacerbation, even make the pregnancy more serious, but on the other hand, many medical experts cannot resolve it. An especial problem is a pregnancy in relation to depression and

pathological expressed ***fear of the childbirth – tokophobia***. There may also be present severe mental illnesses, psychosis, and expressed desire for death, suicide, eating disorders, anorexia nervosa or bulimia nervosa, different forms of anxiety and panic disorders, false pregnancy…

POSTPARTUM DEPRESSION

Postpartum depression is one of the most frequent complications which may be present in pregnancy and after childbirth, in case of insufficiently prepared pregnant woman to accept her pregnancy and child, in case of problem with her husband or paternity, or problem of reception and adaptation in their parents' family, and other emerging, inadequate circumstances. Some research shows that about 13% of women experience postpartum depression, one year after childbirth.

OUR EXPERIENCE IN THE PSYCHOTHERAPY OF PREGNANT WOMEN

In private clinic "Modern Medicine" in Zemun-Belgrade, between 1994 and 2010, we have been dealing, among other things, with psychosomatic disorders and illnesses, and also with psychological and psychopathological problems and reactions of pregnant women during the prenatal, perinatal and postnatal periods. This has been done in consultative services and in outpatient protection of mental health. In this period we had 20 pregnant women, who had received psychological and psychotherapeutic assistance. In case of 13 pregnant women there were additional unfavorable social-economic factors, so social workers were present in our service and they had experience, not only in resolving the mentioned problems, but also in psychotherapy work. In our essay during the pregnancy the mostly represented were depressive reactions (65%), postpartum depression (15%), conflict pregnancy (10%) and unwanted pregnancy (10%). Considering that depressive forms of reaction were mostly represented in our specimen, we can say that a third of the pregnant women in the clinical picture manifest a moderate depression, and the else were milder forms of depression.

The average duration of depressive reactions was between six and seven months. According to some studies even 70% of the pregnant women show some symptom of depression and 10-15% of them satisfy diagnostic criteria for some depressive disorders.

Psychotherapeutic treatment with pregnant women has been done twice or three times a week per hour, including fieldwork at the home of pregnant woman and her family during 12 months, so we try to present our own experience and perception about psychotherapy work with them. We can say that, in our treatment of pregnant women, we did not have any kind of problems, nor deterioration of their depression, although we have used only the psychotherapy without medical mental therapy; in that way, psychodynamic psychotherapy, united with integrative art therapy, is very successful in mothers' improvement and better adaptation on the new conditions of life.

PSYCHOTHERAPY PREPARATION

In our work with pregnant women, at the beginning of their pregnancy, when we had identified depressing reactions, we have been carrying out a short program of ***education*** about

pregnancy, gestation period, childbirth, breastfeed, care and relation between mothers and babies, which all of the pregnant women have accepted with satisfaction. In psychotherapy work with pregnant women, after making contact, giving support and social intervention, and creating a positive transfer, we have decided to apply expressive forms of therapy, first of them drawing, creative writing, bibliotherapy and music therapy, introducing them slowly and carefully, one by one, depending on necessity and affinity for these activities.

A new mother is often expected to look forward to giving birth to her child, to receive him or her and to be happy. However, a mother is usually depressed, unsatisfied and bad-tempered because of disturbed relationship with her husband, her partner, non-acceptance by family or relatives, or because of other social-economic circumstances. If a baby in the uterus has the impression that is unwanted or unacceptable, and because of that the baby doesn't receive enough warmth, love and attention, for that reason the baby can't develop a sense of basic trust. Erik Erikson, the famous psychoanalyst, was talking about it, and his theory is applied to 16 pregnant women (80%).

Our experience indicates that the crucial moment for woman, when she really needs help from the professional psychotherapist, is the moment when she becomes conscious that motherhood brings with it the negative changes in her life. The pregnant women can find job very hard, and our 12 pregnant women (60%) can hardly cope with problems and they need help of their friends, family, group help, health and social services. Depression can be present in all stages of pregnancy. Stress of the pregnancy, in a case of some women, can be catalyst for depression, and also can provoke a deterioration of the current situation. If it is not treated, depression may reduce the ability of woman, the desire to take care of herself, spoil her dream, influence on increasing the use of drugs or alcohol, may lead even to suicide. After childbirth, there is a big risk of postpartum depression, and if it appears, it impoverishes and disrupts relationship between them which later leads to emotional problems and problems in behavior of the baby. It is important to pay attention to so-called **masked depression** when we can notice when pregnant woman is moody, withdrawn into herself, when she has decreased appetite or reduced dream, and there are no real reasons which lead to such behavior.

Depressed pregnant women communicate hard, while a conversation is crucial for treatment, so we can mix psychotherapy and medicines which aren't harmful to unborn baby in order to achieve relief; it is necessary to evaluate the potential risks of medicines, so the advantage belongs to the different techniques of psychotherapy.

SPECIFIC CHARACTERISTICS OF PSYCHOTHERAPY

Psychodynamic access in psychotherapy helped us to create positive mutual relation with pregnant women, to create trust with application for psychodynamic interventions and psychotherapy, which are, in essence, short-term duration.

After careful choice of pregnant women with psychopathological problems, at the same time with psychological education, we started to apply ***psychodynamic counseling with support*** in order to help them to identify their problems and necessities during the pregnancy, like medical, social, legal and financial. It has got its specific characteristics, applicable to the process and dynamics, to give instructions, suggestions or help; in that way, it may represent a reasonable preparation and introduction to the practical use of serious forms of psychotherapeutic treatment of pregnant women.

During the psychotherapeutic treatment in pregnancy, our aim was to help pregnant woman who has problems with her mental health, to achieve better integration of internal resources with self-representation, so we helped pregnant woman to alleviate or overcome her worry, anxiety, affliction and other troubles. A perception of factors of her present or past experience, which appear as current stressors, was the crucial therapeutic situation, in an interaction with a sensitive being of pregnant woman; that therefore led to serious problems in pregnancy, not only for mother but also for her baby, and it also would endanger a further course of pregnancy.

A modern psychotherapy of pregnant women covers a wide spectrum of psychotherapeutic branches and techniques, which, depending on the aims, last a different period of time and can achieve different results. In our essay, we have applied ***Psychodynamic psychotherapy*** which is less intensive and lasts less than psychoanalysis, and, by a process of showing unconscious functioning of psyche, it alleviates mental tightness and emotional instability, resolves conflicts, motivates for pregnancy and acceptance of the baby. This psychotherapy can encourage verbalization of thoughts, including dreams and fantasies; also it evaluates, formulates conflicts which provoke problems in functioning and resolves them, bearing in mind resistance, transfer-contra transfer question and other aspects of intra-psyche life during the pregnancy. Psychoanalysis is a rarely used because of its specific characteristics in treatment of psychological and psychopathological problems and reactions of pregnant women.

A modern knowledge about achievement of prenatal psychology and analysis of prenatal and perinatal contents, based on subsequent conclusions from neurological, psychosomatic and psychotic illness symptoms, can be perceived on the basis of the patient's dreams, and used not only in psychotherapeutic treatments but also in a wide range of protection of mother’s and baby’s mental and physical health.

A big problem in psychotherapy work was ambivalence of mother which had different and variable dynamics during the pregnancy, manifesting from the mildest to the more severe forms. Ambivalence was constantly present at most pregnant women, so a psychotherapy care was necessary to improve and motivate them to accomplish a positive outcome because it was one of the most important disturbances and resistances in psychotherapy process.

If a baby in the uterus has impression that is unwanted or unacceptable, and consequently does not receive enough warmth, love and attention, then the baby cannot develop a sense of basic trust. Erik Erikson, the famous psychoanalyst, was talking about it.

Michael Balint called these early disturbances – basic disturbances, and, depending on them, he noticed that an adult would behave actively and aggressively, or passively and depressingly.

Helen Deutsch, an American psychoanalyst, was reading up on women psychology during their first pregnancies, and she noticed ambivalence present in their state accepted by pregnant women. She also perceived that more educated women, who love their profession, have more difficulties to accept their pregnancy. Beautiful and sensual women behave similarly, while the insecure feel much better. It is not easy to women who first time gave birth to identify completely with their fetuses and pass with them all the stages of embryonic and emotional development, until the birth and separation. Some neurotic and psychotic mothers can develop a high level of ambivalence to their baby, which often goes together with a strong force of aggressive impulses and which can lead to the spontaneous miscarriage, premature or difficult birth, or lead to the permanent disturbed relations of mother to her child during their whole life. Some authors emphasize that, in case of these mothers, there were some previous disagreements

or insuperable conflicts with their mothers, especially when it is female child. In fact, there persists one trans-generation problem, because of these disagreements and unsettled conflicts that burden their relations.

Pregnant women not only have dreams in earlier months but also significantly during the whole pregnancy. Insecurity of mother at the beginning of pregnancy, especially woman who gave birth first time, may be related with fears and images in dreams to feel insufficiently able to accept and take care of her child. In fact, they do not feel enough secure in their reality, and therefore, these dreams are often a reflection of their conscious events, not a reflection of any child psychopathology. A modern knowledge about achievement of prenatal psychology and analysis of prenatal and perinatal contents, based on subsequent conclusions from neurological, psychosomatic and psychotic illness symptoms, can be perceived on the basis of the patient's dreams, and used both in psychotherapeutic treatments and in a wide range of protection of mother and baby's mental and physical health.

In modern conditions of life, the practical use of ***expressive therapies***, like ***art therapy or integrative art therapy***, encourages a creative process, and their reflections demonstrate development of personality, interests, conflicts and worry. It is a therapeutic method for patients to overcome their emotional conflicts, stimulate self-awareness; it helps them to develop social skills, to solve problems and control behavior, also it reduces their anxiety, helps them to create proper relationships with reality and increase their self-confidence. This therapy includes drawing, creative writing, ***work and occupational therapy, bibliotherapy, music therapy***, and others. It is necessary to emphasize that listening to music, especially classical music (Mozart), at the same time has a positive effect on parent women and their babies, because it leads to the relaxation and prevention of many stressful reactions and depression.

The practical use of expressive therapy was in situations when there were delays in verbal psychotherapy, when there were resistances which need overcome, or current problems that for any reasons interfere with therapy. In contrast to psychotherapists who encourage and provoke a conversation, expressive therapists stimulate their patients to use this form of expressive communication. Expressive therapies may give support for development of creative personal power in the comprehensive integrative treatment during the pregnancy.

The role of psychotherapist is to adapt to emotional and cognitive capacities of pregnant women, to stimulate verbalization, but at first to give more support, comprehension, protection, patience, and also to help her to confront moderately with herself and interpret less her personality. In analysis of integral contents, primarily conflicts, there is a need for especial gradualism and caution. Special attention is given to treatment of ambivalence, feelings of loneliness and abandonment, and to raise motivation for a positive outcome of pregnancy. In further process of psychotherapy we can go very carefully to an analysis of verbal contents and dreams of pregnant women.

CONCLUSION

In modern conditions of life, burden by the financial crisis, transition, often with lack of living conditions and funds, existential crisis, relatively a small number of girls and women are ready to get pregnant and put effort into proper course of pregnancy, prenatal, perinatal and postnatal period for adequate psychophysical development of the baby. Nowadays, a lot of pregnancies include smaller or bigger problems that are one of the most important characteristics

of the contemporary period. So many pregnant women manifest emotional and tumultuous reactions or different forms of depressive reactions, and other social medical and economic problems. Therefore, in prenatal, perinatal and postnatal period they need psychological and psychotherapy help in order to successfully bring the pregnancy to an end and create a basis for proper psychophysical development of the baby.

In order to save and improve mental and physical health of pregnant women, we have applied different forms of psychological support and psychotherapy treatment, from psychodynamic therapies to expressive techniques, art therapy, drawing, writing, bibliotherapy and music therapy, which in our work demonstrate the real affirmation of their purpose and success in that very sensitive and specific area of women's mental health.

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NEURONAL HEALING TREATMENT, EPIGENETIC FACTORS ACTIVATION IN NEONATE

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Abstract. Standard pediatric procedures during neonatal neurological examination especially in first months consider infant reflexes to be "primitive physiological responses", neglecting an idea that each reflex is a part of a crucial evolutional procedure: erecting, walking, escaping, crawling etc. If we consider reflex to be purposeful and suggest baby to remember and do complete actions instead, we actually engage brain to recover the "memory" written in each body structure and we can act and cure during monitoring. Holistic procedure that reminds brain, body, DNA to very important evolutional adaptations to Earth living conditions activates epigenetic programming, using the abundance of neurons before pruning phase occurs. And we do the healing procedure, and estimate cognitive functions at the same time in the earliest period of life, carrying baby in rhythmic movement imitating the primal womb conditions, using precise words manual. Applying method in 20 years we have permanent confirmations of its value.

Keywords*: Healing, Neonatal Brain, Neurophysiology, Epigenetic, Brain Plasticity, Pruning Phase.*

INTRODUCTION

Neonates and infants during the first year of life have an abundance of neural brain cells which are reduced through two massive pruning phases which occur at three months and nine months respectively. Sheeman et al. [1] emphasize the importance of pruning in childhood presuming that it accomplished "wisely." And that synapses most important to survival and optimal function flourish whereas useless connection vanish. Neuroscientists agree that when neural cells are stimulated correctly, they can produce synapses "wisely" at any point in life. Hebbians mathematical model was testified and accepted in numerous studies [2-4]. However the relative abundance of neural cells [5] prior to the two pruning phases is not enough understood as a real gift potential, although it is well known that the earlier physical treatment proves better results. Standard pediatric procedures during examination especially in first months consider infant reflexes to be "primitive physiological responses".

Usually an "objective" stance is taken by the clinician who is estimating the "Set of reflexes", presence or absence of each, as a simple diagnostic procedure, neglecting the idea that each reflex is a part of a crucial survival action (escaping, erecting, walking, crawling etc) that reminds brain, body, DNA to very important evolutional adaptations to Earth living conditions.

Our hypothesis was that such interactive procedures of reminders combined with return to initial conditions [6] produce significant improvement of infant health compared to standard pediatric and physical procedures. This procedure is especially efficient if applied in first 3 months, up to 9 months, before the termination of excessive pruning phases. Complete repair is achieved in the brain fields, and that is inducing clear improvement in all body parts, due to the recognition and mental connection doctor and baby are creating in holographic framework and trough epigenetic factors [7]. Turrigano et al. [8] emphasized the importance of homeostatic plasticity mechanisms that dynamically adjust synaptic strengths in correct direction later in life as the crucial for processes ranging from memory storage to activity-dependent development. Our method is probably a chance for infant brain to recognize and adjust the strongest and wisest cells to survive. And an opportunity for brain to rearrange the main structure construction if we

recall itş shape in a memory, by engaging pluripotent neurons nearest to the site of injury on the main roads as a building blocks.

Clinician acts by reminding baby and supporting baby trough permanent action by using precise supportive and suggestive words as an explanation how to complete the procedure which "primitive reflex" is a part of. And in most cases we testify that action becomes completed. Due to abundance of neural cells, brain plasticity [9], mirror effect [10,11] and G. Allport [12] cell assembly theory and its role in distributed memory. And everything is reasonable in the context of quantum-informational brain level that includes the psycho part and also a cell level [13], with initial memory attractor as a smallest part of acupuncture system. So it is necessary to apply the holistic approach.

By treating baby immediately during the examination expensive diagnostic procedures are mostly becoming redundant, and the whole family is spared of fear and of long lasting treatments, witnessing the current function recovery. Each treatment is individual unlike standard physical treatment procedures.

METHODOLOGY

Neurological examination of a newborn involves an active communication between baby and therapist monitoring and changing the tone and the "purposeful" reflexes. In the manual, mind supported procedure therapist gives signs essential to both participants. Reminding baby to the initial womb conditions therapist is suggesting baby to repeat the Evolutional actions. And helping baby to realize them properly and complete them. In our recent examinations we have tested the idea to use different combinations of signs. The rhythmic movements, precise instructive words, mothers singing voice, prayer, spell, classical music, drums, sounds of nature, sounds of dolphin, sounds of Earth.

Having in mind that baby understands this information the brain is widely activated as all the senses are stimulated simultaneously, combined with the overflow of information between two bio-informational systems, and positive emotions. Examination is resembling dance although it is still a neurological pediatric examination procedure. In addition, it is the healing treatment too. We are helping baby to "recall" information and restore the function due to resonant electromagnetic fields of brain associated in crucial actions. Reflexology is used to stimulate the weak zones that impede the activation of certain reflex. And stimulation of initial attractor areas through the acupuncture network is forcing weak hypotonic side of the body parts in each demand, helping baby to improve the function. And by repeated demands, moving actions, words of support and explanations, we are estimating the whole action ability and the reparation potential at the same time. During examination we are estimating and following cognitive functions: comparing the time necessary to understand demand, make a decision, do the action, repair the action etc.

RESULTS

Each treatment is individual procedure and it is supposed to be interpreted separately. Interactive action induces abundance of new ideas while cognitive information processing leads to consecutive improvements in any action.

Making the contact with the baby was very simple and extremely useful if we combined Dr. Vučićević method of carrying baby [6] with natural sounds, prayer, holly, rhythmic melodies. Everything in action was accelerating and improving the treatment process. And it was especially important in a group of baby born with risk. Those with evidence of risk in their official documentation as well as those we found with deep brain injuries in our inspection (other newly discovered 23%).

It is also the method for estimation and improvement of the cognitive functions.

Very unusual was the observation that mothers singing voice was not helpful in most examinations. It is probably something that upsets baby needs during more important information inflow. And in an abundance of information babies were indifferent to it. Also to dolphin sound. Some babies were fascinated while others were agitated. It should be tested further considering that the dolphin sound is widely used in Autistic child treatment.

CONCLUSIONS

In our clinical experience examining and working at New Belgrade (HOH), the primary health care unit, as well as in the private practice with seven thousand neonates and babies over a period of 19 years, from 1995 to 2014, we have observed that an interactive or communicative stance of the clinician from birth to the age of 9 months, based on specific methodology, appears to significantly affect the healthy development of the child.

Early treatment, in the neonatal period is extremely suitable as a diagnostic and treating procedure.

Although each case Is to be treated and estimated separately even 93 % our baby patients improved their functions evidently during monitoring. And other 7% were seriously injured.

Treating baby prospectively at first month, second, and third we have a lot of opportunity to use brain contingency and plasticity to cure or discover "irreparable" disorder early. And repair them wisely using evolutional pattern as epigenetic factor.

It is particularly important for children born at risk. Considering that small injuries in low but crucial parts of the brain i.e. pons, mesencephalon, hippocampus, thalamus, prefrontal cortex are often unobservable in standard medical diagnostic procedures (US, NMR). For our interactive method injuries are clinically obvious. And if baby managed to restore the functions with our assistance during monitoring we had the same rate of recovery (93%) as in the group with previously officially observed risk. It is necessary to repeat treatments more often in those groups, at least once a week in first 3 months, and follow recovery of each patient in his own rhythm.

Expensive diagnostic often became redundant, and the whole family is spared from fear and long lasting treatments.

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THE IMPACT OF AN EARLY EMOTIONAL TRAUMA ON A CHILD'S PSYCHOLOGICAL DEVELOPMENT

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Abstract. Various studies have shown the importance of an emotionally warm contact between a new-born and its caretaker. A baby is '"hardwired" for human contact and can react emotionally to a harsh social environment just several hours or days after birth. Being completely helpless in an emotionless social environment, a new-born uses it's psychological defence mechanism in order to psychologically survive, which greatly influences upon its character development. If parents/caretakers repeatedly react harshly to new-born's reactions and needs, these reactions become the basis of a child's emotional responses. Growing up in these circumstances, a baby develops a relatively fixed character structure which is defined by its symptom constellation, basic affects, cognitive style, defence mechanisms, script decisions, self and other representations. Culturally defined assumptions about a child's upbringing can contribute to this pattern of behaviour. Some parents consciously refuse to react upon a child's needs, in order to prevent 'spoiling them'. However, it is important to take into account the infants' limited mental capacities to cope with the unknown sensations within its body or the impulses that come from an outside world. In this early period of attachment and bonding, an infant's psychological needs are equally important as its physiological ones. In addition, the infant requires nurture in order to survive on a psychological level. Not having the mental capacity to differentiate itself from others, an infant introjects psychological impacts from parents/ caretakers and this becomes a way in which the child experiences itself. The importance of this imprint is stressed by the fact that basic personality traits are formed in this period. The way in which a child was treated in its early life influences upon the way it will treat itself in the future. This is why this basic psychological imprint is essential for character development.

Keywords*: Emotional Trauma, Character Formation, Attachment and Bonding*

INTRODUCTION

The aim of this paper is to stress out the importance of understanding the early child's development. This is considered to be the most important period for a child's personality development, but unfortunately, is too often considered irrelevant. What happens just few days or months after birth, can be easily transferred to a question of parents' handling a newborn, and the overwhelming emotions and experiences that they are facing.

But, what about the child? How and what it fells? Does this first experience influences its future personality traits? Although complex, the answers to these questions need to be heard, so we can all put a solid ground to our descendants.

CHARACTER FORMATION THEORY

Psychological development that leads to a forming of an adult personality is determined by interaction between an infant's developmental needs and surrounding responses to it. This refers largely to an interaction between an infant and its caretaker(s). Developmental theories and studies have shown a vast of indicators that an infant's needs vary upon its developmental stage in life (Brazelton, B, Cramer B, 1991).

A characterological-developmental theory refers to a primal period of life, up to 12 months, as a period of attachment and bonding. In this period after birth, an infant, being totally helpless in an unknown external world, completely depends upon its caretakers. But, it depends upon a human contact, not just physically, but psychologically as well. Babies that lack human contact nurture and care, have lesser weight gain compared to their peers that don't, even if they are in the same nutrition regime. Lack of humanly contact in these first days, weeks and months of life have consequences, both to somatic and psychic development.

Going out from a warm and safe womb, an infant is all of a sudden exposed to different, unknown stimuli. Having no experience of it, the baby needs a human contact in order to feel safe. This is one of the first, most important child's needs – a need to feel safe in the world. One crucial question in this paper is to deal with those children that don't receive this safety imprint in first few months, and how it influences their personality.

NEWBORN'S SENSOR AND MOTOR DEVELOPMENT

Just make a slight glance upon a child's somatic development in the time of birth. How does biology provide this psychologically important early bonding?

An infants' motor and sensory development supports early emotional bonding. By the time of birth, a baby has good standpoint for almost each sense:

(1) Touch (including both receiving touch, and reaching out to touch) is the first sense to develop.

(2) Thermal sensing of hot and cold is indeed real, but usually overlooked.

(3) Pain sensing involves crushing and nerve damage. The reality of this experience was tragically overlooked in creating the protocols of obstetrics and neonatology.

(4) Hearing begins as early as 14 weeks after conception, then improves steadily with the arrival of cochlear resources and full growth of the external ear.

(5) Balance and orientation in space develops from week 7 to 12.

(6) The chemosensors of smell operate in close association with the chemosensors of

(7) Taste as both are bathed by amniotic fluids passing through the nasal area.

(8) "Mouthing" is used to explore texture, hardness, and contours of objects; this sense is not about eating and nutrition.

(9) Sucking and licking in the womb are mouth-related pleasure senses. The sucking of fingers and toes is not nutritive. Male thumb sucking, seen as early as 13 weeks, is often paired with erections, suggesting sexual sensations. Ultrasound reveals prenates licking the placenta and twins licking each other, suggesting pleasure in bodily contact.

(10) Vision in utero is paradoxical because limited by eyelids being fused shut for about six months, yet it seems functional in being able to hit targets like needles during amniocentesis at 14 to 16 weeks of age. Some form of vision seems to facilitate twins boxing, kicking, kissing, and playing together in the womb.

(11) Although prenates have never been acknowledged for their psychic senses, they do demonstrate at least clairvoyance and telepathic sensing and attunement with parents whether they are near or far from each other; they know whether they are wanted or not, and discern the emotional disposition, and character of those around them.

(12) Finally, prenates also demonstrate transcendent sensing as they report out-of-body and near-death experiences. When out-of-body, for example, no senses should work for either

babies or adults, but they do. In transcendent states, even immature senses function well and events are stored in memory – as can be demonstrated years later (Chamberlain, D., 2003)

Although helpless in a sense of larger motor activities (walking), in utero baby develops movements that can help it to explore the world. Prenates show facial expressions in 15th week, and larger motor activities that occur in 4-5 months of pregnancy are the first signs of a baby's autonomy. Basic reflexes are not only directed toward pure survival, but also to develop a strong link with the parents or caretakers.

NEWBORN'S PREREQUISITES FOR SOCIAL AND PSYCHOLOGICAL DEVELOPMENT

A child is also predisposed to a social contact, in a sense that a caretakers/ parents are seen, not only as a source of safety, but also as figures to respond upon and to create an image of self and others. Various studies have shown the importance of an emotionally warm contact between a new-born and its caretaker. For example, one study has shown that the neonate can discriminate its mothers' voice from another woman's one reading the same material (Brazelton, B, Cramer B, 1991).

By one month, infants begin to show appreciation of a human face, discriminating its animation and configuration (Kondić, K., 1996). Baby that is just a few days old can discriminate between or even imitate basic emotional expressions, such as sadness, happiness or enthusiasm.

The stage in with the senses are developed reflects the importance of this early bonding. For example, vision is developed in a way that focus of an infant's eyesight is about 20 cm, which is an approximate distance between a baby's and mothers eyes during breastfeeding. Just a week old infant can discriminate breast milk from another woman's one.

All these studies reflect the importance of an early emotional connection between a neonate and a mother figure. But what happens if an infant's emotional needs are not met, or are met inadequately? This early emotional trauma can be profound.

EARLY EMOTIONAL TRAUMA – CONSEQUENCES UPON PERSONALITY FORMATION

After birth (sometimes, unfortunately even before that), a child may not be met in welcoming and responsive social environment. The parent may be cold, rejecting, unattuned or even full of hate, resenting the child's very own existence. Of course, the intense of these reactions may vary. This sort of parents' emotional responses can be caused for several reasons. Unfortunately many infants are born unwanted, end even those who are wanted on a conscious level are wanted unconsciously ambivalently. Also, many parents think that they want a child, but when they experience a contact with a real, needy and helpless human being, find out differently.

One can imagine what would be the consequences if a completely helpless being doesn't receive attunement that it needs. And it's not just that it doesn't receive the responsiveness that needs, but it may receive coldness, rejection or even hatred.

Since an infant is "hardwired" for human contact, it can react emotionally to a harsh social environment just several hours or days after birth. Being completely dependent in an

emotionless social environment, a newborn uses its psychological defence mechanisms in order to psychologically survive, which greatly influences upon its character development.

If parents/caretakers repeatedly react harshly to newborns reactions and needs, these reactions become the basis of a child's future emotional responses.

Culturally defined assumptions about a child's upbringing can contribute to this pattern of behavior. Some parents consciously refuse to react upon a child's needs, in order to prevent 'spoiling them'. Clinicians and psychotherapists often hear this remark in their practices- that a well behaved child is not a needy one. However, it is important to take into account the infants' limited mental capacities to cope with the unknown sensations within its body or the impulses that come from an outside world. In this early period of attachment and bonding, an infant's psychological needs are equally important as its physiological ones. In addition, the infant requires nurture in order to survive on a psychological level. This all refers to a first weeks and months of a baby's life, which is the most intense one.

TRAUMA EFFECTS UPON A CHILD'S CHARACTER STRUCTURE

Being faced with rejection and coldness, a child develops a personality type that is called the schizoid character structure (Klisic, 2001, Loven, A, 1984). Being developed so early in life, this character structure is difficult to change. In order to fully understand the impact of an early emotional trauma, one needs to fully understand the basis of an early psychological development.

Having in mind that an infant doesn't have the mental capacity to differentiate itself from others, it introjects psychological impacts from parents/caretakers and this becomes a way in which the child experiences itself. The importance of this imprint is stressed by the fact that basic personality traits are formed in this period. The way in which a child was treated in its early life influences upon the way it will treat itself in the future. This is why this basic psychological imprint is essential for character development.

Being unwanted, a child feels that there is something wrong with it and that it has no right to exist. This painful experience, that an infant received emotionally from parents, becomes a part of its' own self-consciousness. These cognitive representations about the self can be conscious or denied, but these decisions create a core of a child emotional experience in the world. This is something that is frequently met in the psychotherapy setting, when a client says that he/she doesn't know why he/she feels in a certain way, but it is their common emotional state.

The child that has had this kind of emotional experience early in life is probable to develop a personality type that has problems of feeling safe in social context. To the extent that the early environment is harsh (from abuse to inattention or unattunement), the theory asserts that the growing individual will be inclined to generalize his early experience and anticipate harshness in subsequent social situations. Furthermore, clinicians have noticed that these individuals tend to:

- be harsh with themselves, and
- gravitate towards relationships and situations that are themselves harsh.

These phenomena are founded in charactegological and developmental theories that explains the self-negation and processes of internalization (Fairbairn, Winicott). These theories assert how an infant eventually internalizes parent's attitudes and emotions toward the self.

Furthermore, these individuals are typically withdrawn, dissociated, and have difficulties to bond with people. Attachment hurts, so detachment is chosen. This detachment becomes a

pattern of behavior that is repeated through life. Therefore, lack of intimate relationships is common. Schizoid individuals have such a strong tendency toward dissociation that they tend to be unaware of their feelings, thoughts or even memories that might be disturbing (Rajh, V, 1982). Going through en early emotional trauma, followed by a strong tendency toward dissociation can explain the lack of memories of childhood that is common in this personality type.

Growing up in emotionally harsh circumstances, a baby develops a relatively fixed character structure which is defined by its (Johnson S, 1995):

- symptom constellation,
- basic affects,
- cognitive style,
- defence mechanisms,
- script decisions, and
- self and other representations.

For the purpose of this work, the short portrait of this personality type will be presented.

1. **Symptom constellation**. Abusive, harsh or unattuned parenting leads to a child's experience of itself as hated, unwanted or insignificant. These babies are often left alone to cry or just be by themselves for a long period of time. Therefore, these children eventually withdraw, dissociate, or internally migrate. These kids can seem detached, disconnected or even lifeless. Growing up in these circumstances, leads to chronic anxiety, avoidant behaviors, and internal conflict over social contact and trust. Self-hatred and disapproval are definitional. These individuals have poor self-care and self soothing skills. Clinicians have seen that schizoid personality style have little or poor intimate relationships.
2. **Basic affects**. In the very surface of self experiencing, there is sorrow- sorrow for not being wanted or met with love and appreciation. But, just beneath this, common state is chronic anxiety that can be experienced in various ways, but a social one is definitional. This anxiety, in a deeper level is sometimes experienced as terror. Being unable to contain these intense emotional expressions, the child, and later on grown-up, suppresses or isolate its' basic emotions. This is the reason why these persons could seem sold, distant or disconnected. Primitive rage is commonly underlying, and most suppressed feeling. This is why schizoid persons have difficulties in experiencing and expressing aggression or facing the aggression of others.
3. **Cognitive style**. In order to surpass these extreme circumstances, a child splits it's developing cognitive abilities from underlying emotions. For this reason, isolation of thinking from feelings is common. Abstract thinking is frequently well developed, since it is used as a way to escape from bodily deep emotions. On the other side, social intelligence is often impaired.
4. **Defence mechanisms**. Denial (of what really happened), projection, introjection, intellectualization, withdrawal, isolation of affect, dissociation. These persons tend to think about life, but not to live it.
5. **Script decisions**. ''I have no right to exist. There is something wrong with me. The world is dangerous. I will figure it all out.''
6. **Self and other representations**. The self is experienced as damaged, unwanted, insignificant or even evil. The person suspects its own right to exist, and invest all its energy to escape into intellect and spirit. On the other hand, others are seen as nonaccepting, threatening, and more powerful, which is an absolute repetition of the primal emotional experience (Johnson, S,1995)

It is important to notice that this is a certain caricature of a personality portrait, while in reality there are variations. But core emotions and beliefs are definitional for persons that have had this type of early emotional trauma.

CONCLUSION – THE IMPORTANCE OF UNDERSTANDING THE EARLY CHILD'S DEVELOPMENT

Having in mind this strong impact of the early emotional bonding between parents and infants upon a child's personality formation, one can suspect how important it is that parents shape their behavior according to this, as much as possible. Understanding a child's developmental needs, and how to react upon them, is a first step toward facilitating parenthood and enabling good standpoint for a child's psychological development. Warm emotional contact that provides the child a sense of being welcomed and loved is a solid emotional basis for future personality development. Babies that receive warmth and attunement grow up in persons that have good self-soothing skills, have stronger coping mechanisms and have the capacity to relate and bond with other people. Furthermore, feeling safe and nurtured, these babies subsequently create social relationships that are in accordance with this.

The statement ''the morning shows how the day will be'' can easily be taken as a representative for this standpoint. If we take this into account, we should all feel responsibility towards our children to provide them a social surrounding they deserve. It is important that all born children are wanted, and could feel wanted and loved. In order to provide this, social, behavioral and psychological changes are needed. Social and behavioral change would reflect in changing our views about a child's upbringing and when and how to react upon a child's needs. In addition, educating future parents about the child's development and strengthening them in their step toward parenthood. On psychological level, self awareness and good emotional support are main prerequisites for a healthy parenting. All these changes could be a guiding idea to us all.

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REMOVING THE CONSEQUENCES OF PRENATAL AND POSTNATAL TRAUMAS BY AN ADULT'S MATURE REACTION TO STRESS

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Abstract. Prenatal and postnatal traumas themselves cause such effects in child's development that represent highly developed adaptive skills by which a child becomes enabled to respond to similar traumatic circumstances in their own life, such as those of a mother's anguishing days during her pregnancy. The destructive consequences of prenatal traumas come to the fore later, when highly developed adaptive capabilities (feelings of fear, anger and sadness), in the case of absence of mature development personality, lose their adaptive function (precaution, fight for righteousness, compassion) and are transformed into destructive motives of behavior (suspicion, hatred, depression). Any attempts to repair these consequences of immature personality by using techniques of positive thinking and pleasant emotions, help only in the correction of symptoms, as they remove only the triggers for manifestations of destructive motives from the consciousness, but they do not reform the actual destructive motives**.** The same is with the use of medications, which through the influence on hormone activity change the intensity of the aforementioned adaptive capabilities and provide limited results, because they do not alter the function of the adaptive capabilities, but only their intensity. However, by mature reactions of an adult personality to stressful situations which provoke an expression of motives that lead to destructive behavior, a person can become mature and experience the transformation of their destructive motives into skills which then can become the tool of their active love in response to the real needs of life (their own needs, the needs of others and the needs of whole mankind).

Keywords: *Prenatal, Trauma, Stress, Development, Maturity*

PRENATAL AND POSTNATAL TRAUMAS PREPARE A HUMAN BEING TO FACE THE SAME TRAUMATIC CIRCUMSTANCES IN THE FUTURE

The fact is that the prenatal and postnatal impact of stress can affect our overall growth and development. Any traumas experienced by a mother during her baby's fetal development, have smaller or greater consequences, which could impact on the entire future life of that child.

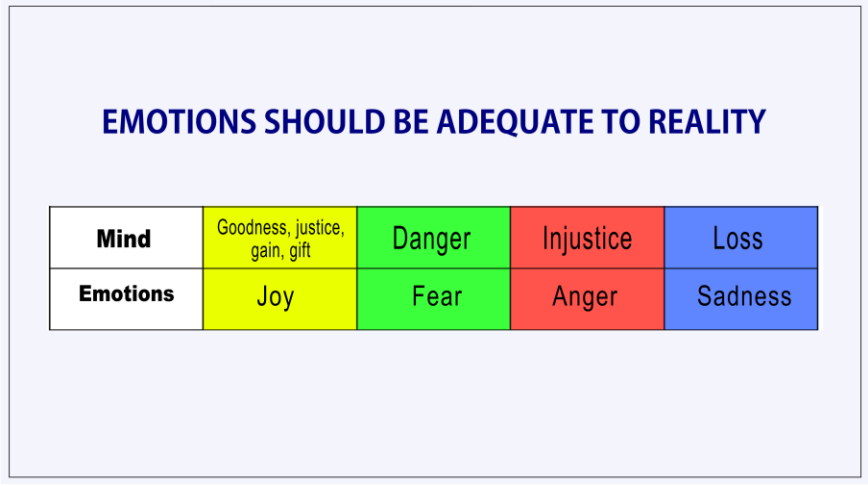
If we think that the prenatal influences are responsible for many problems of adult personalities, then we naturally raise the questions:

How is it possible that our fight for survival during millions of years of evolution, failed in succeeding to immunize man from such negative influences? Or, if we believe that God created man, how is it possible that the human organism is so fragile, that it bears the negative consequences of parental traumas during its prenatal development, which continue even after leaving its mothers womb?

But, these questions are wrong, because they start from a wrong premise that the effects of prenatal stress are bad, and not helpful. The fact is, that a mother, who experiences psychological traumas on a daily basis, passes the consequences of such traumas onto her offspring. Thus, a mother's intense feelings of fear, anger and sadness, cause in her offspring developments leading towards the feeling of fear, anger and sadness.

However, this does not happen so that the child suffers in the same way as its mother does, rather it happens in order for the child to develop its adaptive capabilities, which will enable it to easier cope with continuance of the traumas its mother currently endures.

Likewise, there is nothing wrong with having feelings which are in accordance with actual reality, because such feelings direct us to those activities which provide answers addressing real needs of life.

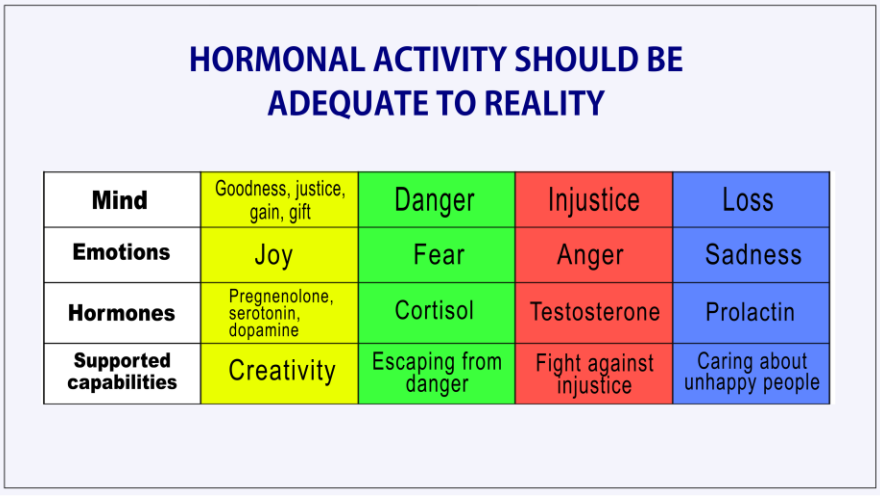


It is therefore quite natural to feel joy when we witness something good, beautiful and just, as it is quite normal to feel fear, when we are in danger; or to feel anger when we are faced with injustice, and to be sad when we witness misery and loss.

Thus, in a stressful situation we feel anger towards those guilty of injustice fearing possible consequences, and are saddened with the ensuing results. It would be inappropriate to have feelings which are not in accord with reality we face; and to rejoice, when we become witnesses, or victims of injustice, danger and loss.

It is quite natural to have feelings which adequately correspond to the realities we face, because such feelings trigger adequate hormonal activities, which activate abilities that are adequate to life's needs caused by stressful situations.

Hormones trigger those psychophysical processes in the body, which we need at the time of stress; and block those processes which would impede our best response to a stressful situation.



Accordingly, if during the pregnancy a mother lives in constant fear, her child will inevitably suffer the consequences of its mother's trauma, which will manifest through its own inclination toward the emotion of fear. However, this acquired fear is purposeful, it enables the child to exercise caution in situations of danger.

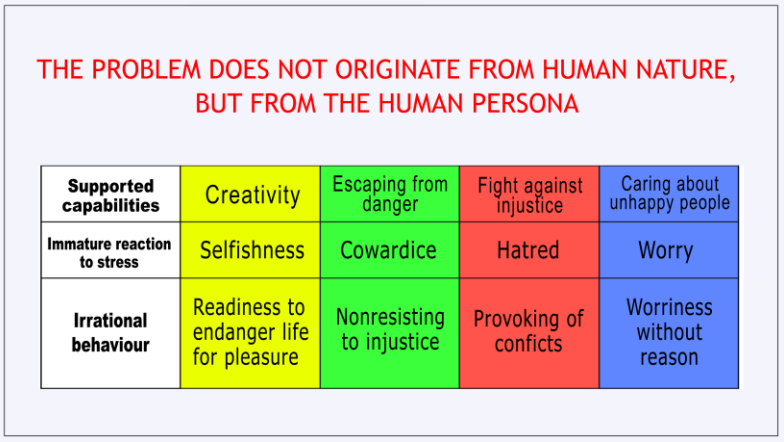
If, however, during her pregnancy a mother suffers injustice and feels angry every day, her child will also form a tendency towards anger, through the changes of its mother's hormonal activity. However, even that tendency is purposeful, because it forms a capability within this future human being, enabling it to fight against injustice in any (future) situation which requires it to do so.

Consequently, if a mother lives with a stress which provokes a strong feeling of sadness, also her child will not be left without consequences. However, a demonstrable tendency towards feelings of sadness also recognizes the needs of others; and caring about them addresses the needs of unhappy people.

Thus, the consequences of such prenatal influences on the fetus are indeed purposeful, because they equip the offspring to have abilities which are an answer to the source of fear, anger or sadness.

THE PROBLEM DOES NOT ORIGINATE FROM HUMAN NATURE, BUT FROM HUMAN PERSONA

Even though the trauma a mother passes on to her offspring is not bad in itself, but it can become bad due to an immature human personality. Highly developed abilities of feeling fear, anger and sadness, which due to the traumatic circumstances were already developed in the prenatal period, can easily lose their adaptive functions (e.g. awareness, righteousness, and compassion) and be transformed into destructive motives of conduct (e.g. suspicion, hatred, depression).



Consequently, during her pregnancy an expecting mother should ideally live a carefree life, experiencing a deep feeling of love from her husband, to foster in her offspring an increased propensity towards experience of love, goodness and gratitude. Otherwise, if a mother already lives in a stressful situation, it would be good for her to react in a mature way toward stress, to avoid the impact which excessive negative effects may have on the feelings of her offspring; burdening it by unnecessary temptations. Already in the nineteenth century, people noticed that:

"The thoughts and feelings of the mother will also have a powerful influence upon the legacy she gives to her child. If she allows her thoughts to mostly dwell upon her own feelings, if she becomes overly selfish, peevish and demanding, the disposition of her child will testify to that fact. Thus, many have received as a birthright their almost unconquerable tendencies toward evil." (Ellen G. White, Appeal to Mothers, February 1, 1880)

However, it is up to a man's persona whether his highly developed feeling abilities of fear, anger and sadness will be transformed into destructive motives of behavior (e.g. suspicion, hatred and depression), or whether they become answers to life's real challenges (e.g. danger,

injustice and loss), through their expression of love toward his own real needs, including those of his family, his community, and of our mankind.

Highly demonstrable abilities of a person to feel fear, anger and sadness, make the process of their maturing very difficult, but let us not forget that moderately developed abilities also "await", that we assign them the correct function. If a person does not do that, they will deprave their functions regardless of an ideal prenatal development.

In contrast to plants' and animals' innate roles and abilities embedded in them to cope with their real needs of life, man has a free will, and he has to choose how to use his abilities. He has to decide whether he will use them as the answer to life's real needs, or whether he will misuse them for personal satisfaction and psychological discharge. That is why even people without traumas during their prenatal development, very often display the very same symptoms as those who did have them; and whose attitudes we would with certainty attribute to the impact of prenatal traumas.

As a responsible being, a man himself directs the meaning of his capabilities, whether he will answer to the real needs of life by them (mature personality) or misuse them for satisfaction and psychical discharge (immature personality)

Mind	Goodness, justice, gain, gift	Danger	Injustice	Loss
Emotions	Joy	Fear	Anger	Sadness
Mature reaction to stress	Gratitude	Courage	Meekness	Care
Immature reaction to stress	Selfishness	Cowardice	Hatred	Worry

Maturing of the persona is not a natural process; it is up to the human being. Giving correct functions to our abilities, is a willful act that represents maturing of our personality. Through their reason, conscience and will, one has to take into their own hands the power over their abilities, and to assign them correct meaning; otherwise those abilities will be left to the mercy of natural misuse, and thereafter conquer one's will. If one does not beat his temptations, temptations will beat him.

CONSEQUENCES OF THE TRANSFORMATION OF OUR PERSONA DUE TO IMMATURE REACTION TO STRESS

If in facing danger we allow fear to conquer us and become our behavioral motive, than such becomes the motive which leads us to cowardice, suspicion and fear, even when there are no objective reasons for fear. Consequently cowardice influences us to give up resisting injustice in times when its necessary to be brave, and stand in the way of injustice.

If we, as the victims of injustice allow anger to overcome us, we will become susceptible to interpret actions of others as unjust, and then invent reasons for conflicts with others, even though objective reasons for such reactions no longer exist. Also we will be inclined to unnecessarily provoke our opponents, even when it would be wise to meekly foster a friendly relationship, or to simply remove ourselves from evil.

If we have fallen into a depressed state as the victims of loss, we will be prone to interpret reality in a depressive way, even when reasons for sadness no longer exist. If we started worrying during our time of trouble, we will continue to do so even when there are no longer any reasons for it. Anxiety and worry unduly deprive the strengths of our life, leading us to engage with that which goes beyond our sphere of responsibility and which does not concern us.

CONSEQUENCES OF THE TRANSFORMATION OF OUR PERSONA DUE TO IMMATURE REACTION TO STRESS

Emotions	Joy	Fear	Anger	Sadness
Immature reaction to stress	Selfishness	Cowardice	Hatred	Worry
Irrational behaviour	Readiness to endanger life for pleasure	Nonresisting to injustice	Provoking of conficts	Worriness without reason

Therefore, it is enough to react immaturely in only one stressful situation, and our abilities will be transformed into destructive motives of behavior, which will remain within us as sources of negative feelings even after the stressful situation has passed. The more developed those prenatal and postnatal traumas and abilities are, the more expressive will be their symptoms and intensity of their debased functions.

However, it is important to note that our immature reaction to unpleasant feelings is not the only trigger which makes us destructive, the same can eventuate from our reactions to pleasant feelings. If we misuse the sources of pleasant feelings for our own satisfaction, we develop an inner dependency on the sources of our pleasant feelings, and can not do without them.

Thwarting of our need for the pleasant experiences, is the main source of depression, while thwarting of our need for the notion of our own worth and greatness, is the main source of offensiveness and hatred.

Hence, our immature reaction to pleasant and unpleasant feelings forms motives of behavior which lead to transformation of our persona, which is reflected in the loss of true love, and our burdening with selfishness and destructive motives, with all of its inconvenient side effects.

SELF-DESTRUCTIVE CONSEQUENCES OF CHANGES IN CORE PERSONALITY TRAITS

Aside from endangering our existence, behavioral motives resulting from the negative transformation of our persona do not purposefully serve our existence, they also trigger self-destructive changes in our body.

It is important to note that mature persons experience unpleasant feelings only while an objective reason for them exists, so that triggered hormonal changes for the functioning of our organism adequately address the real needs of life, lasting as long as the stressful circumstances.

However, since the immature person keeps the source of unpleasant feelings within their driving motives even when the stressful circumstances cease, it constantly triggers hormonal activities which are inadequate for the real needs of life, which leads to psychophysical mess of

our organism. Since motives resulting from our immature reaction to stress represent a constant source of unpleasant feelings within us, the consequence of their influence corresponds to the stressful situation which would constantly press us from the outside. Every long-lasting and intense hormonal imbalance triggers apoptosis – programmed death of our organism cells which are less important for stress reactions; and which would limit organism's resources needed to address stress reactions. Furthermore, high levels of particular hormones trigger automatic regulation that lowers level of hormones and causes apoptosis of cells which produce these hormones. It should be noted that daily causes of strong excitement results in high levels of dopamine, the hormone of happiness, which when activated in excessive measure initiates the process of apoptosis (self-destruction) of dopamine neurons which produce dopamine.

On the other side, daily feelings of anxiety keep cortisol hormone levels on the high, which triggers muscle mass disintegration and decline of the immune system, in order to raise the level of glucose in the blood, and to generate the energy one needs to escape from the source of danger. However without adequate physical activity required for escaping higher levels of glucose in the blood will not be spent but convert into fat layers which leads to obesity.

PSYCHOPHYSICAL DAMAGES AS A RESULT OF IMMATURE REACTION TO STRESS

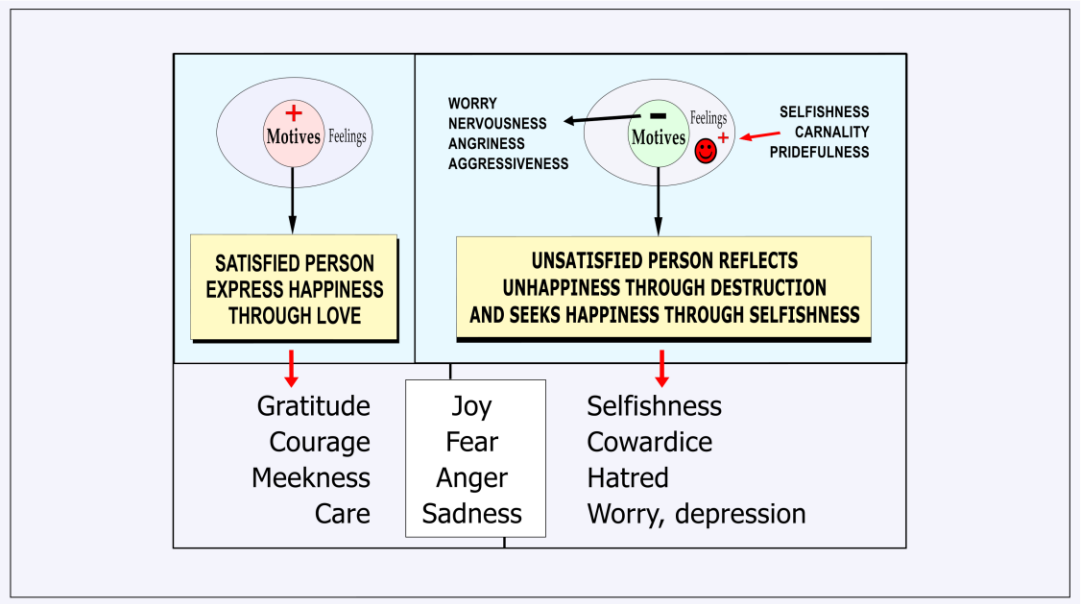
Immature reaction to stress	Selfishness	Cowardice	Hatred	Worry
Hormones	Pregnenolone, serotonin, dopamine	Cortisol	Testosterone	Prolactin
Destructive consequences	Brain cells damage	Affected immunity	Atrophy of inner organs	Loss of sexual abbilities

More importantly, constant feeling of anger raises the levels of testosterone and of thyroid hormones, leading to disintegration of internal organs, in order to use their amino-acids for building of muscle mass and limbs needed for physical fighting. That is why its true when we say that "man eats himself" out of hatred. Additionally, very high level of testosterone triggers apoptotic process of the brain cells self-destruction.

The experience of grief triggers the raising of the prolactin hormone level which decreases testosterone level, and when its level significantly increases, it may lead to atrophy of a person's sexual characteristics. However, excessively high levels of prolactin cause osteoporosis, bloating due to water accumulation in the body, headache (migraine), and problems with vision.

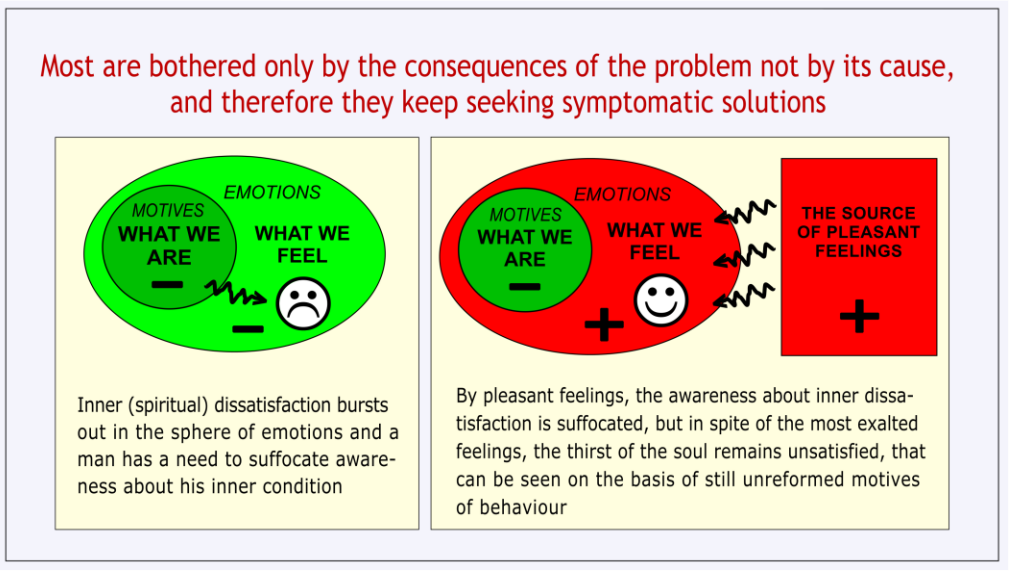
WHY HORMONAL THERAPY AND POSITIVE THINKING TECHNIQUES CANNOT ELIMINATE THE SOURCE OF A PROBLEM?

Negative transformation of personality experienced by a person's immature reaction to stress, is based on a deep spiritual dissatisfaction which rules over them since their immature reaction to stress.



Dissatisfaction is a source of selfish and destructive motives. Inner spiritual discontent naturally navigates one to build relations of selfishness and ingratitude toward the source of pleasant feelings, and to develop cowardice, anger and depressive reactions toward the source of unpleasant feelings. While one allows himself to be intoxicated with their pleasant feelings in order to suffocate awareness of his inner spiritual discontent, in unpleasant feelings one finds a reason and "valve" to express (psychic discharge) of internal dissatisfaction through destructive motives of behavior.

In order not to react with selfishness, but gratitude to pleasant feelings, one should essentially be relieved of internal discontent and thus become spiritually satisfied. Likewise, in order to encounter danger with courage and not with cowardice, injustice with meekness not with anger, and loss with peace and confidence, and not with worry and depression, as a prerequisite one must first be spiritually content within oneself.



However, most people who experienced negative transformation of their persona due to immature reactions to stress, want to keep their immature personality, while removing the

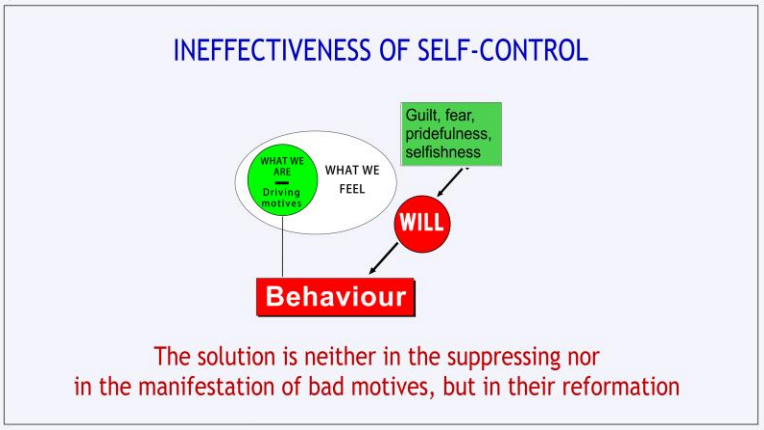
unpleasant symptoms of their destructive condition by using certain techniques. They are mostly unwilling to reform their bad driving motives which have overwhelmed them when they immaturely reacted to stress; they only want to remove symptoms reflecting on their unpleasant thoughts, feelings and actions. Essentially they are still spiritually discontented. Thus their search for solution crashes because they fight on the territory of symptoms, instead off the territory of the causes for their problem.

INEFFECTIVENESS OF MEDICATIONS

For example, persons that have become anxious and suspicious due to their immature reaction to danger often try various medications to reduce their capacity to fear. But since drugs do not change the function, but only the intensity of capability to fear, the problem within still persists. Changing of the capability of function is the domain of personal responsibility, and therefore cannot be solved by acting on the intensity of it.

INEFFECTIVENESS OF SELF-CONTROL

We are mostly bothered by the symptoms of immature stress reaction (e.g. unpleasant emotions, conflict with other people), rather than bad motives (e.g. selfishness, suspicion, hatred and depression) we acquired through our immature stress reactions.

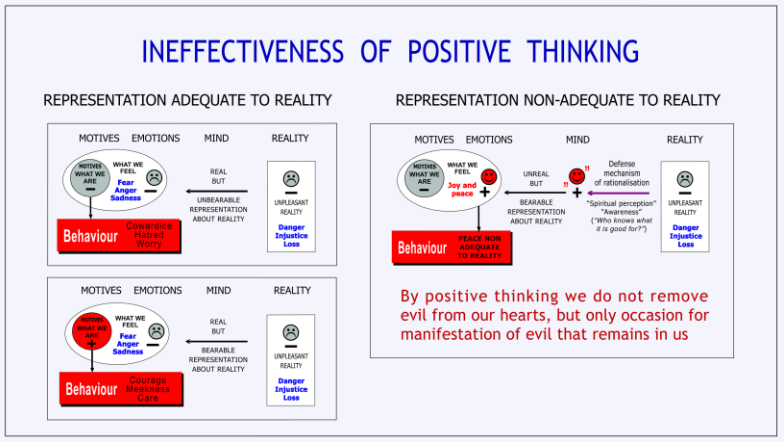


With self-control we can act properly on the outside, while inside us, bad motives continue having their fatal impact by their overproduction of hormones which do not address life's real needs. In addition, bad motives cause psychosomatic health problems whether we shackle their manifestation (e.g. high blood pressure, stomach ulcer...) or openly express them (e.g. coronary artery spasm...). The solution lies neither in suppression, nor manifestation of bad motives, but in their reform.

INEFFECTIVENESS OF POSITIVE THINKING

People who have filled themselves with hatred due to their immature reactions to injustice, often try to create in their mind positive representations of other people and to be blind when facing injustice, in order to avoid provoking and manifesting their undefeated inner-existent within hatreds.

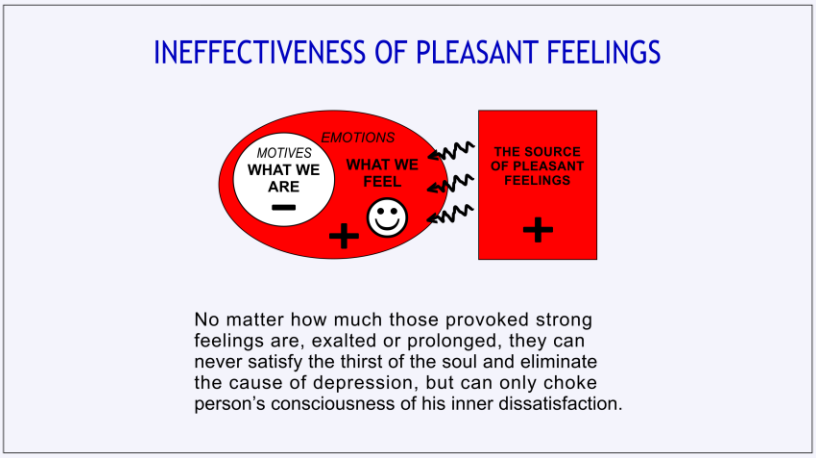
This scheme represents a mechanism of rationalization, where man tries to present reality in a way that will not provoke the manifestation of existent destructive motives.



Likewise by avoiding unpleasant thoughts and feelings, people do not remove the bad motives inside them, they only remove from their mind the occasions for their manifestations. With such tricks they show that they are unable to love the people's persona as it is, so they shift attention to human values and feelings, by loving the visible values they see in people, or feelings which they provoke in them, moreso than that human persona itself.

INEFFECTIVENESS OF PLEASANT FEELINGS

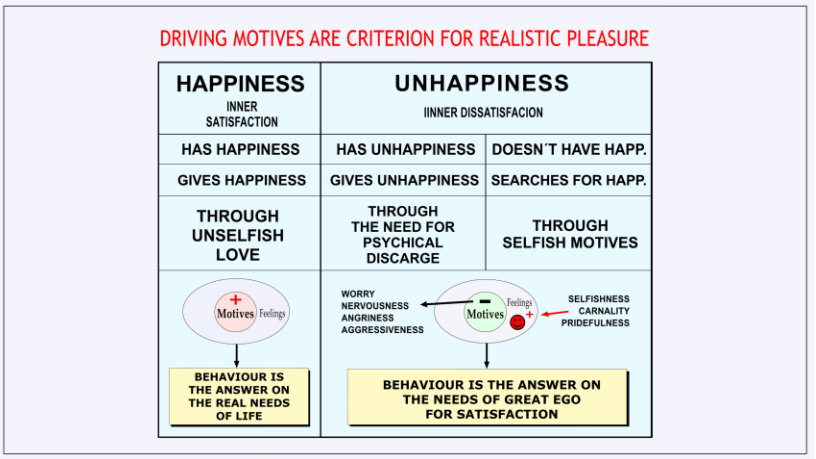
Depressed people often feel the need of listening to cheerful music, in order to stifle the awareness of their depressed state, instead of getting out of it. But their change of feelings does not change their internal motives. Thus if we suffer from anxiety, mental tension, or depression, these internal problems will not be resolved by emotional and sensory imputs, they actually choke our consciesnes dealing with such problems.



Likewise no matter how strong those provoked feelings are, how exalted or prolonged, such can never satisfy the thirst of our soul or eliminate the cause of depression. Such can only choke a person's consciesnes of its inner spiritual dissatisfaction which has taken hold of them in the moments of their immature reaction to stress.

The evidence that feelings cannot satisfy the thirst of our soul and thus produce a positive personae change, is corroborated because man's motives and behavior remain unchanged, regardless of their honestly experienced sublime feelings. Man keeps looking for happiness at the level of behavioral motives and gives unhappiness.

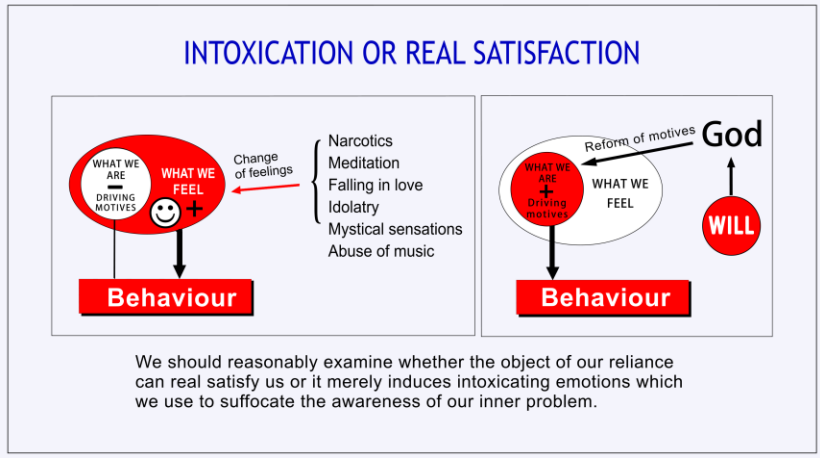
If he was truly spiritually fulfilled, he would not need to seek happiness if he is already content, nor would he need to express dissatisfaction through the need for psychological discharge, if he was already freed from discontent.



If a person is spiritually fulfilled, then it expresses happiness through the motive of selfless love and kindness. Then neither pleasant nor unpleasant feelings are a temptation.

Thereafter pleasant feelings become an occasion for gratitude, and uncomfortable ones for the manifestation of courage, gentleness and caring.

Finally if inner spiritual contentment was really attained, it must result in the transformation of that persona, something educators call maturing, and believers the experience of a spiritual rebirth.



We need spiritual experience, for man is also a spiritual, not only physical and mental being. We are essentially all religious, because we all "pray" to someone or something seeking someone or something to quench the thirst of our own soul. We unawarely attribute supernatural

powers to the sources of our pleasure when we imagine that they can satisfy us. However, as we noticed, the experience of pleasure cannot satisfy anyone, it can only suffocate the awareness of our inner problem.

This is the reason why we need to reasonably question whether the object of our reliance can truly satisfy us or it merely induces intoxicating emotions which we use to suffocate the awareness of our inner problem and cause biased kindness which will disappear as soon as the stess of everyday life spoils our emotions.

If satisfaction does not result in a radical transformation of our driving motives, in accordance with the scheme that reveals correlation of satisfaction and motives of behavior, then it is only a false satisfaction (intoxicating), not real.

A POSITIVE CHANGE IN PERSONALITY THROUGH ADULT'S MATURE REACTIONS TO STRESS

No matter how traumatic the prenatal impact was, and no matter how strongly it impacted the offspring's education during its early development, and how unfavorable it affected its persona, during adolescence a person has the freedom to act independently and in accordance with their will, even against all adverse influences which affected them in the past.

An adult human persona can annul the consequences of earlier immature reactions through subsequent mature reactions to everyday stressful events.

It is normal that gain, beauty and goodness provoke appropriate feelings of joy. However it is up to us, to either misuse those pleasant feelings for our own satisfaction, which makes us selfish, or to be grateful for such feelings. If we foster a selfish attitude towards the source of our pleasant feelings, we pave the way for our depressive reaction which will occur the day our selfish attitude is thwarted. Thus, the mature reaction to the source of our pleasant emotions is the spirit of gratitude.

Similarly, it is normal to feel fear when we are facing danger. However it is up to us whether we want to be cowards, or whatever we want to be brave. If we act as cowards, we remain cowards although the danger has passed, but if we respond courageously, we remain courageous even after the challenge passes.

Likewise, it is quite normal that injustice makes us appropriately angry. However it is up to us whether we respond to such injustice with hatred, or meekness. If we respond with hatred, hatred remains within us even when the external temptations are gone, but if we respond with meekness and forgiveness, we retain the built character of peace even after the source of injustice is removed.

Moreover, it is quite normal that trouble, failure, or loss of loved ones, causes a corresponding feeling of sadness. However, it is up to us whether we respond to such troubles with anxiety, or concern, and whether we respond to the loss of loved ones by falling into depression, or maintain reasonable equanimity.

Please notice that depending on our chosen meaning of life, we might respond with quite opposite motives to the same stress situations. The mature response to stress causes positive transformation of our persona and forms inside us the spirit of love which radiates pleasant spirit, regardless of any external circumstances, be these pleasant or unpleasant.

Hence, even if due to immature reaction a man experienced a negative change of his persona, subsequently he may become conscious of his immaturity when facing new stress situations, and by mature stress reaction he could combine his natural and acquired abilities to function properly, and cease being an end in themselves but become a tool in his addressing the real needs of life.

The mature response to stress is not a utopia,
but historical experience of
Western civilization in the age of
reformation and enlightenment

VICTORY OVER STRESS IS NOT UTOPIA

Experience of the Western civilization even at the Early Modern Period reveals that victory over stress is no utopia. During that period, man was considered to be a responsible human being, able to utilize any trouble to foster spiritual growth and development of character. In fact, difficult life circumstances were considered as a test of a person's actual spiritual state.

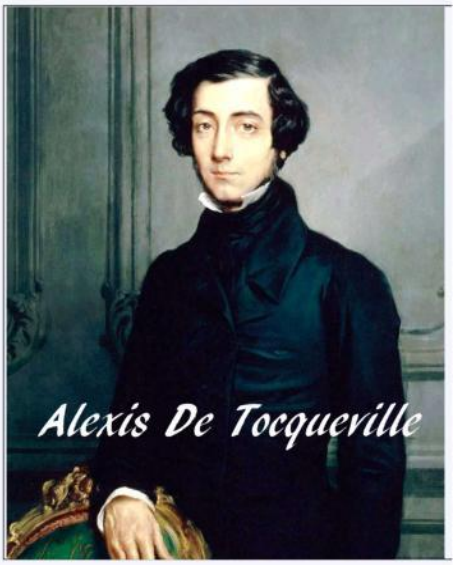
During their mature suffering of serious trouble Englishmen showed such a calm spirit and preserved dignity that eventually the term "British coolness" was forged; also used by other nations when describing maturity of the English as exemplary, in comparison to their own customary reactions to trouble.

It was considered then that a man of clean conscience can endure every trouble and misery without losing his peace and coolness.

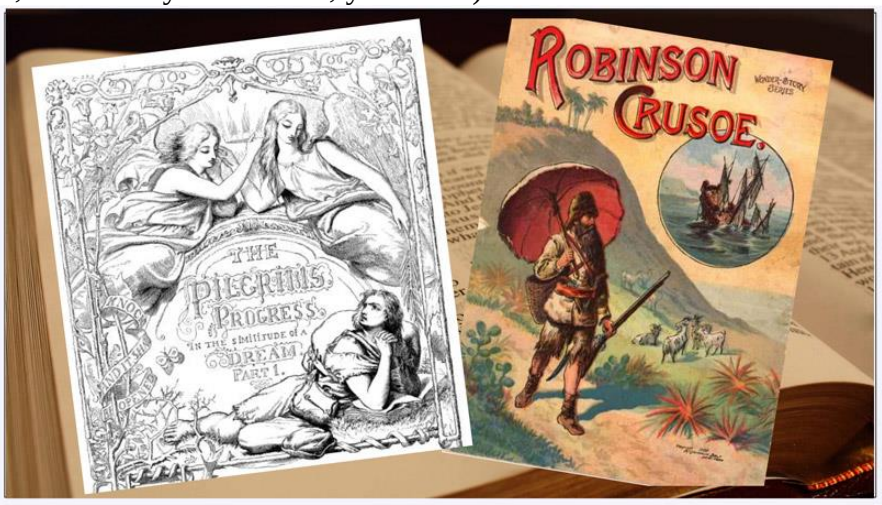
"If we suffer for the good deed
Conscience is calm, heart is cheer."
(L. Nenadovic, mid XIX century)

Alexis De Tocqueville (1805 -1859) was a Frenchman who was sent by the French government in 1830 to America in order to study its penal system. He could not but observe the spirit of enlightenment of Americans of that time, which was mostly reflected in their mature reaction to troubles. Most people today fall into a deep depression as a consequence of stress that

thwarts the objects of their satisfaction, but Alexis De Tocqueville recorded about Americans of that time the following:



"The courage which is best known and most esteemed is that which emboldens men to brave the dangers of the ocean, in order to arrive in port earlier – to endure deprivations of the wilderness without complaint; and solitude more cruel than all deprivations – and courage which renders them almost insensetive to the sudden loss of a laboriously acquired fortune, and which almost instantly prompts demands fresh exertions to regain what was lost. (...) It has been observed that facing immediate danger, man rarely retains his customary level; rises considerably above it, or sinks below it. So it is also with nations. Extreme perils instead of raising their nation, sometimes they destroy it. They enflame their passions and instead of ruling over them, they lose control. And instead of clearing their collective mind, they end up with one that is all muddled-up." (Alexis De Tocqueville, Democracy in America, year 1835)



Popular novels of that time encouraged their readers to be the winners over life temptations, as well as their heroes. In the "Robinson Crusoe" by Daniel Defoe, the protagonist is alone on the island, but he resists the despair of the loneliness and becomes the overcomer. In the "Pilgrim's Progress" by John Bunyan, the hero goes through various traps and temptations on the way to the heavenly city, and also becomes the winner.

At that time the Western civilization had also awareness of the importance of prenatal influence on the future man. This lesson was found in the Holy Scriptures, in advices given to Samson's mother, that for the sake of her future son´s abilities, during her pregnancy, she needs to avoid alcohol and unhealthy food:

"Behold you will become pregnant and bear a son. Now then, drink no wine, nor other fermented drink; and do not eat anything unclean, for the child will be a Nazirite of God from the womb until the day of his death." (Judges 13:7)

Although people of that time took into account the importance of prenatal influence, they advocated that neither inherited nor cultivated weaknesses can be an excuse for human sinning:

"You may claim much leniency because of your human nature, of your temptations and trials, and seek to excuse yourself for sin because of inherited tendencies, but Christ gave himself in behalf of humanity, and there is no reason for failure. ... He has made it possible for you to be an overcomer. Do not say it is impossible for you to overcome. Do not say, *"It is my nature to do thus and so, and I cannot do otherwise. I have inherited weaknesses that make me powerless before temptation."* We know you cannot overcome in your own strength; but help has been laid upon One who is mighty to save." (The Signs of the Times, June 17, par. 11, 1889)

"The religion of Christ transforms the heart. It makes the worldly-minded man heavenly-minded. Under its influence the selfish man becomes unselfish because this is the character of Christ. The dishonest, scheming man becomes upright, so that it is second nature to him to do unto others as he would have others do unto him. The profligate is changed from impurity to purity. He forms correct habits, for the gospel of Christ has become to him a savor of life unto life." (Ellen G. White 5T 345, 1889)

But soon, the people of Western civilization are rejecting the spirit of enlightenment and instead on the spiritual plane try to satisfy the thirst of the soul on the mental and physical plane. Since such a principle does not bring the desired results, people now need to excuse their weakness by reference to external factors.

Justification of immature reactions to stress, by either invoking currently stressful circumstances, or by referring to the harmful impact of various factors during prenatal and postnatal development, can provide a person with psychological pleasantness by offloading feelings of guilt for their own immature reaction. However, it will not help them to solve their problem. On the contrary, lulled by the false belief that others are to be blamed for their psychological problems, they will be deterred from questioning and searching for that which they can and should do, in terms of their growing up and their maturing as a person.

As human beings we should all cherish and value the freedom given to man through the basic elements gifted to his personae, namely intellect, conscience and the will. In possessing these, each one of us now has the power to resist abuse of their developmental abilities; and by bestowing them with a higher meaning, enable ourselves to become ”man” in the highest sense and connotation defining this word.

On the basis of the book: "Victory over Stress" by Milos Bogdanovic (milos@enlite.org)

Sphere of external influences (Needs of life)	**Mind**	Goodness, justice, gain, gift	Danger	Injustice	Loss
	Emotions	Joy	Fear	Anger	Sadness
Sphere of human nature (Capabilities)	**Hormones**	Pregnenolone, serotonin, dopamine	Cortisol	Testosterone	Prolactin
	Supported capabilities	Creativity	Escaping from danger	Fight against injustice	Caring about unhappy people
Sphere of personal responsibility (Meaning of capabilities)	**Mature reaction to stress**	Gratitude	Courage	Meekness	Care
	Immature reaction to stress	Selfishness	Cowardice	Hatred	Worry
Sphere of consequences by immature personality	**Irrational behaviour**	Readiness to endanger life for pleasure	Nonresisting to injustice	Provoking of conficts	Worriness without reason
	Destructive consequences	Brain cells damage	Affected immunity	Atrophy of inner organs	Loss of sexual abbilities

BASIC ASSUMPTIONS OF BIRTH PRACTICES AND THE RISK OF POSTNATAL PTSD

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Abstract. The constructivist psychotherapy emphasizes that the basic assumption that directs human action is one that must be modified if we want to change the unwanted behavior. We shalll analyze the basic assumptions of the dominant birth practices and its opposite, pointing to how they themselves allow the growth of risk of trauma at birth and consequently postnatal PTSD. First of all we will point out possible worrying implications of mechanistic division of the unity of mind and body of laboring women that are contained in the dominant birthing practices. Focus will be on the most important constructs in understanding birth practices: birth control, the role of laboring women in childbirth, maternity body assumptions and mothers and babies safety during labor. Than we will tie significant implications of these assumptions with the risk signs of PTSD in response to trauma at birth. To ensure the view of complete picture will show the basic assumptions of alternative birth practices as well and their potential impact on increasing or decreasing the risk of postnatal PTSD. Body psychotherapy emphasizes the inextricability of the mind-body connection highlighting the beliefs and emotions that women experience during childbirth, literally embody in her body. Stress and anxiety that mothers feel during labor is through the autonomic nervous system carried to the uterus and pelvic floor muscles. Frightened, mothers secrete adrenalin which impedes the progress of contraction. Due to stress, the depth and frequency of respiration and oxygenation deteriorates, muscle of the uterus, starts convulses and contractions are felt as increasingly painful. Turbulent hormonal changes in the body of a woman after childbirth can boost awareness of the factors that were stressful during childbirth. The inability of woman to "separate" herself of traumatic memories, which has its somatic reading in the pelvis, hinder and disrupt early emotional bonding with the baby, which is establishing extensively in this period. Given the importance of psychological and physical condition of the women giving birth and after the course of it we can try to change our assumptions about labor therefore lowering the risks of postnatal PTSD, redirecting the resources and factors that can help woman experience childbirth and motherhood as an opportunity for growth and development.

Keywords: *Labor Practice, Risk Factors, Postnatal PTSD, Body-Mind Unity*

PSYCHOTHERAPY MODALITIES – BASIC ASSUMPTIONS

The constructivist psychotherapy emphasizes the importance of the process of attributing meaning to someone or something opposite to paradigm that we can detach from the case study and see things by themselves. To construe means to organize, create order - the system of constructs, a personal or shared philosophy (Mahoney, 2006). Construing happens at the non-verbal and unconscious level. It is important to become aware of the meanings that we attach to the world because that is the only way we can test and change our assumptions if they do not bring the desired result.

Body psychotherapy is a holistic approach, which emphasizes the psychosomatic unity (Klisic, 2001). Each of our emotions has a physiological correlate which is when blocked a cause of psychological disturbances.

DOMINANT LABOR PRACTICES AND THEIR IMPACT ON MENTAL HEALTH OF LABORING WOMEN

The basic philosophy of the dominant birth practice of medicated birth is mechanistic division of the unity of mind and body of a laboring women.

The aim of this work will be analysis and understanding of the core constructs - assumptions (who manage the processes of maintaining and forming identity) two opposing birth practices - medicated and non medicated - natural labor.

The hypothesis that we start from is the assumption that some of the core assumptions of medicated labor increase the risk of postnatal trauma in mothers.

As a counterpoint we will turn our attention to the importance of mind-body unity. Regarding to body psychotherapy and largely supported philosophy of natural labor, it will help to create a better model to be less hazardous to the mental health of laboring women.

LABOR PRACTICES – COMPARING FACTORS

We will analyze core construct behind two major labor practices: medicated and non-medicated.

Strictly medicated childbirth rests on the assumption that it is something that happens to women rather than something women do (Rothman 1993). Doctors intervene during childbirth through active management, which was devised "for the early identification and correction of inefficient myometrial activity" (O'Herlihy 1993). In medicine, says Wagner (1994), is much confusion about what should be labeled dystocia. Originally dystocia was defined as a mechanical failure, but now involves timed failure to progress (Rothman 1993). If that is diagnoses doctor gives the woman an artificial oxytocin. In addition to the management of labor during childbirth doctors intervene using forceps or vacuum extractor, when uterine contractions are not strong enough to drown out the baby, the doctor uses extra power to accelerate delivery. Sometimes delivery and up with emergency caesarean section which is surgical procedures in which incisions are made through a woman's abdomen and uterus to deliver her baby (www.medical-dictionary. thefreedictionary.com /caesarian section). Sometimes doctor does episiotomy which is a surgical incision made in the perineum, the area between the vagina and anus. Episiotomies are done during the second stage of labor to expand the opening of the vagina to prevent tearing of the area during the delivery of the baby (www.surgeryencyclopedia.com/Ce-Fi/Episiotomy.html#ixzz3XGiaRrqE)

Non medicated or natural labor is spontaneous act. Spontaneous labor in a normal woman is an event marked by a number of processes so complicated and so perfectly attuned to each other that any interference will only detract from the optimal character. The only thing required from the bystanders is that they show respect for this awe-inspiring process by complying with the first rule of medicine – nil nocere [do no harm] (G.J. Kloosterman, 1982). Natural birth is a lot less present labor in civilized countries. Natural birth advocates are different groups like midwifes, doulas, holistic doctors (M.Odent, S.Buckley, Stambolović etc.), hypno-birthing practitioners, feminists, traditionalists, homebirth practitioners etc.

Factors for comparing are: **birth control, role of laboring woman, body assumptions, (mother and baby) security during labor.**

Medicated labor – dominant practice

Birth control
actively managed, monitored process by doctors and technical aids
doctor intervenes and "doctor is giving birth" - external locus of control, leading to a woman in a state of helplessness
main objective perfect birthing babies;
procedurally strictly defined and uniform
focused on the control of the labor duration, risk assessment (preventive actions) and pain sedation

The role of women in labor
passive, desirably submissive;
dependent on the doctor who is a specialist in labor
increasingly reactive - someone who cannot be trusted
deprived of the relationship with the medical staff for her own good
receives instructions, not information
participative - depending on how muscle respects not bringing into question medical procedure
refrained - controls her emotions

Baby and mothers sicurity during labor
labor - medical event - a condition similar to the disease
labor is always to some extent risk to the fetus or a mother – important to be prepared for urgent intervention
security - the largest in the maternity ward with doctors and available technical tools
depends on the speed of delivery - faster delivery safer mother and baby

Body assumptions
machine - unable to understand the experiences and events during childbirth (doctor wonders: "Why is there no contractions during vaginal examination?")
incompetent – unable to do responsible, independent work, should be connected to other machines for better monitoring
bed performance measures - less informative than the machine to which its attached
prone to failure (need to add infusion or induce labor – accelerate it, boost pressure where necessary, cut for more space for the baby)
in conflict with body which contains (large baby / mothers pelvis is too small, the baby's head is dangerous for mother's perineum betters is for doctor to use scissors
without personal characteristics - except pathologically seen(small or big enough pelvis, heart problems)

Natural, non medicated labor

Birth control
labor is involuntary, physiological activity, under the control of the limbic - emotional parts of the brain, placenta and baby
in most cases birth process should not be intervened
differs necessary helper interference from one that hinders the natural process and increases the risk of a number of medical interventions
a birth plan defines the important turning point of childbirth and how to treat them - it is prepared by women (family) doctor and / or midwife – altogether
aimed at building trust, mutual respect and exchange of knowledge, information and needs between mothers and helpers during follow-up pregnancy - labor is the crown of this kind of relationship

The role of laboring women
the main actor, in touch with yourself and with your body
she gives birth to a baby, not a doctor - an internal locus of control, which encourages confidence in a women
increasingly reactive – so she chooses an environment that gives her support and feeling of security
in a supportive relationship with the midwife, doula, family, doctor
gets the information she needs, brings decisions regarding her body
focused on herself, her body and her baby
expresses her emotions freely, controlling fear – letting go to the laboring process

Body assumptions
body and soul union - fear will stop the contractions, interfere with breathing and relaxation between contractions – so she manages the fear in a different ways
strong - can withstand the pain and the long process of exhaustion
perfectly designed for delivery - in most cases it does not need the help of technical and pharmacological advances
a complex system capable of functioning independently
in conjunction with a body that is being born
individualy different - recognized freedom and respect for different needs, desires, tempo of labor

Mothers and babies security during labor
birth - natural intimate relationship between mother and a baby, similar by necessary conditions to lovemaking
not to activated neocortex but allowing instinctive part of the brain to take control
need to be undisturbed with strong lights, machines, or people watching, unfamiliar surroundings
sensitive to support from labor environment
largely determined by the position of the women’s body and the freedom to move as she needs
has its own rhythm; interfere only in a situation of extreme necessity

What is PTSD?

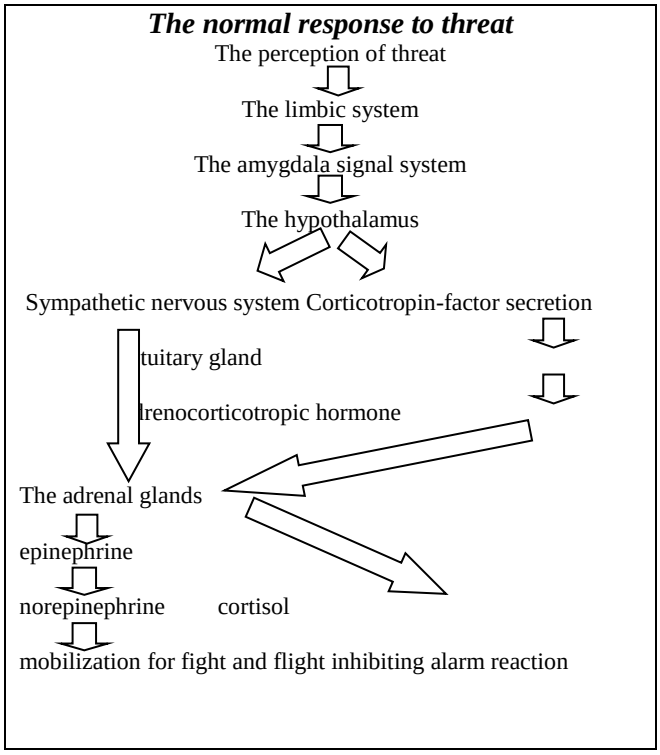
A person is exposed to a traumatic event if: experienced, witnessed, or was confronted with an event / events that include a perceived or real threat of death, or the threat of physical and psychological integrity of self or others. As a reaction to this event, the person experiences intense fear, helplessness or horror. Post-traumatic stress disorder does not develop in every person who has experienced trauma.

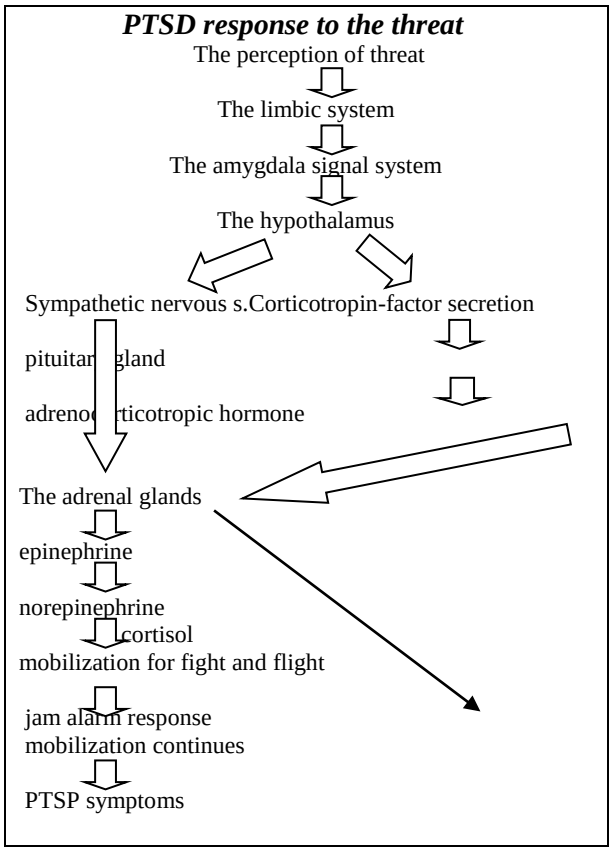
Developing PTSD depends on the preparations for the expected trauma, successful reaction mechanisms (fight or flight), developmental history, belief systems, and internal support resources protection. The stress resulting from a traumatic event, and takes after him, but does not result in the development of PTSD, post-traumatic stress (PTS).

Diagnostic Features PTSP (DSM IV)

- **intrusive memories (flashback):** traumatic event is persistently re-experiencing one of the following ways:
- constant and intrusive distressing recollections of the event (images, thoughts, perceptions)
- recurrent distressing dreams of the event
- experience as if the traumatic event recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur upon awakening or under the influence of alcohol)
- intense psychological distress at exposure to internal or external signs that symbolize or resemble the traumatic event
- physiological reactivity upon exposure to internal and external signs that symbolize or resemble aspect of the traumatic event
- **avoidance / numbness**: persistent avoidance of stimuli associated with the trauma and numbness that did not exist before the trauma:
- efforts to avoid thoughts, feelings or conversations related to the trauma
- efforts to avoid activities, places or people that provoke memories of the trauma
- inability to remember important aspects of the trauma
- the markedly diminished interest or participation in significant activities
- the sense of disconnectedness and alienation from others, restricted range of feelings
- the sense of foreshortened future
- **general arousal**: persistent symptoms of increased arousal:
- sleep problems (falling asleep or waking up during the night)
- irritability or outbursts of anger
- difficulties with concentration
- tension, excessive twitching
- **duration**: annoying symptoms last longer than a month
- **significance**: interference caused significant problems in social, occupational or other areas of life

PHYSIOLOGICAL BASIS OF PTSD





THE TRAUMA CORE

Physiological disturbance is the fuel for developing PTSD. It is enhanced during labor, due to intense hormonal and physiological changes that occur.

Therefore, adequate understanding of these physiological phenomena could be a main barrier toward developing PTSD. Furthermore, it could strengthen the women self-awareness and self-confidence during labor.

If women construe her labor like a traumatic event it directly influences the course her labor will take in physiological level and consequently in medicated birth, in level of medical intervention.

Stress and anxiety that mothers feel during labor is through the autonomic nervous system carried to the uterus and pelvic floor muscles. Frightened, mothers secrete adrenalin which impedes the progress of contraction. Due to stress, the depth and frequency of respiration and oxygenation deteriorates, muscle of the uterus, starts convulses and contractions are felt as increasingly painful.

Low contractions rate will usually make medical staff want to intervene to fasten it – which can even more frighten the women making the birth more and more risky and complicated. Having in mind core constructs of medicated birth practice consequent actions are making possible scene for postnatal PTSD.

WHAT IS POSTNATAL PTSD?

PTSD can be a consequence of a traumatic birth (threat of death or serious injury to an individual or another person close to them - e.g. their baby). Characteristic features of postpartum PTSD include: intrusive re-experiencing of a past traumatic event (which in this case may have been the childbirth itself), flashbacks or nightmares, avoidance of stimuli associated with the event, including thoughts, feelings, people, places and details of the event, persistent increased arousal (irritability, difficulty sleeping, hyper vigilance, exaggerated startle response), anxiety and panic attacks, feeling a sense of unreality and detachment (www.postpartum.net)

RISK FACTORS FOR POST NATAL PTSD

- lengthy labor or short and very painful labor
- induction
- poor pain relief
- feelings of loss of control
- high levels of medical intervention
- previous trauma (during labor or not)
- traumatic or emergency deliveries, e.g. emergency caesarean section
- impersonal treatment or problems with the staff attitudes
- not being listened to
- lack of information or explanation
- lack of privacy and dignity
- fear for baby's safety
- stillbirth
- poor postnatal care
- birth of a damaged baby (a disability resulting from birth trauma)
- baby’s stay in SCBU/NIC

MEDICATED BIRTH CORE CONSTRUCTS INCREASES THE RISK FOR POSTPARTUM PTSD

Medicated birth helps to control two important risk of postpartum PTSD: **poor pain relief** – providing anesthesia to prevent the pain, and **traumatic or emergency deliveries e.g. emergency caesarean section** – determining the necessity for prearranged caesarean section long before labor, during regular monitoring during pregnancy.

Most of others defined risks of postpartum PTSD are in strong relation to core constructs of medicated birth so we can say that thay are encreasing the risk of postpartum PTSD.

By viewing womens bodies as a machine prone to failure, putting control almost exclusivly in the hands of experts who use violent aproches to solve the problem, acting fast and emphasizing risk factors during birth and referring to women's emotions as a distractore which should be ingored, are core constructs of medicated birth producing increase of the relating factors for postpartum PTSD. The postpartum PTSD risk factors directly deriving from the core constructs of medicated birth are: induction, feelings of loss of control, high levels of medical intervention, impersonal treatment of problems with the staff attitudes, not being listened to, lack of information or explanation, lack of privacy and dignity, fear for baby's safety, short and very painful labor, baby's stay in SCBU/NICU, poor postnatal care.

NATURAL BIRTH CORE CONSTRUCTS DECREASE THE RISK FOR POSTPARTUM PTSD

Natural birth is mostly criticized for not being able to adequately response to critical situation that can end with stillbirth birth or a damaged baby like medicated birth can. Defending its position advocates for natural birth stress with lowering rates of stillbirth and damaged babys, prone to change in nutrision, higiene, global health and women economic position and not to more medicated birth (Mongan, 2005). Natural birth core construct are decreasing the following risk faktors of postpartum PTSD: feelings of loss of control, lengthy labor or short and very painful labor, traumatic or emergency deliveries, e.g. emergency caesarean section, impersonal treatment or problems with the staff attitudes.

Core constructs valued for decreasing above mentioned risks are focused on women bodies as a strong and complex psychophysical union, valuing birth as process where mother and the baby physiological connection are the key for safe birth, preparing women for the loss of usual idea of higher cognitive control and letting go to their instinctive impulses, recognizing the importance of adequate support in managing fear, pain and physical exhaustion during the labor by non intrusive and non intervening means such as relaxation techniques, free movement, water birth, worm compress, food, adequate communication between staff and woman in labor helping her to verbalize her feelings accepted it and letting it go. Comunication and developing trustworthy and secure relationship are at focus. It starts long before labor, while defining birth plan togehter with pregnent women and ensuring their following through the birth itself.

THE UNIFICATION OF THE SOUL AND THE BODY OF LABORING WOMEN AS A WAY TO SAFER CHILDBIRTH

Change in core assumptions about childbirth, both among medical professionals and among laboring women, is one of the prerequisites of changing birth practices in Serbia more in the direction of a holistic approach to childbirth. Understanding women as holistic beings, with the overall psychological and physical specificity, would greatly facilitate and enrich natal practices. The integration and application of this approach in practice would involve empowerment of women at their first step toward motherhood, as well as their greater autonomy while taking personal responsibility in charge of theirs bodies as a first step in the role of parents. Supporting them in deciding on important stages of childbirth, as well as giving them help and respect for their personal and physical needs, could be preferable role of medical stuff.

CHILDBIRTH AS EMPOWERMENT, RATHER THAN THE RISK OF POSTPARTUM PTSD

Childbirth is a natural process by which women can actively focuse to comply herself with the child's own pace. Facing rather than running away from contractions, provides an opportunity for women to go through childbirth that will be a good basis for self-awareness, self-confidence and consolidation of early connection with the child. Pregnancy and childbirth can be perceived as a potential for growth and development of women and all of her family.

We will give example of a one woman’s experience during childbirth as an illustration of a possible way to change view on labor: "I thought that labor has to do only with the pain and fear of pain. I knew it was a pain that is different from any other bodily pain. I never believed in the theory of punishment by birth pains. I was looking for a natural and rational explanation ... All forms of pain suggest that something is not right, "Do not step on that foot, you have a piece of glass in the heel, "Do not eat more chili, your stomach will hurt". However, labor pain in most cases is not associated with something that is not right. The physical process of birth is quite normal, natural process in which the mother and child should feel safe ... When fit, mothers in labor must allow contraction and follow them. Groaning does not help. But calming down and plunge deep into yourself, yes ... "

Birth practices should encourage medical stuff to find a way haw to communicate more to a woman less to a machine, not taking the role of woman during childbirth but sharing responsibility and knowledge respecting the power of the woman’s body and her emotions more as well as specific physiological and psychological connection of mother and a baby during labor.

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INFLUENCE OF NUCHAL CORD IN VERBAL COMMUNICATION DISORDERS DEVELOPMENT

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Abstract. Early detection and diagnosis are an important prerequisite for successful treatment of verbal communication disorders. Because of timely intervention it is necessary to include information about the existence of different factors that are considered risky for the proper establishment of hearing, speech and language development as well as behaviour, attention, learning and socialization development. Influence of risk factors is detected and recorded in three periods of human being development: prenatal, perinatal and postnatal. The consequences of influence dependent upon the nature, timing, length and intensity of influences, genetic predisposition to certain diseases, general psycho-physiological state, attitudes of family and environment, time of disorders detection and the dynamics of treatment. Certain risk factors already have negative impact to speech and language development, sensory-motor and socio-emotional functions and possible pathological forms of mentioned functions in correlation with the acting factor, one or more joint. Aim of this work is to potentiate the appearance of nuchal cord, an attempt to find the relation between these phenomena, other risk factors and medical interventions during pregnancy but primarily it has aim to potentiate impact on child development through the aspect of physiological and pathological manifestations. The study included 1,750 children aged 0 to 11 years which was diagnosed with abnormal development of verbal communication, behavior, attention, and / or learning.

Keywords*: Verbal Communication Disorder, Risk Factors, Nuchal Cord, Detection, Diagnostics, Treatment*

INTRODUCTION

Studying the process of learning speech and language in children proved to be one of the most important, most complicated and most interesting branches of linguistic and medical scientific disciplines. The importance of these studies is conditioned by different factors from which two are particularly motivating: the way children learn to speak and understand their mother tongue with one hand and on the other applying these insights in explaining and solving the varied and complex issues resulting from developmental disorders of speech and language. In recent decades the study of child development, especially when the emphasis is on speech and its pathological manifestations, include even the period of prenatal development.

Language system ontogeny is legitimate process with its stronghold in the period from conception to acquire skills in verbal communication. This is also a period of high vulnerability of individual to the effects of different risk factors. In relation to the period of influence they are divided into: 1) prenatal: genetic predisposition, rubella during pregnancy, viral infection, hypoxia of the fetus, vaginal infections of the mother, the use of ototoxic drugs in pregnancy, chronic and infectious disease mother, Rh incompatibility, toxo-plasmosis, toxic poisonings of the mother, stressful experiences, nephropathy, cardio-myopathy, hypertension, diabetes, addictions and others. 2) perinatal: premature birth, asphyxia of the newborn baby, hypoxia, hyperbilirubinemia, hypoglycemia, Apgar score (APGAR) under 9, respiratory distress syndrome, low birth weight, cerebral bleeding (hematoma), completion of delivery with forceps, vacuum, caesarean section, etc. 3) postnatal: inflammation of the middle ear, respiratory and other infections accompanied by high body temperature, encephalitis, meningitis, febrile convulsions, ototoxic drugs, various intoxications, bacterial and mycotic infections (Candida, Escherichia coli, Clostridia), vaccines,

head injuries, allergies, food intolerance, sensory-motor disorders, not enough stimulating family environment, poor communication models, excessive exposure to TV contents (especially cartoons, commercials) and computer games, premature exposure to foreign languages (in monolingual environments) and others. It has been shown that influence of certain factors in the prenatal and perinatal period is crucial for the formation of certain abnormalities in the development of verbal communication, declaring as risk factors for language disorders (Barlow et al., 2007; Nelson, 1983; Manning, 1995; Beversdorf, 2010).

Diagnosis and therapy improvements during the prenatal period lead to formation of fetus new image with a tendency of developing methods for prenatal interventions that can prevent or eliminate some diseases and disorders, among others, the disorders of speech and language development, during the development of individual (Jeličić et al ., 2007). This is supported by an increasing number of available programs for prenatal stimulation: Leonardo 180 and Leonardo 240 (Blum et al., 1993; Blum, 1991); BabyPlus prenatal enrichment system (Logan, 2003; 1995; 1993); ESSENTIALS BabyQ (9 + 9) (Blum et al., 2008), prenatal stimulation program by Lazarev (2002). The resultes of prenatal stimulation, conducted in Serbia, confirmed the importance of stimulation in this period through the fact that the children who had intensive prenatal stimulation are superior in the field of speech and language, sensorimotorics and socio-emotional status. These children (studied age 2 - 2.6 years) did not have any kind of pathological forms of speech and language disorders (Jeličić, Vujovic, 2013). In Serbia two methods are introduced: a method of early detection of hearing level of the fetus (Sovilj et al., 2004) as well as prenatal hearing screening in the function of predicting psychological development of the child (Jeličić, 2011).

Diagnostic procedures in patients with verbal communication disorders primarily include data about the existence of risk factors responsible for establishment of the proper function of hearing, speech, language, behaviour, attention, socialization and learning and this study emphasizes the emergence of nuchal cord which extends trough two periods: prenatal and perinatal which, in a certain percentage may even be the cause of fetus death (Rocha et al., 2004). Physiologically, the umbilical cord is a bond between mother and baby and consists of two veins and two arteries.

Thanks to modern diagnostic technologies such as ultrasound, Doppler, color Doppler mapping and others, it is possible to identify and track changes in the shape and structure of the umbilical cord. The incidence of nuchal cord goes from 5-10% (Nicolaides, 2004) with a tendency to increase its frequency with advancing gestation of 12% (24 to 26 weeks) to 37% in the period just before birth (Clapp et al, 2003). In a study of Russian authors, (Olejnik, 2013) that examined morphological characteristics of the placenta in the case of umbilical cord pathology, including nuchal cord, umbilical cord pathology, it is found that incidence in this population ranges from 4.8 to 38.4% and represents a high risk for fetus hypoxia. Most often umbilical cord was once wrapped around fetus neck (74-82% of cases), rarely twice (16% of cases). The literature cases in which the fetus umbilical cord was wrapped 6-9 times around the neck were also described(Šehtman, 2005).

Overall, depending of the author frequency of problems caused by the umbilical cord pathology, from which appearance of nuchal cord is most common, range from 15 to 38% (Olejnik, 2013). Aiming to show the incidence and structure of morbidity of children born before term in the period from 2010 to 2012 and the results compared with 1992, researchers from Serbia in the period of research found the nuchal cord in 3.7% of cases of preterm delivery

(Dokić, 2013) and concluded that the nuchal cord occur in individual cases and with uniform incidence (Dokić, 2004).

The emergence of tightly wrapped around the neck pupčanka, in some fetuses and newborns can result in a set of cardiorespiratory and neurological signs and symptoms known as "TCAN syndrome" (tight Cord Around the Neck Syndrome) (Peesay, 2011). A number of studies have shown that "TCAN" may affect birth outcomes with long term consequences for the child's development (Clapp et al, 1999) and that the "TCAN" symptoms are possible regardless of the APGAR score (Martin et al, 2005). The appearance of premature birth under the influence of this factor in studies of a number of authors is not reliably verified (Parast et al, 2008; Tantbirojn et al, 2009), while Russian researchers nuchal cord pathology in 21- 65% of cases considered as the direct cause of premature birth, early mortality and morbidity of newbors, with a note that despite the scientific and technological development of medicine, the causes and consequences of the umbilical cord pathology are not completely understood (Milovanov, 1999; Chai; 2007).

Nuchal cord may lead to intrauterine fetal suffering and can cause complications during the delivery. Nuchal cord in the 7.7 to 21.4% of cases contributes to asphyxia of the newborn; in 1.7 to 4.3% causing the death of the fetus and 1,5 - 1,6% the cause of postnatal mortality (Gluhovec, 2002). The pathophysiological mechanisms of asphyxia are the same as when venous-arterial obstruction is made by wrapped umbilical cord causing hypoxia, loss of muscle tone and asphyxia. The study found a link between "tCAN syndrome" and the appearance of quadriplegics in children (Nelson and Grether, 1998). Children born with the wrapped nuchal cord two times are more likely to show a tendency of chronic hypoxia and are even eleven times more likely to get acute hypoxia. The incidence of cesarean delivery in the case of nuchal cord is 56% (Radzinskij, 2004). In examining possible causes of developmental dysphasia it was found that 45.2% of dysphasic children had nuchal cord (Punišić 2001; Punišić 2002; Čabarkapa et al., 2007).

In the available literature, except previous data, direct correlation between the occurrence of nuchal cord and verbal communication disorders is not highlighted but it is indirectly communicated. However, the consequences of the nuchal cord are at the same time the causes of the verbal communication disorders.

RESEARCH AIM

Aim of this work is to potentiate the appearance of nuchal cord, attempt to find the relationship between this phenomenon and other risk factors during pregnancy (especially maternal stress and the nuchal cord), but above all to examine influences on child development through physiological aspects of speech development and manifestations of verbal communication disorders (VCD).

Motives for seting up this goals are: 1) The fact that over 60% of children aged from 0 to 7 years have VCD and from this group of children over 30% had multiple disorders that exist as complex of deficites in speech, language, hearing, attention, behavior, socialization, learning and metabolic functions; 2) Lack of knowledge about the growing number of risk factors affecting the mother during pregnancy and child pre-, peri- and post-natal; 3) The impact of exploration and nuchal cord of the fetus on speech and language functions development; 4) The emphasis has to be on multidisciplinary and holistic approach to the diagnosis of VCD.

METHODOLOGY

The study included 1750 examinees aged from 0 to 11 years who were diagnosed with abnormal development of verbal communication, behavior, attention, and / or learning. All subjects underwent a diagnostic procedure at Institute for experimental Phonetics and Speech Pathology in Belgrade (IEPSP). Sample for this study were made out of 108 respondents whose common factor was the appearence of nuchal cord (subjects in which appearance of the nuchal cord was discovered intrauterine or perinatal). Other risk factors during pregnancy and childbirth were considered in order to examine their connection with the advent of the nuchal cord. Data were collected by the method of structured anamnestic interview with childs mother and insights into medical documentation related to mother and child during pregnancy, childbirth and early childhood development.

From the history data related to the mother (pregnancy and birth), following parameters were examined: the course of pregnancy (hormonaly maintained or not), the psychological status of the mother (presence of stress factors or not), birth term (before / after the term), way of delivery (induction, Caesarean section).

From the history data related to the child (prenatal and posnatalni period), following parameters were examined: Apgar (height score at birth), first cry (immediately cried or not), the need for: oxygenation and/or incubator, hypoxia, asphyxia, hyperbilirubinemia, hematomas, muscle tone (hypotonia, hypertension), torticollis.

We also included information about: speak out and walking age (in terms of standards or not) and speech language diagnosis.

RESULTS

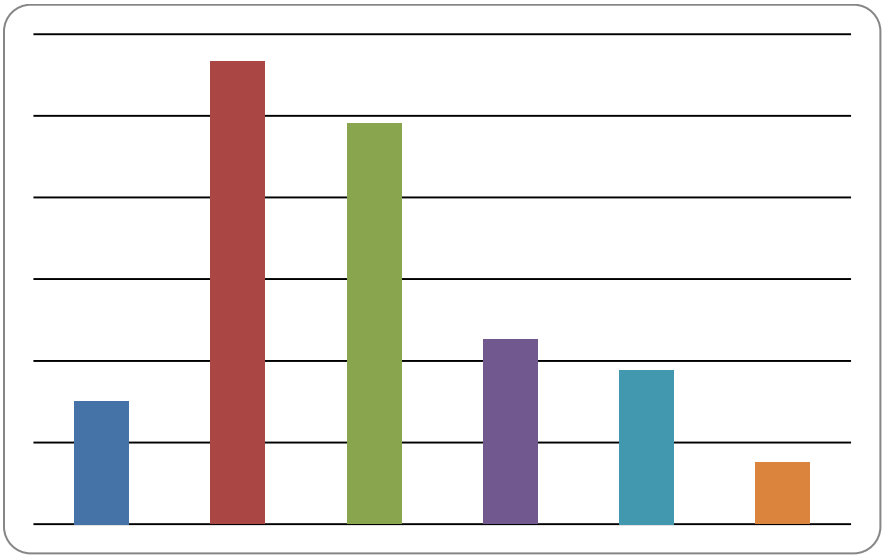

Figure 1. Frequency of different verbal communication disorders

Sample analysis showed next forms of VCD (figure 1): Disordo orationis expressive F80.1 (28,30%), Disordo orationis expressive/receptivus F80.2/F80.1 (24,53%); Disordines evolutionis pervasivi F84 (3,77 %); Disordines evolutionis specifici mixti F83 (9,43 %); Disordines

evolutionis facultatum scholasticarum specifici F81 (11,32%); Dislalia F80.0 (7,55%). It is noticed that the children were selected according to this criteria with difficult forms of VCD. Even though the children were not taken from the general population and therefore sample, in statistical terms, doesn't have normal distribution of VCD, frequesncy of the children with severe VCD sympthoms is high.

Developmental dysphasia expressive and receptive type were perdominant (52,83%) in our sample. Otherwise, the research (Punišić, 2002) has shown that 50% of dysphasic children born from high-risk pregnancies. From detected risk factors of dysphasic children poinded out are: a low Apgar score with values from 0-3 in 13.5% of children; from 4-7 at 44.2%; hyperbilirubinemia in 61.9%; followed by the presence of cerebral hematoma, asphyxia and hypoxia in a small percentage; 9.5% of mothers were exposed to stress; nuchal cord in 45.2% of children, that were diagnosed with developmental dysphasia.

In the given sample, average Apgar score was 8.5 and it coincides with similar researches in the world to suggest that the appearance of the wrapped cord is not directly associated with a low Apgar score. Hyperbilirubinemia is the most common risk factor but also the mother's stress which occurs in 33% of pregnancies, which is significantly higher than in the previous survey (Punišić 2002). The causes of increased maternal stress should be searched, inter alia, in the changed life circumstances. The survey in 2002 was conducted on the population of children who were born in 1998-2001. It was the period of war and turbulent social and political changes in Serbia. In our research children were born in the period 2010 to 2014. Although, conditionally speaking, this period obejtivly had less stressful circumstances then the period from 1998-2001, it turns out that it was more stressful for mothers (mothers). Deeper psychological and sociological analysis of the impact that certain social circumstances have may give an answer to this, at first glance, unexpected result.

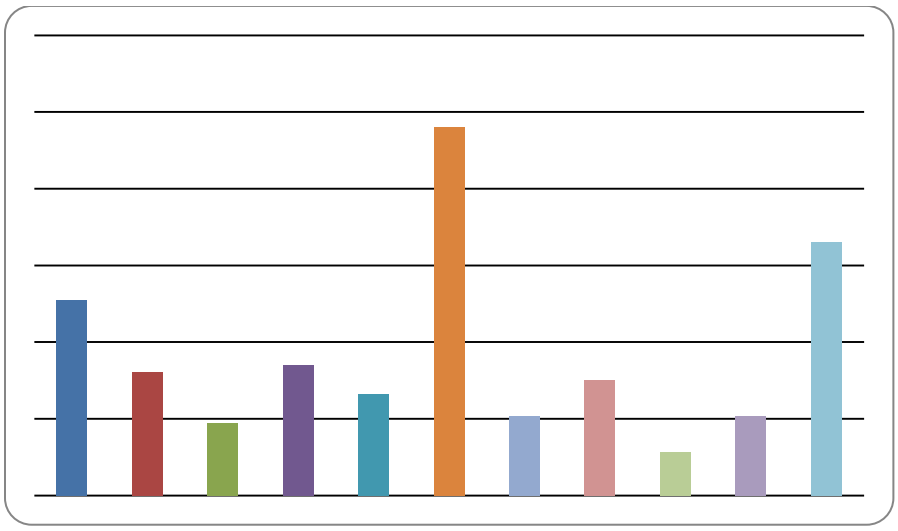

Figure 2. Frequency of different risk factors

In addition to the appearance of the nuchal cord (it is present in all examined subjects), in Figure 2 other recorded risk factors are shown. We highlighted factors with the highest frequency of occurrence: high levels of bilirubin (48.11%); Stress during pregnancy (33.02%); delayed first cry (74.5%).

Frequency below 20% was reported in following factors: asphyxia, oxygenation, hypotonia, need for incubator, the emergence cefal hematoma and torticollis. Frequency below 10% was reported in following factors: hypoxia, hypertension. The results of this study show that the probability of having nuchal cord, as a result of mother stress is 33%. To be able to talk about the connection between the occurrence of the nuchal cord and stress during pregnancy it is necessary to research this phenomenon in the population of persons without VCD. In literature there are no data that would indicate a connection between the nuchal cord and stress during pregnancy. From the total number of respondents (initial sample of 1,750 children) with verbal communication disorders 6,17% had the nuchal cord. This is significantly lower than the values obtained in other studies (Olejnik, 2013). The discrepancy may be due to differences in gestational week of childbirth when survey was conducted as well as the applied criteria (one or more times, weak or tight-wrapped cord etc.). Gumeesh (Gumeesh 2008) analyzed a large sample of pregnant women emergence of nuchal cord and found that in 5.65% of cases cord was tightly wrapped around the neck of an infant at birth.

These figures are more similar to our research, although there are no direct indicators in sample about strength degree by which nuchal cord was wrapped. The similarity with the aforementioned research suggests that even in our respondents nuchal cord was firmly wrapped. Although the "wrapped umbilical cord" do not directly associated with the VCD and almost always is associated with the occurrence of hypoxia or asphyxia, it would mean that the nuchal cord can indirectly influence occurrence of VCD. In the observed sample, according to previous claims, could be interpreted that 27% of the children had VCD (Figure 2). The percentage is significantly higher than in children with VCD and did not have nuchal cord (Punisic 2002), but it is comparable with data of Gluhovec (Gluhovec, 2002).

If the assumption is that the respondents had the nuchal cord tightly wrapped then it is seen that it does not lead, in most cases, to hypoxia and asphyxia, which is consistent with the findings of other researchers (Hankins 1987). However, in our sample 19.8% of the children had nuchal cord as the only risk factor (Figure 3). Since in these children never appears one of the considered risk factors in childbirth, especially hypoxia and asphyxia, the emergence of VCD can be associated with the effect of umbilical cord around the neck of the fetus intrauterine (before birth) or may be associated with other causes: genetically and environmentally. During intrauterine life wrapped cord can be tightened around the neck of the baby but the baby can relive its neck from nuchal cord by movements.

These interruptions of blood flows during pregnancy often remain undetected. However, "*greater than 50% interruption of umbilical blood flow is significant for creating fetal hypoxia. Sustained or repetitive compressions eventually lead to fetal compromise. Occlusion of the uterine artery has similar effects on the fetus with specific differences on the fetal heart and brain. Combined umbilical cord occlusion and uterine artery occlusion has effect on fetal organs and metabolism. Cord compression; whether chronic intermittent or acute, ultimately stimulates the fetus to shunt its blood flow, vasoconstrict its extremities, and protect itself through a centralized circulation (heart, adrenal, brain). Baroreceptor and chemoreceptor responses occur with release of catacholamines, cortisol, vasopressin, angiotensin and other biochemical agents to initiate a fetal response to developing hypoxia. Fetal metabolism of glucose and gluconeogenesis are induced by cord compression. Arterial lactate elevations may be a measurable results of umbilical cord compression. These protective steps over time can give way to bradycardia, vasodilatation, fetal hypotension, acidosis, depletion of glycogen stores, and blunting of the cortisol response. Eventually fetal compensation fails and peripheral*

vasodilatation occurs with heart failure, arrhythmias and fetal death. Short term rapid biochemical defenses such as catacholamines, are replaced by long term endocrine and paracrine biochemistry. These agents are metabolized at a slower rate eventually leading to devastating fetal effects" (Gumeesh, Ellora 2008). All this indicates that the emergence of "wrapped umbilical cord", even when there is no hypoxia or asphyxia at birth, can have a significant impact on the development of the fetus during pregnancy.

Hyperbilirubinemia and maternal stress often occurs as the accompanying risk factor. But our data do not indicate at the causality between these three risk factors. This conclusion can be extended to other risk factors that occur within the sample. Based on these data, it was hard to draw conclusions about the impact of "wrapped umbilical" on VCD. If a firm "wrapped umbilical cord" lead to disruption of the brain's blood supply and oxygen then it could also result in the development of subclinical deficits in neurodevelopment performance of the Child (Clapp et al. 2003).

Figure 3 shows simultaneous appearance of examinees risk factors. Number of risk factors, shown by apperence frequency, was 2 in 26,4% of examinees; 3 in 25,4%; 1 in 19,8; 4 in 11,3%; 7 in 8,4 %; 5 in 5,6 %. In small number of examinees, of 0,9%, same apperence of 6,8 or 9 risk factors were noticed.

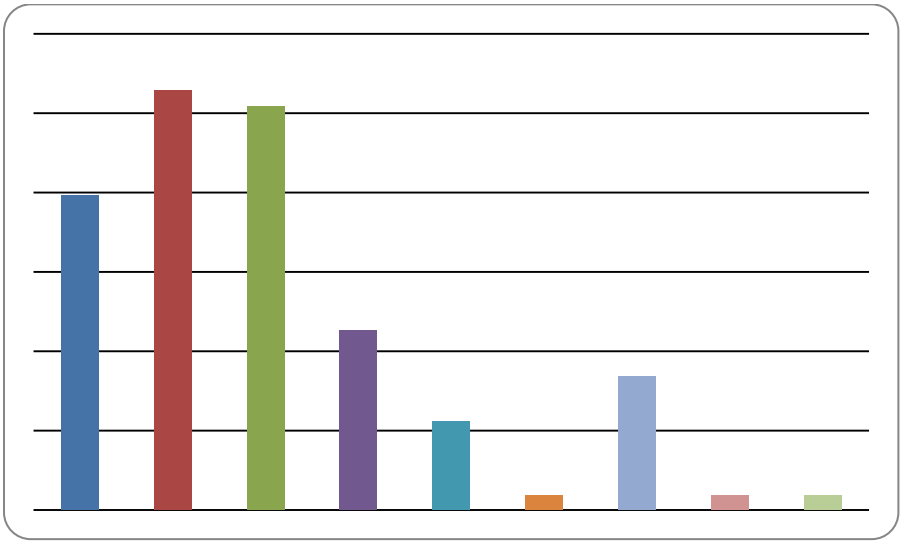

Figure 3. Number of risk factors by examinee

Due to the large number of associated risk factors that have emerged in the sample one question raised:whether and to what extent they are mutually dependent. Table 1 shows the correlation coefficients of certain risk factors for which the level of statistical significance was p <= 0.01. The highest correlation coefficient was obtained between the occurrence of hypoxia and the need for oxygen therapy after birth: 0,562 as well as hypoxia and the appearance of the first cry at birth: 0,552. If there is a correlation between the observed risk factor most frequently it was correlated with five other risk factors. It is interesting to note that within the sample bilirubinaemia, the presence of hematoma and torticollis are not correlated with any other risk factors. It turned out that, although small, there is a correlation between maternal stress and hypertonic and it suggests the need for further research about correlations of these two factors in the general population.

Table 1. Correlations between factors (Pearsons coefficient)

	Cried	Oxygen	Hypoxia	Asphyxia	Incubator	Hypotonic	Hypertonic
Cried		**.394****	**.552****	**.485****	**.348****	**.298****	
Oxygen	**.394****		**.563****	**.487****	**.437****	**.390****	
Hypoxia	**.552****	**.563****		**.370****	**.351****	**.495****	
Asphyxia	**.485****	**.487****	**.370****		**.343****	**.301****	
Incubator	**.348****	**.437****	**.351****	**.343****		**.303****	
High bilirubin							
Hematoma							
Hypotonic	**.298****	**.390****	**.495****	**.301****	**.303****		
Torticolis							
Stress							**.262****

** Correlation is significant at the 0.01 level (2-tailed).

Statistical analysis (ONE WAY ANOVA) shown that the number of risk factors have no effect on the time when the respondents spoke up F (N = 101, df = 5) = 1.66; p = 0.152. However, if we observe the individual risk factors, the most significant impact on the lingval phase start within the sample have hypoxia, appearance of the first cry at birth and the presence of hematoma (Table 2). Bilirubinaemia and mothers stress do not have a statistically significant effect at the beginning of lingual phase although they appear as the most common risk factors within the sample (Figure 2).

Table 2. Influence of risk factors to beginning of speech

Risk factor	**F**	**Sig**
Cried at birth	7,440	0,007
Hypoxia	7,450	0,007
Asphyxia	3,818	0,053
Incubator	4,393	0,039
Hematoma	6,925	0,010
Hypertonic	7,049	0,009

CONCLUSION

The results point out the complexity of the impacts that various factors, including risk factors, in pregnancy have on formation of a VCD. The appearance of nuchal cord significantly

increases probability of another two or three risk factors of which the most frequent ones are: hyperbilirubinemia and stress during pregnancy.

The consequences of the umbilical cord wrapped on a developing fetus, if not manifested at birth, presumably may remain undetected at the time but with far-reaching repercussions for the development of the individual. The fact that in taken sample we found 19.8% of children who at birth had the nuchal cord as the only risk factor supports the conclusion that the appearance of the nuchal cord should be included as the risk factor that could cause a VCD. The emergence of nuchal cord, especially with the remark that it was tightly wrapped, caused the appearance of almost three times larger number of children with hypoxia and asphyxia at birth and it is well known that these two Risk factors correlated with VCD.

The hypothesis that stress during pregnancy correlates with the appearance of nuchal cord was not confirmed by this study, although their correlation is mentioned in the works of other researchers.

It turned out that in a significant number of cases (33%) the occurrence of umbilical cord around the neck correlated with mothers stress during pregnancy.

Somewhat unexpected result of this survey is a statistically significant correlation (though the correlation coefficient is small r2 = 0.262) between the mother stress and hypertonic. Further investigations will show what is the connection between these two risk factors in the population of children with and without VCD.

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CAESAREAN SECTION AS DIFFERENTIAL AND DIAGNOSTIC PARAMETER IN DEVELOPMENTAL DISORDERS
(case study)

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Abstract. Every child comes into the world in the best possible way while experience acquired during conception, pregnancy and birth should prepare him to adapt to an environment in which will live (Gouni, www.iresearch4birth.eu). Caesarean section (sectio caesarea) as the final act of birth can be planned in situation when it is known that there is the impossibility for vaginal delivery, or emergency when during childbirth complications occur due to which it is too dangerous to complete birth vaginally. According to William Emmerson, there are several traumatic factors deriving from caesarean section, which affect the newborn. Research aim is to present: 1) Wheather and to what extent the effects of traumatic factors in caesarean are present in a child with clinical manifestations of receptive and expressive speech and language developmental delay; 2) In which manner the information about cesarean sections is important in terms of: - the assessment of the initial potentials for learning, emotional and social development in child`s development, - organization of audiolinguistic treatment; 3) Caesarean section as differential and diagnostic parameter. The problem is analyzed through the case study of the boy who at age of 2; 1 year was admitted in the Institute for Experimental Phonetics and Speech Pathology "Djordje Kostic" with clinical diagnosis of Dysphasia evol. expressive (F80.1) and Dysphasia evol. receptive (F80.2). He was born by Caesarean section which was planned. In addition to symptoms related to speech and language what regarded the boy as one of the age group from 10 to 14 months, he had a number of other symptoms: grinding of teeth (bruxism), refusal to chew food, latency and inconsistency in response to the stimulus, peripheral vision, walking on toes, indifference, non differentiated motor control of the lower and upper extremities, short and superficial interaction with children and adults, in the states of heightened tension peripheral vision was present, undeveloped protoimperative and protodeclarative gesture. Information about his arrival into the world by caesarean section was of great importance for the differential diagnosis between developmental dysphasia and pervasive developmental disorder as well as for the estimation of real child potentials and making the plan for audiolinguistic treatment.

Keywords*: Caesarean Section, Child Development, Expressive Speech and Language Disorder, Receptive Speech and Language Disorder*

INTRODUCTION

In the last half century hospital birth has become the standard birth and in the same period csection rates have risen up to 25 – 65%. Ironically birth has become more painful for babies. Pain-inflicting technological protocols of routine obstetrics are causing more traumatic births. Pain in babies is still denied (Chamberlain, 1999). Up to now many scientists and medical practitioners still believe that babies are born without an awareness and sensitivity about what is going on to their bodies and psyches; babies don't have any recollection of their prenatal life; babies are unable to experience what is going on during birth and no possible harm can be done to their emotional well being. From this point of view Caesarean birth is considered to be an easy and painless way of being born that has many advantages for both the mother and the baby. In the medical profession c-section is considered to be a safe, quick and routine surgery. This attitude gives rise to the increasing c-section rates for which there are numerable additional non medical factors responsible (Verdult, 2009, 2009ab).

Although caesarean birth has physical disadvantages and risks, the possible traumatic aspects of c-section birth in babies are ignored and denied. Most parents seek help in baby psychotherapy because they have problems with their babies. Intensive crying, sleeping difficulties and eating problems are the most common symptoms. Most parents don't have any idea what causes these problems; most of the time they don't have any idea about the emotional pain the baby is suffering from; they are surprised when we speak about the traumatic aspects of their child's birth. Trauma in children and especially in babies is still not recognized. Prenatal and perinatal psychology has shown differently. Babies are aware, conscious, interactive and social human beings. Fetuses and babies can react to signals from their environment and can be traumatized by overwhelming input to their system. Through the work of pioneers like Verny (1981, 1992, 2002), Chamberlain (1988) and Emerson (1998), we now know that babies can experience emotional pain, anxiety, rage, loneliness or sadness during and after birth. We now know that c-section birth is a traumatic experience to the baby with immediate and long term consequences.

Through thousands of years of human evolution (phylogenese) the human baby is being born through a narrow birth canal, which is developed out of a compromise between the narrowing pelvis of his mother enabling her upright position and the baby big head containing his human cortical brain (Janus, 1991). The human baby is the only species on this planet that needs an internal rotation in the birth canal in order to be born. This makes birth difficult and painful. Both the mother's and the baby's body have biochemical options to ease this pain. Birth is, in the words of Odent, a biochemical symphony, stating that we have biochemical solutions for this difficult process of entering the world. This birth process is biologically programmed in every baby. The baby knows when to activate his birth process, knows how to go through the birth canal, knows how to cooperate with his mother, and expects to end up in her arms. Any interruption of this process can be harmful, stressful or even traumatic to the baby. Csection birth is an abrupt and sudden interruption of this natural birth process. It is not only a different doorway being used, but also a violation of the biological birth programme that is stored in the baby and activated during birth. Trauma happens when any experience is threatening the baby; it overwhelms the baby, leaving it disconnected from the body. Any coping mechanisms are undermined and the baby is in a state of helplessness and hopelessness. Modern trauma research has shown that trauma is not in the event itself, rather trauma resides in the nervous system (Levine and Kline, 2007). This is also the case for babies. As trauma resides in the nervous system, the body is not going to forget about trauma. Caesarean birth can be seen as a traumatic event for the baby who has only very limited coping skills to deal with the situation and this trauma is stored in his body leading to physical symptoms.

According to Emerson (1998), pioneer in the field of giving support to children with a birth trauma, the next eight factors could be traumatic in the process of giving birth by Caesarean section:

1. Obstetrical intervention: which are necessary due to birth complications that lead to c-section; this kind of intervention is traumatizing a child additionally.

2. Cephalo-pelvic proportion: when the baby's head doesn't fit the mother's pelvis and the baby gets stuck with subsequent feeling of being helpless or maybe hopeless (this may later show up again as claustrophobia).

3. Interruption: The process is interrupted to be followed by another act.

4. Boundary Intrusion: The mother is cut openand the baby is reached over. This process, in the name of saving the child –which is true at times of emergency- involves violation, intrusion and a psychological shock.

5. Section dislodging: The baby is dislodged from the pelvis. This action causes a lot of confusion. Furthermore, the baby feels annihilated from the mechanical forces being applied.

6. Section lifting: The baby is lifted out of the uterus in a rather abrupt way and this is associated with difficulties in transitions.

7. Separation and Abandonment: The baby is taken away from the mother/parents and this may be associated with separation/abandonment patterns in later life.

8. Parental Stress: The birth does not go as planned. In most cases, parents feel frustrated and due to the symbiosis between mother and baby, this parental stress/frustration etc increases the traumatisation of the baby.

Symptoms that appear in a child and are a consequence of a Caesarean section can be divided into somatic and psychological.

A. THE SOMATIC SYMPTOMS

1. There is an increase in the level of stress hormones in the body of the newborn which can be measured through the usual medical tests.

2. There is physiological reactivity. The baby – especially when the birth process started as a natural vaginal birth but then due to emergency it had to change into c-section- presents changes in physiological readings such as respiration patterns or cardiac rhythm, every time there is a simulation of the passage in the birth canal. An example of this re-experience is when we dress the child and a tight garment goes down the head applying pressure to the head and upper torso of the baby.

3. C-section babies cry more often and for longer periods of time, most of the times parents feel incapable to find out the reasons for this crying.

4. C-section babies are more delicate when squeezed or held presenting contact difficulties.

5. C-section babies when they breastfeed may present stress as they may experience as if they are drawing.

6. C-section babies show regressive patterns.

B. THE PSYCHOLOGICAL SYMPTOMS

1. Grounding difficulties

The C-section born person seems not to be 100% grounded in our world, has feelings of not belonging to our world or not being part of this world and most of the times he looks back, to the past, and sees the old in the new missing the opportunity to take the wisdom from the past experience and bring the WISDOM of the past to the present.

2. Difficult to relax

As a result of the interruption of the natural cycle where life force and eternal force (zoe and vios) meet, the c-section person,

a. finds it difficult to relax naturally and let go,

b. Is usually stressed and tired/exhausted,

c. In his effort to relax, he is involved in activities that culminate in a peak experience eg work too much or too hard or do a lot of sports to get the sense of getting rid of the excess energy or get drugs, or resort to alcohol to relax in a non natural way.

As a result of the interruption of the natural cycle where life force and eternal force (zoe and vios) meet, the c-section person.

3. Difficulties with the time element

Every birthing process starts at the moment when both involved are ready to do it. With the help of biochemical procedures, the message is exchanged and the birthing takes place as a respectful, deep, internal dialogue between the baby and the mother/environment. In the case of cesarean section, this element is missing. Other factors get in the way and the birthing process starts without the consent of the baby, thus reducing such a significant event to a profitable opportunity, or an event that can be controlled by others. Consequently, the person may feel:

a. I have no rights. I have to behave, function, live my life according to the programs, needs and/or decisions of the others,

b. Often, they experience a huge internal stress when they have to meet deadlines,

c. They procrastinate and leave everything to the last minute. The internal stress is high.

4. Anaesthesia

In cesarean, mother gets anaesthesia, either full or epidural. The quantity of the drug is calculated taken into account the mother. The anaesthesia gets to the system of the baby too and it causes a numbness to the baby, esp. the baby loses the function of his extremities and as a result he loses means to co-operate with the mother at this specific moment, so that he can co-create. The psychological effects of this are:

a. The person loses faith/trust in himself: I can't support myself,

b. I can't fulfill my own personal goals,

c. At moments when I need to have all my best aspects of me alert and at a peak performance, I numb and stay helpless. Eg. I have to give important exams and there I am feeling that I have forgotten everything. Or when involved in a sexual intercourse and just before the peak of the orgasm, I fail,

d. The person fails to experience the union in the mystery of the divine,

e. Perinatal Bonding.

Because of the full anesthesia given to mum, or when the c-section took place because of an emergency and mum has to be looked after as there is a danger for her, the newborn misses the opportunity to bond perinatally during the first 45 minutes after birth. Consequently, this loss of opportunity affects the way the baby will bond with others in life, he will find it difficult to experience mutuality and/or the fact that he can love and be loved in a deep level.

5. Fear

Especially, in the cases of emergency cesareans, but in planned cesareans too, there is a lot of fear involved. A fear that gets trapped in the system.

6. Intervention

In C-sections, besides the already mentioned experiences of violence and disrespect, there is also the outside intervention that either allows the salvation of the life of a baby blocked and at risk, or dislodges a baby not still ready. Depending on the circumstances, the baby may

harbor either relief for the outside support or harbor anger for the outside intervention. What we can later see are:

a. The C-section born person does not easily bring his tasks to a successful end without outside help or the expectation for outside help.

b. Often, he expects someone to SAVE him finish with domestic tasks, studies, relationships, etc even the sentence he starts when speaking.

c. Manipulates the environment with whatever mechanisms he can think of, playing it dumb and I can't do it among them too, so that he can secure that he gets the support he needs or thinks he needs.

d. He recreates emergency situations in his everyday life, such that ask for an outside intervention to heal.

e. The paradox is that although they get the outside help in cases of danger, they may harbor and express anger against the one who saved their life.

f. When close to the completion of a task, he gets numb, feels frustrated, experiences anxiety, fear, frigidity, stress…

g. Hesitates and this behavior of his can be mi-stranslated as ambivalence or suspicion.

h. When the outside help or the expected help does not come, then the person acts in ways that can bring him in front of unpredictable dangers.

i. The person lives a life in which violence is part of the day. This brings the person experience abuse or sexual abuse later on in his life, making relationships even more difficult.

RESEARCH METHODOLOGY

The problem is analyzed through the case study of the boy who at age of 2;1 year was admitted in the Institute for Experimental Phonetics and Speech Pathology "Djordje Kostic" with clinical diagnosis of Dysphasia evol. expressive (F80.1) and Dysphasia evol. receptive (F80.2). He was born by Caesarean section which was planned. In addition to symptoms related to speech and language what regarded the boy as one of the age group from 10 to 14 months (phase of onset speech), he had a number of other symptoms: grinding of teeth (bruxism), refusal to chew food, latency and inconsistency in response to the stimulus, peripheral vision, walking on toes, indifference, non differentiated motor control of the lower and upper extremities, short and superficial interaction with children and adults, in the states of heightened tension peripheral vision was present, undeveloped protoimperative and protodeclarative gesture.

RESEARCH RESULTS

In the beginning there was an abundance of symptoms in the clinical picture that indicated a pervasive developmental disorder(qualitative damage of reciprocal social interaction and forms of communication and obscure, stereotypical repetitive repertoires of interests and activities). However, the information about his arrival into the world by caesarean section was of great importance for the differential diagnosis between developmental dysphasia and pervasive developmental disorder as well as for the estimation of real child potentials and making the plan for audiolinguistic treatment. Aside from the stimulation of speech-language development, especially important was to:

1. Detect pain-sensitive areas in the body (neck, lower jaw, legs and arms) and work on desensitization and stimulation,

2. Excercises for making contact with their body parts (cuddling and massage),

3. Relaxation exercises,

4. Rhythm exercises,

5. Everything in an atmosphere of complete empathy, understanding, trust and love between a) therapist and parents in order to reduce their frustrations and stress, which, as an extra factor, added to the child`s improvement,

6. The occurrence of all activities with the "consent" of the child and respect for the child`s right o,

7. The occurrence of all activities with the incentive "you know it", "you can",

8. Work in a group,

9. Work with more therapists (individually or in a group),

10. Small home-works which the child does alone and/or with the support of family members.

Considering that the child was accepted to the treatment because of the absence of speech-language communication at the age of 2 and 1 month, but also the absence of speech perception, the improvement in the area of speech and language, as the most complex psychophysiological function, is considered to be a success parameter of the treatment.

After a year and ten months of treatment, the child has significantly improved (age 4 now) on the plan of:

1. Speech and language:

- Has a vocabulary of 500 to 1000 words.
- Can identify its own gender.
- Can recognize the object being used based on an image:
  - "Show me something that is good to eat?"
  - "Show me something you wear."
- Begins to compare certain colours.
- Uses adjectives and prepositions.
- Knows to describe three pictures.
- Counts in order until 5.
- Has 50 to 70% of consonants.
- Is aware of similarities and differences.
- Knows how to sing a song.
- Knows how to name three colours.
- Does two tasks at the same time.
- Can imitate a rhythm of 4 tats-motoric.

2. Shows a relatively good level of group integration amongst peers of the same age.

Problems which are still evident at this period are: vowel pronunciation disorder, just now agrees to draw and colour with a bad grip of the pencil and still has a undifferentiated motoric ability of upper and lower extremities,in the state of emotional excitement leads to hyper excitement and synkinesis present in the regions of the mouth and hands together with walking on toes.

CONCLUSION

1. The data from anamnesis about the Caesarean section as a way of coming into this world opens up a significant dimension of looking at the child and its birth experience.

2. Recognizing the symptoms of a Caesarean section (which are subsumed under a specific) is valuable is order to find the most adequate ways to aid a child and bring it to the level of realization of its full potential through:

- loss or rare exibition of somatic (bruxism, walking on toes)
- reduction of latecia and faster response to the,
- complete functionality in all shapes of,
- emotional tability, awareness, on the way to a unique human.

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INTEGRATED AND PSYCHOPHYSIOLOGICAL APPROACH IN THE ASSESMENT OF CHILDREN WHO HAD RISK FACTORS IN PRE, PERI AND POST-NATAL PERIOD

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Abstract. Basic characteristics in brain substrates development during prenatal and early postnatal period are proliferation, transposition and differentiation of cellular tissue. They are funded at the end of the last century and represented the beginning in exploration of enormous dynamism for differentiation not only macroscopic phenomena suitable in new research methods (ultrasonography, magnetoencephalography) but also those essential reflected in the processing of information different modalities from fetal period onwards. Macroscopic manifestations of cerebral cortex maturation (formation of gyrus and sulcus and their integration into functional systems units) observed by ultrasonography, provide significant insight into the assessment of maturation as well as in the field of abnormal changes. However, it was shown that genetic factors and factors from the external environment (the force of gravity, speech and sound information, psycho-physical condition of pregnant women - stress) can be decisive factors for further child development, either normal or abnormal. By proving the processing of information in the early postnatal development, although it is on the border between experimental and routine assessment of developmental characteristics, we try to assess voltage and frequency connections of brain regions in EEG activity which provide the evaluation of conscious and subconscious functioning as well as the dynamism of open and closed consciousness, when the child is exposed to various simple or complex stimuli. Such researches have revealed the existence of prenatal samples in auditory information processing and enabled the detection of language based on images in children who do not speak but understand speech as well as right hemisphere localization of fast alpha activity during fascinating light stimuli in children with pervasive syndrome. They also indicated the possibilities for better understanding of increased closed awareness compared to open awareness during information processing in children with memory and learning disorders.

Keywords: *Prenatal Risk Factors, Perinatal Risk Factors, Postnatal Risk Factors, Information Processing, Brain Development*

INTRODUCTION

The basic question about stress is still controversial: when it acts as an adaptive response in human and animal species, and when as a mechanism of failure to adaptation (adaptation disorders) that can be transferred through genetic basis. The reason for this seems to lie in unknown effects of different stress factors at the cellular and metabolic levels, which in humans takes place in the proportion of brain structures that have evolved during phylogeny of the human species and lie above the frontal regions. Therefore, experiments on animals may only help in explaining the mechanisms of stress on the level of limbic structures that lie deep in the frontal region and downstream trees of these regions to the main - hypothalamic exit as well as on the level of their associated vegetative and hormonal systems, primarily of anterior pituitary and adrenal cortex.

Response to stress on neuroendocrine system

The response of an organism to environmental challenges activates central and peripheral circuits; namely the hypothalamic-pituitary-adrenal (HPA) axis, the central limbic stress loop, and the sympathetic branch of autonomic nervous system (Avishai-Eliner et al, 2002; Maccari and Morley-Fletcher, 2007).

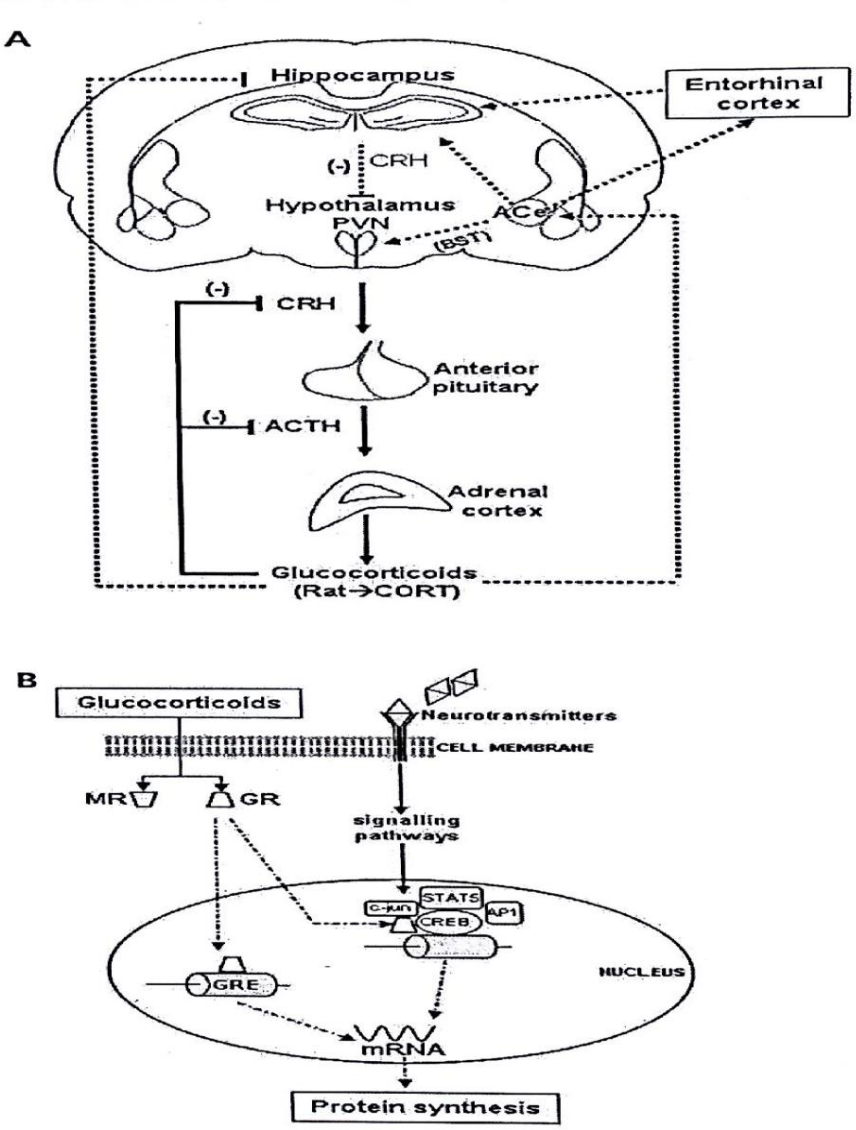

Figure 1. Stress activated pathways comprising the neuroendocrine hypothalamic-pituitary-adrenal axis (solid lines) and thecentral limbic stress loop (dashed line) are shown in **A**; and intracellular interactions of activated corticosteroid receptors are shown in **B** (BST: bed nucleus of stria terminalis, ACe: central nucleus of the amygdala; GRE: glucocrticoid response elements; AP1: activator protein 1; STAT5: signal transducer and activator of transcription 5; CREB: cAMP responsive element binding protein (Ulupinar, 2009)).

By observing Figure 1, we will notice the limbic frontal structures and their main thalamic output with the involvement of the endocrine system in response to stress. More negative and positive feedback connections were proven in rodents (Owen et al, 2005). The next structure participated in these connections: nucleus of the amygdale (ACe), enthorinal cortex, the paraventricular nucleus of stria terminalis and locus ceruleus. These structures during the stress situation stimulate by releasing the CRH hormone the increased production of the norepinephrine and glucocorticoides. Mentioned hormones in normal stress situation enhance the adaptive properties by the direct impact on cellular metabolism via sympathetic vegetative system, (Ulupinar, 2009).

The activation of the sympathetic nervous system in response to stress increases the secretion of catecholamines and norepinephrine. While norepinephrine possesses a stimulatory role on corticotrophin –releasing hormone (CRH-neurons) in the hypothalamic paraventricular nuclei (PVN), catecholamines involve in the hippocampal glucocorticoid negative feed back mechanism by modulating corticosteroid receptor levels (Herman and Cullinan, 1997; Barbazanges et al., 1996). Therefore, these central and peripheral hormonal cascades are closely interrelated with each other and ultimately cause elevated level of catecholamines and glucocorticoids in both maternal and fetal circulation.

The mechanism of the normal stress response

It seems that the structures of the limbic system are primarily responsible in initiating the reactions to stress. These structures control the responses to something ~new~ and ~unknown~, which can mean something horrible or dangerous and is primarily related to the emotional state of an individual.

However, this will be imprinted as negative or positive experience in the repertoire of behaviors as something ~known~, ~remembered~ or ~learned~, and it can be used in the future in form of avoidance or convergence. This learning is known as declarative learning and is mostly represented in the animal life as a reaction of survival, but it also has the great importance in preverbal and verbal developmental stages of a human being. It is extremely sensitive in period when we the babies are teaching by sustaining (rewarding) when elderly encourages babies (incentive depending on the importance of external reaction for the adaptation of babies).

Thus, in human species, declarative learning is selected and very soon accompanied by procedural learning. This happens by co-opting of cingulatum cortical structures and prefrontal structures. The biggest unknown facts lie just in the domain of prefrontal structures inclusion, because thanks to them (in addition to learning systems), higher forms of inhibition which consider abnormal events in terms of knowledge and training are engaged.

Generally, the two routes of stress go from the central nucleus of amygdala: 1. route - downstream path - by the locus ceruleus triggers the releasing of norpeinephrine and 2. route - upstream path - via the hypothalamus releases cortisol. Accordingly, the stress starts in the sensory cortex or in the afferent cerebral structures, and in both cases stimulation takes place in the thalamus.

Norpeonephrine path is responsible for the selective attention, readiness and activation of sympathetic somatic effects. Hypothalamic path is responsible for the activation of corticotropin, vasopressin, declarative memory and emotional learning. Both paths are responsible for the affective reactions to stress. The overcoming of stress in normal conditions is caused by excess of norepinephrine which by the hypothalamus and ACTH inhibits corticotrophin-releasing hormone (CRH) and, finally, increases endogenous opiates which leads to the restitution of homeostasis and to increasing the pain threshold.

Completion of stress situations

It seems that the isolation of thalamus from the sensory afferentation is main condition for conscious falling asleep. It also appears that the isolation is necessary and is initiated by cholinergic fibers of the frontal brain. It also seems that the reduction of ACTH starts waking up in a dream.

The mechanism of stopping the stress reactions depends on many factors such as mental development of individuals, but primarily of the age and type of the stress. Theoretically, the completion of stress is related to the disappearance of stress factors when activated limbic structures are extinguished and come up with memorization and temporary balance.

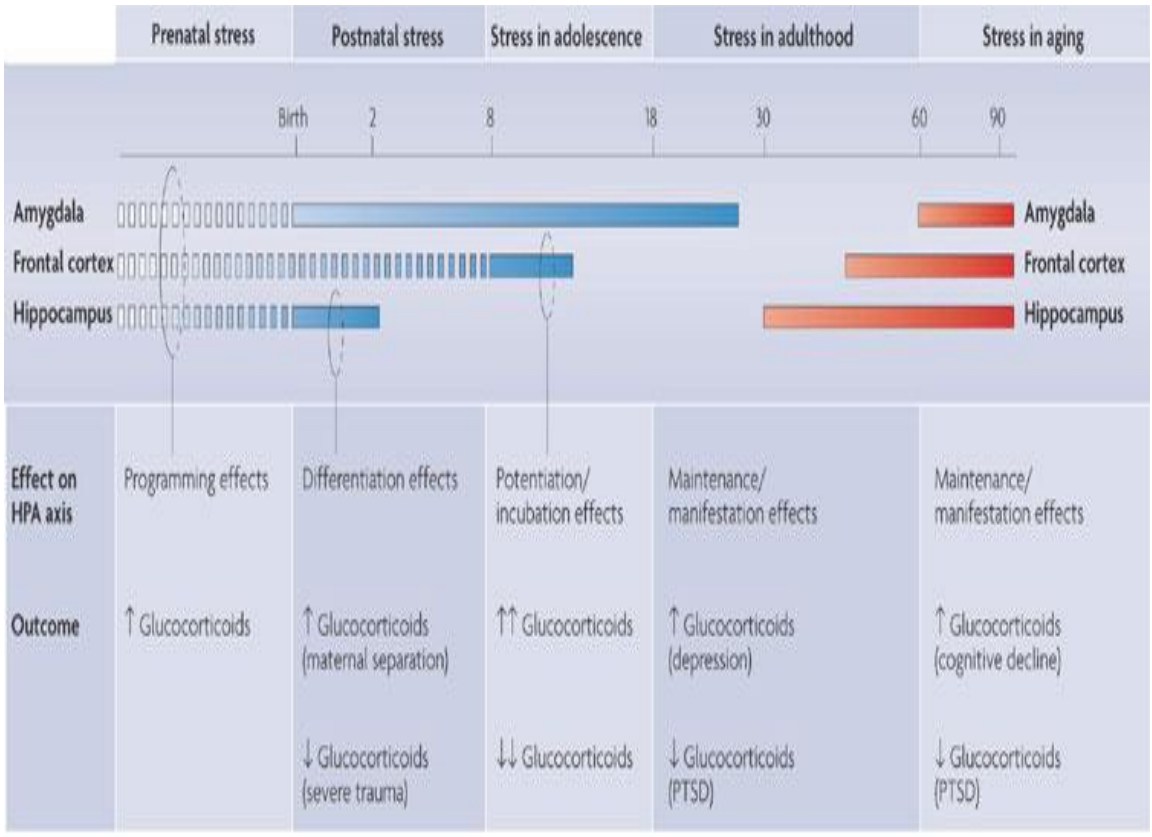

Figure 2. The life cycle model of stress (Lupien et al., 2009)

The effects of stress in various stages of individual human development are shown in Figure 2. It suggests that differential effects of prenatal conducted stress are expressed earliest in function of the hippocampus, and then at the age from 2 to 8 years in function of amygdale structures that are certainly involved in the occurrence of elevated or abnormal reactions to normal postnatal stimuli (dressing, bathing, transferring, lowering as well as the circadian rhythms of sleep and feeding, and in response to a something~new~). At the age from 4 to 6 years, difficulties in procedural learning that requires the inclusion of the front cingulatum and prefrontal cortex may appear. In our examination, children from both experimental and control group were at this age.

Many babies whose mothers have stress during pregnancy, and often in early childhood, may have poor sleep, with awakening, crying and screaming and may show a spectrum of circadian rhythms disorders.

Animal experiments have convincingly demonstrated that prenatal maternal stress affects pregnancy outcome and results in early programming of brain functions with permanent changes in neuroendocrine regulation and behaviour in offspring. Apart from the well-known negative effects of biomedical risks, maternal psychological factors may significantly contribute to

pregnancy complications and unfavourable development of the (unborn) child. These problems might be reduced by specific stress reduction in high anxious pregnant women, although much more research is needed (Mulder et al., 2002).

However, exposure to excessive or deficient levels of stress hormones or cytokines at inappropriate times of gestation may increase vulnerability to neuro-developmental disorders and psychopathology (Swanson and Wadhwa, 2008). Several studies demonstrate that fetal exposure to inappropriate levels of biological stress mediators, which may occur during exposure to excess maternal stress or other adverse intrauterine conditions, can exert detrimental effects and interfere with the long-term trajectory of gray and white matter development (Uno et al., 1994). In concordance with results in animals, in humans high placental corticotrophin-releasing hormone (CRH) and maternal cortisol were associated with impaired fetal maturation, infant mental and motor development, and infant temperament (Class et al. 2008; Davis et al., 2010; Bergman et al., 2010). Other authors highlight the complex interplay between prenatal stress exposure, associated changes in miRNA expression and DNA methylation in placenta and brain and possible links to greater risks of schizophrenia, attention deficit hyperactivity disorder, autism, anxiety- or depression-related disorders later in life. On the basis of these data they proposed that prenatal stress, through the generation of epigenetic alterations, becomes one of the most powerful influences on mental health in later life (Babenko et al., 2015).

Our tendency was to consider the involvement of the CNS physiological and anatomical structures responsible in informations processing. We classified informations on those that are perceived as directly stressful and those that are transferred through genetic basis (hereditary or created due to accidental situations). It is necessary to acquire knowing regarding the networking of mentioned brain structures with aim to create psychophysiological interpretation of disorders in the central brain control. Psychophysiological approach gives us the possibility of gaining ethiopathogenesis and appropriate habilitation treatment.

AIM AND METHOD

Research aim was to summarize the aspects of stress events starting with those at the cellular and metabolic level, through the structures of the limbic system and the hypothalamic output with the reactions of the endocrine system. Emphasis is placed on the neurophysiological examination of children who have developmental language disorders and elements of pervasive syndrome, in which the stress was recorded in the prenatal period. The examination included monitoring the reactions of their prefronto-frontal structures in processing of auditory information compared to children from the control group.

The Experimental group consisted of 7 children, 3 to 6 years old, who have diagnosis of delay in speech and language development with elements of pervasive syndrome. These children were on continuous treatment in Institute for experimental phonetics and speech pathology in Belgrade, where the EEG cartography was performed. None of children had paroxysmal epileptic activity. Control group consisted of 5 children, 3 to 6 years old who have typical speech and language development.

EEG recording was peroformed on NEUROFAX apparatus in longitudina monopolar montages with electrode arrangement 10/20 (19) and with reference electrode on both ears. The recording was done in the period from 11.a.m. to 15.p.m in a quite room. Each child was sitting in conformal chair, in the position which was the opposite from the source of auditory stimulation. Listening of auditory information included the period of 3 minutes as well as the

period of peaceful condition. Auditory stimulation consisted of listening the story talked by unknown female person. Childrens'parent were not in the room during the examination.

RESULTS AND DISCUSSION

Table 1. Possible stress factors during pregnancy in relation to children` diagnosis, early physical development and CARS test in Experimental group

Patients	Age	Time delivery	Body weight	Diagnosis	CARS test	Possible stress factors in mothers during pregnancy
S.O.	3	Term delivery	Proper body weight (above 2500g)	F80.1 et F80.2	30	depression, fear of losing baby, multicultural environment
S.N.	6	Term delivery	Proper body weight (above 2500g)	F84	40	unplanned pregnancy, fear of pregnancy outcome
C.K.	4,5	Term delivery	Proper body weight (above 2500g)	F84	29	rejection of pregnancy
C.M.	4,5	Term delivery	Proper body weight (above 2500g)	F84	36	physical and psychological abuse of mother during pregnancy
A.I.	4	Term delivery	Proper body weight (above 2500g)	F80.1 et F80.2	37	diagnosed psychoses in closer relatives
S.M.	6	Term delivery	Proper body weight (above 2500g)	F84	30	divorce and mother's anxiety
L.N.	3,8	Term delivery	Proper body weight (above 2500g)	F84	39	psychoses in father

Table 1 presents possible effects of psychological trauma on physical and psych-omotor child development. It defined possible stress factors in children from experimental group. It can be clearly observed that stressful prenatal factors did not have consequences on gestational age nor on physical development in chidren from E group. All children had developmental speech-language delay, the CARS test showed limited or discrete positive values. However, all children had a history of late beginning to walk, sleep disorders and adjustment disorder to environment.

Table 2 shows activated regions regarding maximum spectral powers in alpha 1, alpha 2 and beta rhythms during auditory information processing in C and E group. We considered that it was realistic to expect that within three investigated cerebral rhythms: alpha 1 (8-10), alpha 2 (10-12) and beta (13-20) Hz, it was possible to expect the changes in quality of auditory information processing regarding the possible stress factors and in the scope of the aforementioned clinical diagnosis.

The table 2 illustrates that children from experimental group processed auditory information mostly within the primary auditory region, unlike the children from control group who primarily involved associative and complex auditory regions during this processing. It is also showed (which is even of greater importance) that the prefrontal and frontal regions are significantly less activated in children from experimental group compared to children from control group. This indicates that chronic stressful factors during pregnancy (which were registered in experimental group) disturb the processing of both the frontal and prefrontal regions and that this phenomenon is likely linked to children' difficulties in speech and language development as well as to the presence of mild or moderate elements of pervasive syndrome.

Table 2. Activated regions regarding maximum spectral powers in alpha 1, alpha 2 and beta rhythms during auditory information processing in C and E group

Groups	Patients	Activated regions in observed rhythms		
		Alpha 1 (8-10 Hz)	**Alpha 2 (10-12Hz)**	**Beta (13-20Hz)**
Control Group (C)	P.D.	**Fz, O1, O2**	**F3, C3, O1**	**T4, T6, O2**
	S.M.	**Fp1, Fp2**	**T5, P3, O1**	**T3, T5**
	P.M.	**Fz, O1, O2**	**O1, O2**	**O1, T5**
	T.T.	**Fz, Cz**	**O1**	**O2, T5**
	L.J.	**Fp1, Fp2**	**O2**	**T3**
Experimental Group (E)	S.M.	**O1, T5, T3, O2**	**P3, O2**	**T3, T4**
	L.N.	**C3, Cz, F8**	**T3**	**T3, T4**
	A.I.	**T5, T6**	**-**	**T5, T6**
	C.K.	**T3, T5, T4, T6**	**F8, F7, T5, T6**	**Fp1, T3**
	N.S.	**T5, O1, T3, T6, O2**	**T5, O1, T6, O2**	**O1, O2**
	C.M.	**O1, O2**	**O1, O2, Pz, P4**	**O1, T3, T4**
	O.S.	**T3, T5, O1, O2, T4, T6, Fz**	**O1, O2**	**T3**

CONCLUSSION

The field of researching the ethiopathogenesis of psychomotor functioning disorders at the earliest ages is very wide, and presently a larger number of sciences (hypotheses) dominates above the specific findings.

Neurophysiological studies can be useful in contributing of some new specifics associated with the respective psychophysiological understanding regarding early manifestations of consciousness and its disorders.

The main purpose of these studies is to raise awareness about prenatal stress effects in disease outcomes which are critically important, with aim to improve current prevention and intervention strategies and assist a healthy life trajectory. Such awareness is critical for developing recommendations for a life style that supports healthy development and successful aging in the presence of a stressful environment.

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PRENATAL MATERNAL STRESS AS RISK FACTOR IN CHILDREN WITH AUTISM SPECTRUM DISORDER

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Abstract. Autism spectrum disorder (ASD) is a complex neurobehavioral disorder that includes impairments in social interaction and developmental language and communication skills combined with rigid, repetitive behaviors. There is a number of genes associated with autism spectrum disorder (ASD), but nowdays, it's likely that both genetics and environment play a role. The offspring of mothers who experience high levels of stress during pregnancy are more likely to have problems in neurobehavioral development. There is preliminary evidence that prenatal maternal stress (PNMS) is a risk factor for autism. Outside of a few rare autism syndromes, autism appears to result from a complex and incompletely understood interplay of genes and experiences that alter early brain development. The ASD could result from the disruption of normal brain development early in fetal development caused by defects in genes that control brain growth and that regulate how brain cells communicate with each other, possibly due to the influence of environmental factors, such as maternal stress, on gene function. Whether prenatal exposure to stress could be etiologically significant in AD is an issue that has received little attention, but could be important for clinical as well as scientific reasons.

Keywords*: Autism, Maternal Stress, Environment, Genes, Brain*

DEFINITION OF AUTISM SPECTRUM DISORDER

Autism is a neurodevelopmental disorder of social reciprocity and communication, with a specific behavioral profile consisting of repetitive behaviors and restricted interests. It was originally added to the Diagnostic and Statistical Manual of Mental Disorders in its 3rd edition, and over time, the diagnostic criteria have undergone some significant changes. In DSM-III, the criteria were based on the original Kanner cases and were considered very strict. In DSM-IV, the spectrum was widened to include less severe forms of the disorder (pervasive developmental disorder (PDD) not otherwise specified (NOS) and Asperger disorder). In the most recent DSM-5, all the subgroups were combined into one diagnosis of autism spectrum disorder (ASD). ASD begins prenatally and is associated with morphological abnormalities and changes in functioning in the developing brain. The disorders are diagnosed based on behaviors and requires that the child show deficits in social communication and social interaction across contexts, including deficits in social-emotional reciprocity, nonverbal communicative behaviors used for social interaction, and in developing and maintaining relationships. In addition to these deficits in social communication and interactions, the child is required to show an unusually intense concentration on a narrow set of interests and/or stereotypic behaviors which may include hyper- or hypo-reactivity to sensory input. These behavioral deficits are often, but not necessarily, accompanied by learning deficits as well as anxiety disorders. ASDs are now diagnosed in more than 1 out of 100 children. In the general population of individuals diagnosed with an ASD, the male-to-female ratio is about 4:1 (Fombonne, 2003)

ETIOLOGY

The etiology of ASD is believed to be multifactorial (Gardener, Spiegelman, & Buka, 2011), and researchers believe that ASD is caused by interplay among genes (Anderson et al., 2009, Bill and Geschwind, 2009, Bowers et al., 2011) and between genes and environmental factors (Hallmayer et al., 2011, Herbert, 2010 and Landrigan, 2010). Most AD cases do not follow a Mendelian pattern of inheritance, and in non-Mendelian disorders, environmental factors often determine whether individuals who carry susceptibility genes become ill (Smalley et al., 1988). Recent research in both animals and humans has discovered a number of gene-environment interactions in which exposure to a pre- or post-natal environmental pathogen causes a behavioral disorder only if an exposed individual carries a specific genetic variant (Caspi and Moffitt, 2006 and Rutter et al., 2006). In one type of gene–environment interaction (Meaney and Szyf, 2005), prenatal and perinatal stress has long-lasting effects on expression of genes that modulate postnatal responses to stressful events.

Based on the observation that concordance rates for ASD in monozygotic twins is about 70–90% (Bailey et al., 1995; Folsteinand Rutter, 1977; Hallmayer et al., 2011; Rosenberg et al., 2009; Taniai et al., 2008) and the early observation that concordance rate in dizygotic twins is low, 10% or lower (Bailey et al., 1995) it was concluded that the genetic heritability for ASD is very high. However, several larger studies have now found that the concordance rate for ASD in dizygotic twins is around 30% (Hallmayer et al., 2011; Rosenberg et al., 2009; Taniai et al., 2008), much higher than the 8–17% concordance rate for non-twin siblings (Constantino et al., 2010), strongly suggesting that environmental factors influence the etiology of ASD. The environment can shape the phenotype of an organism, especially early in development when the organism demonstrates greatest phenotypic plasticity. These current twin studies are making it increasingly clear that the environment too plays an important role in the etiology of ASD and a first report stating that environmental factors may be more important than genetic factors has been published (Hallmayer et al., 2011) In the last few years specific environmental factors, especially prenatal and perinatal, have been implicated in increased ASD risk (Gardener et al., 2011; Kinney et al., 2008; Kolevzon et al., 2007; Newschaffer et al., 2007). It is becoming ever clearer that genetic and environmental effects cannot be seen as independent factors, and the importance of their combined study is increasing.

Prenatal stress and increased risk of ASD

Both human and animal studies have found significant relations between prenatal stress and postnatal problems in a variety of behavioral domains, such as attention, language, and learning (Mulder et al., 2002 and Weinstock, 1997). Adverse effects of prenatal stress also include spontaneous abortion, pre- and peri-natal complications, congenital anomalies, and neurological and immunological abnormalities. Prenatal stress can also have a variety of effects on brain development including, for example, delayed myelination, elevated sensitivity of the amygdala to GCs, and abnormal development of the dopaminergic system (Glover, 1997, Herrenkohl, 1986 and Mulder et al., 2002).

There are some studies which have found that prenatal exposure to stressful events is associated with increased risk of ASD. Ward (1990) compared data from prenatal records of 59 mothers of ASD children to records of a matched sample of 59 mothers of healthy children. He found that the mothers of ASD children reported having experienced significantly more family

discord during the pregnancies with the AD children: 19 of the mothers of ASD children, but only 2 of the control mothers, experienced discord during their pregnancies with their children.

In a similar study, Beversdorf et al. (2005) found that 188 mothers of ASD children reported having experienced significantly more stressful life events – such as job loss or death of husband – during their pregnancies than did 202 mothers of typically developing children. The authors report that the child's age at the time the mothers reported on stressful life events they experienced during their pregnancies, which might potentially have affected mothers' recall accuracy, was not, in fact, significantly correlated with the number of stressful life events reported.

In summary, two different types of studies, using complementary research designs, have found significant associations between prenatal stress and increased risk for ASD. Both types of studies also found evidence for vulnerable periods of gestation when exposure to maternal stressors was more strongly associated with risk for ASD. These studies raise the question of whether an etiologic role for prenatal stress is consistent with what is known from other types of research regarding the effects of prenatal stress on postnatal development.

It is noteworthy, therefore, that many different studies with humans have found significant associations between behavioral problems and prenatal exposure to more common life events or to reports of maternal anxiety. In these studies, the measures of maternal stress are more representative of the kinds of stresses to which children are likely to be exposed prenatally.

Influence of prenatal maternal stress on ASD and ADHD

The prenatal maternal stress has epigenetically regulated effects on health and disease of the nervous system from early development to old age. We will highlight the role of prenatal stress and associated epigenetic marks in influencing the risk of mental disorders such as schizophrenia, anxiety and depression-related disorders, attention deficit hyperactivity disorder and autism later in life.

Attention deficit hyperactivity disorder (ADHD) and autism spectrum disorder (ASD) are two conditions that are significantly influenced by adverse environmental conditions, such as stress. For instance, Rodriguez and Bohlinan investigated the association between maternal smoking during pregnancy and perceived stress with the risks of ADHD in 7-year-old offspring (Rodriguez and Bohlin, 2005). Results of multiple regression analysis showed that prenatal stress and exposure to maternal smoking were independently associated with the symptoms of ADHD in the offspring later in life. The results of logistic regression analysis revealed that stress during pregnancy contributed to ADHD diagnostic criteria, especially in the boys. In particular, the levels of perceived stress during pregnancy predicted nearly 87% of the ADHD cases in the male population studied (Rodriguez and Bohlin, 2005). Ronald et al. reported that maternal stressful events, such as a divorce or a residential move, during pregnancy significantly predicted ADHD behaviors and autistic traits in the 2-year-old offspring, both males and females (Ronaldet al., 2010). Similarly, Grizenko et al. (2012) showed that mothers with an ADHD-affected child have been more likely to perceive high stress during pregnancy when compared to an unaffected sibling. State anxiety is a measure of the intensity of transitory anxiety in response to real-life stress and is characterized by perceived tension as well as an increased activity of the autonomous nervous system (Van Den Bergh et al., 2006). The results showed that adolescent boys, but not girls, whose mothers experienced high levels of anxiety during pregnancy, had more difficulties with sustained attention/ self-regulation than boys whose mothers reported low or

moderate anxiety levels in the State-Trait Anxiety Inventory (Van Den Bergh et al., 2006). Many insights into the developmental origins of health and disease are derived from the study of natural disasters occurring during pregnancy (King et al., 2012). For example, using the Louisiana state cohort Kinney et al. found a significantly higher prevalence of autism spectrum disorder (ASD) in children whose mothers experienced hurricanes or severe tropical storms during pregnancy (Kinney et al., 2008a). Interestingly, the negative influence of natural disasters on offspring health was dose-dependent. The severity of the disaster was assessed using two storm factors: the intensity of a storm's impact on a parish, and the vulnerability of the residentsof a parish to a storm's effects (Kinney et al., 2008a). ASD prevalence (of 6.06 per 10,000 births) was higher in children exposed in utero to one or the other storm factor in comparison to the con-trol cohort that had no storm exposure where the prevalence was4.49 ASD cases per 10,000 births. Notably, the prevalence of ASD in children exposed in utero to both storm factors was 13.32 (Kinneyet al., 2008a). It is worth noting that children who were exposed to the storm during 5–6 months or the last month of gestation had 3.83 times higher risk of developing AD than those with a differenttiming of exposure (Kinney et al., 2008a). Possible involvement of the epigenetic alterations in the etiology of ASD and ADHD has been suggested (Mill and Petronis, 2008; Schanen, 2006), however the exact mechanisms are yet to be identified.

The timing of prenatal exposure affects the outcome

The importance of the timing of a prenatal exposure is indicated by principles of teratogenesis based on extensive experiments with animals as well as epidemiological studies of humans. One key principle is that the same teratogen can produce serious congenital anomalies if exposure occurs during sensitive periods in gestation, but have little or no effect if exposure occurs during other periods.

The importance of timing is also seen in the fact that different teratogens can produce a similar congenital anomaly if exposure occurs at the same prenatal period (Oster-Granite, 1988 and Shepard, 1986).

Experiments with animals indicate that different brain regions vary with respect to the periods of gestation when a region is most sensitive to the effects of stress (Matthews, 2000). In rhesus monkeys, for example, exposure to the same stressor was found to have greater effects on postnatal motor development if it occurred earlier in gestation, when neuronal migration is at its peak, than if it occurred in mid- to late-gestation, when synaptogenesis is at its peak (Schneider et al., 1999). Thus exposure to the same teratogen, such as maternal stress, is likely to have a different effect on different behavioral domains, such as motor or language processes, depending on when exposure occurs. It should be noted that the timing of vulnerable gestational periods in humans differs significantly from that in non-human primates, because the latter are born at a more mature level of development than are humans.

The importance of identifying preventable environmental causes of ASD

Because ASD is so devastating and there is, with rare exception, no established method for preventing ASD, research is urgently needed to identify potential environmental factors that contribute to ASD. Identification of environmental factors that can be avoided, prevented, or ameliorated by programs of primary prevention is therefore especially important.

There are several complementary lines of research that suggest that one environmental factor that increases risk for ASD is prenatal exposure to stress, in the form of stressful life events or environmental hardships that distress an expectant mother. Whether prenatal exposure to stress could be etiologically significant in ASD is an issue that has received little attention, but could be important for clinical as well as scientific reasons. If prenatal stress is in fact etiologically significant in ASD, this would have important clinical implications. For example, efforts to prevent or reduce stress in pregnancies at high risk of ASD (e.g., because of factors such as genetic profiles or family history) could be used in programs for primary prevention of ASD. Such efforts could also complement ongoing research on other ASD risk factors, either by preventing certain factors, or by providing a way for prevention programs to use other factors, such as family history.

CONCLUSION

The studies discussed in this review highlight the susceptibility of the fetal brain to an adverse maternal environment during aparticularly vulnerable period in life through mechanisms that are associated and potentially even mediated by epigenetic regulation. The extent to which maternal stress and anxiety during pregnancy contribute to the development of mental and psychiatric conditionsin the child is still far from being understood. However, effective stress management strategies that allow reducing, preventing and effectively coping with stress and anxiety may be of great importance for the health of both pregnant women and their offspring. The consideration of prenatal stress effects in disease outcomes is critically important to realistically improve current prevention and intervention strategies and assist a healthy life trajectory. Such evidence based decision making is critical for developing recommendations for a life style that supports healthy development and successful aging in the presence of a stressful environment. Because altered epigenetic regulation may potentially be reversible, the identification of epigenetic signatures of disease presents a promising diagnostic and therapeutic avenue for generations to come.

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CORRELATION BETWEEN MATERNAL ANXIETY AND FETAL BRAIN CIRCULATION AFTER AUDITORY STIMULATION

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Abstract. Many studies show that maternal stress and anxiety during pregnancy can affect fetal development. Some studies have shown that babies of stressed or anxious mothers have a significantly lower average birth weight for gestational age and tend to be born early. The fetus is sensitive to a wide range of mother's emotions, as well as exposure to drugs and other physical traumas. Increased maternal heart rate due to anxiety after a few seconds will cause fetal tachycardia. Changes in levels of adrenaline and noradrenaline, high levels of glucocorticoids, decreased levels of carbon dioxide due to hyperventilation, and other metabolic products that are result of moternal anxiety directly affect her fetus. Numerous studies document the sensory, hormonal and biochemical mechanisms through which the fetus is communicating with the mother and the outside world. The aim of this study was to investigate influence of meternal anxiety on changes (increase or decrease) of blood flow throw the fetal middle cerebral artery after auditory stimulation. Study included 120 pregnant women in third trimester of pregnancy divided in two groups: Group 1: low risk pregnancies and Group 2: high risk pregnancies. Self rating Spielberger questionnaire was used for state anxiety and trait anxiety. Prenatal auditory screening was performed after the 27th week of gestation and cerebral blood flow waveform patterns are assessed by colour Doppler ultrasound. The results will be discussed in the paper.

Keywords: *Anxiety, Fetus, Prenatal Development*

INTRODUCTION

Auditory system of the fetus develops from 16th week and is fully developed by the 24th week of intrauterine development time, and is considered to be one of the main information channels of the fetus. Based on these indicators, a method of prenatal hearing screening - PSS (Sovilj and Ljubic, 1992) was developed, which is based on ultrasound measuring velocity of blood flow through the fetal middle cerebral artery (arteria cerebri media) after application of sound stimuli. Since the auditory system is a part of the nervous system, the reaction of the fetus in the PSS test testifies not only on the degree of maturation of the auditory system, but is an indicator of the general maturation of the nervous system of the fetus. Therefore, PSS, with regular ultrasound examinations, today is used as a standard method in prenatal diagnostics.

Distress and anxiety during pregnancy may be accompanied by activation of systems such as the hypothalamic pituitary–adrenal axis and sympathetic nervous system, leading in turn to altered blood flow to or through the placenta, either directly or by changes in the maternal hemodynamic status. Small studies have found associations between maternal anxiety and alterations in blood flow in the third trimester. Teixeira et al. (1999) found an association between high scores on both the state and trait measures of the Spielberger State–Trait Anxiety Inventory (STAI) in the third trimester and higher uterine artery resistance, a marker of impaired placental blood flow. High uterine artery resistance is associated with pregnancy induced hypertension (PIH) and its sequelae (Ness and Sibai 2006). Sjostrom et al. (1997) found high trait but not state anxiety in the third trimester to increase umbilical artery pulsatility index (**PI—a marker of flow**) and decreased fetal middle cerebral artery (MCA) PI, again suggesting impaired placental flow. In this study we will investigate the connection between meternal anxiety and changes (increase or decrease) of blood flow throw the fetal middle cerebral artery

after auditory stimulation.

The studies indicate that fetal exposure to peptides and hormones from the maternal HPA and placental stress system exerts profound programming influences on the brain.

Programming is a process by which a stimulus or exposure during a critical developmental period has a long-lasting or permanent influence on the brain, behavior, and risk for disease. During these periods of rapid cell division, fetal organs are especially vulnerable to perturbations such as stress.

During fetal life, neurons proliferate, migrate and form connections, providing the structure of the developing brain. Neurons reach their final destinations by the 16th week of gestation, while branching and making appropriate connections even before that time (Sidman, R. L. et al. 1973). The brain continues to develop during the entire pregnancy, with most of the synapse formation in the developing brain happens during the third trimester (Bourgeois, J. P. 1997).

During these complex neurodevelopmental events, the fetal brain is particularly vulnerable. Many factors may affect fetal brain development, including infectious agents, alcohol, various illicit drugs, medications, and environmental toxins, but there is accumulating evidence to indicate that mothers' anxiety may also affect development of the fetal brain.

In animal models, the offspring of mothers who experience stress during pregnancy show changes in the morphology of the brain (Hayashi, A. et al. 1998) and alteration in the regulation of the stress axis. In humans, high levels of anxiety during pregnancy have been associated with an increased risk of developing preeclampsia, premature birth and low birth weight. It has been demonstrated that low birth weight in premature infants has been associated with changes in brain morphology (Peterson B.S. et al. 2000). In this population, it has been difficult to parse out the effects of maternal anxiety from the perinatal complications when assessing the brain morphology changes that are present in premature infants.

The researchers observed that anxiety during pregnancy had no effect on the global gray matter volume (estimate of the total neuronal body volume). However, high levels of anxiety at 19 weeks of pregnancy were correlated with the volume reductions in several regions of the brain, including the prefrontal, lateral temporal and premotor cortex, medial temporal lobe and cerebellum. High pregnancy anxiety at 25 and 31 weeks gestation was not significantly associated with local reductions in gray matter volume. There was no correlation between pregnancy anxiety and sociodemographic status or postpartum stress.

AIM AND METHOD

The aim of this study was to investigate influence of meternal anxiety on changes (increase or decrease) of blood flow throw the fetal middle cerebral artery after auditory stimulation. Study included 120 pregnant women in third trimester of pregnancy divided in two groups: Group 1: low risk pregnancies and Group 2: high risk pregnancies.

Ultrasound prenatal auditory screening was performed after the 27th week of gestation and cerebral blood flow waveform patterns are assessed by colour Doppler ultrasound.

Institute for Experimental Phonetics and Speech Pathology in Belgrade developed basic part for experiment called MIMS-GENERATOR SOUND STIMULANT. Production: INKOMARK, Belgrade, Serbia. Patent No. P 2010/0519. Generator provides a sound stimulus generating a defined sound stimuli required for detection of fetal hearing response. The device is portable, battery powered, easily manipulating, and easy to handle. Generated sound parameters are

invariant, which ensures rapid repetition of measurements. Technical characteristics of the device are the following: intensity L (dB) ¼ 90 dB at a distance of s ¼ 50 mm perpendicular to the propagation of sound with frequency range between 1500–4500 hz and the effective duration of the stimulus is 0.21 seconds. Assessment of fetal cortical circulation was made by ultrasound Doppler measurements on Toshiba with 3.5 MHz probe at the beginning of median cerebral artery before and immediately after the sound stimuli proposed near the fetal head, at the distance of no more than 10 cm. We measured PI before (PI1) and after the stimuli (PI2). Ultrasound prenatal auditory screening was performed after the 27th week of gestation, following the Protocol established in 1992. (Ljubic, Sovilj)

Defined sound stimulus was digitally generated sound intensity 90 dB, frequency range 1500–4500 Hz and duration 0.2 seconds. Speaker is placed horizontally at 5 cm distance in relation to the abdominal wall of pregnant women. Ear type EP-107 in the form of ear shells that cover the entire ear, were placed on the mother's ears to eliminate the influence of a defined sound stimuli over auditory system of the mother to the fetal auditory response. Defined acoustic stimulus is presented only once, in order to investigate changes in cerebral cortical circulation of the fetus, given that the repetition of the stimulus in the short period leading to fetal habituation to the same.

Spielberger questionnaire, which comprises of two parts measuring both state anxiety and trait anxiety, was applied. For state anxiety, subjects are asked how they feel at the time of being questioned, and for trait anxiety, subjects are asked how they feel generally.

RESULTS

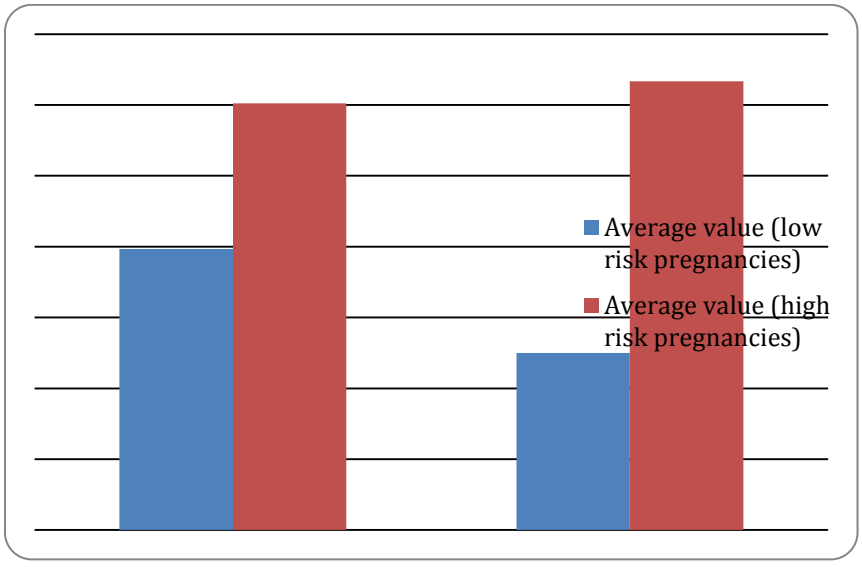

Figure 1. Average value for state anxiety and trait anxiety in low risk and high risk pregnancies

Figure 1 shows the average value for state anxiety and trait anxiety in low risk and high risk pregnancies. Women from high risk pregnancies have higher scores for anxiety on both scales. In the final cohort of 120 women, the state anxiety score was higher than the trait anxiety

score: median (range) 45.44 vs 37.86 (P<0.001). 32 women scored >40 for state anxiety, and 28 women scored >40 for trait anxiety.

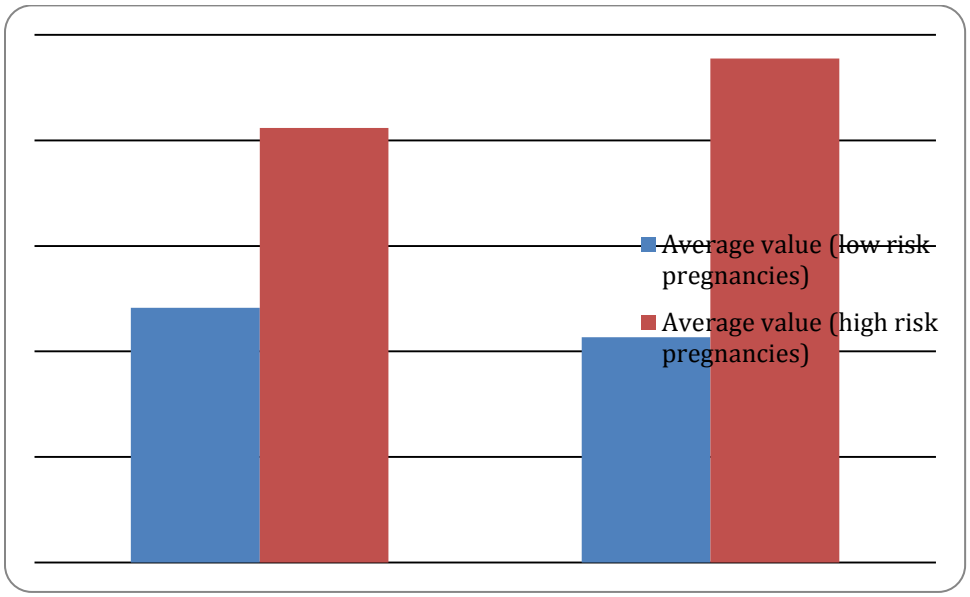

Figure 2. Difference between PiB and PiR values between two tested groups

Figure 2 shows the difference between PiB and PiR values between two tested groups. Women from high risk pregnancies had higher levels of blood flow through fetal middle cerebral artery before and after the auditory stimulation when compared with women from low risk pregnancies.

Table 1 Correlation between the measured values of PIB and PIR and scores of ST and LT in women

Spielberger score ranking	**Score ST**	**Score LT**	**PiB**	**PiR**
Average value (low anxiosity)	33.06	32.72	1.47	1.55
Average value (high anxiosity)	47.11	47.42	1.52	1.42

Table 1 shows the correlation between the measured values of PIB and PIR and scores of ST and LT in women. Women with scores on both scales less than 40 had lower PiB values than women with higher levels of anxiety (scores above 40 on both scales). But after the auditory stimulation blood flow in fetal cerebral artery increased in women with low anxiety and decreased in women with higher anxiety levels.

DISCUSSION

This study showed correlation between anxiety and blood flow changes throw the fetal middle cerebral artery after auditory stimulation. In women with high levels of anxiety blood flow in artery cerebri media decreased after auditory stimulation and increased in women with low levels of anxiety on both scales. This is in accordance with the results founded by Sjostrom et al. (1997) who

had found high trait anxiety in the third trimester to increase umbilical artery pulsatility index (PI—a marker of flow) and decreased fetal middle cerebral artery (MCA) PI, again suggesting impaired placental flow.

Women from high risk pregnancies had an increased anxiety level on both scales when compared to women from low risk pregnancies. There were, however, more women in the high state anxiety group than in the high trait anxiety group.

CONCLUSION

On the basis of obtained data it can be concluded that:

1. There is a strong correlation between anxiety in both tested groups and blood flow changes throw the fetal middle cerebral artery after auditory stimulation. The blood flow in artery cerebri media will decrease after auditory stimulation in women with higher level of anxiety on both scales and increase in women with lower levels of anxiety.

2. Women from both tested groups showed higher anxiety level on the state anxiety scale than on the trait anxiety scale.

3. Women from high risk pregnancies had higher anxiety level on both scales when compared to women from low risk pregnancies.

These facts are opening new area of investigation – estimation of postnatal development of children whose mothers had high levels of anxiety and how it influences speech and language, socioemotional, psychomotoric and cognitive development.

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COMPARATIVE ANALYSIS OF THE VALUES OF PRENATAL HEARING SCREENING IN RELATION TO THE WAY OF CONCEPTION

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Abstract. Prenatal Hearing Screening (PHS) is the method for early detection of the development degree of fetal hearing, including the detection of the change of fetal cortical cerebral circulation caused by sound stimulation. The aim of this study was to determine whether there are differences regarding fetal auditive reactibility in pregnancies naturally conceived (NC) in relation to pregnancies conceived via in vitro fertilization (IVF). The study sample consisted of N=98 pregnant women divided into two groups: experimental (E) group consisted of 51 women whose pregnancies were conceived by in vitro fertilization, while the control group consisted of 47 women with naturally conceived pregnancies. Sound stimulus of 90 dB intensity, frequency range of 1500-4500 Hz and duration of 0.2 seconds, is presenting once, 5 cm away from abdominal wall in order to investigate changes in cerebral circulation of the fetuses aged 28 to 40 weeks of gestation. Color Doppler ultrasound is used to identify middle cerebral artery flow before and after sound stimulation. The study results indicate the absence of statistically significant differences regarding obtained values of PHS in E and C group, ie fetal auditive reactibility is equal regardless of the way of conception.

Keywords*: Hearing, Fetus, In Vitro Fertilization, Natural Conception*

INTRODUCTION

Worldwide, more than 2 million children have been born through in vitro fertilization (IVF) and related assisted reproductive technology (ART) procedures. The most frequently used ART technique is IVF and most children born after IVF are healthy and develop without complications (Squires and Kaplan, 2007).

There is a tendency for more and more women to delay childbearing until an age when their fertility begins to decline. Therefore, in vitro fertilization (IVF) procedures have become accepted as an alternative to natural conception, and pregnancies subsequent to assisted reproductive techniques (ART) are common in obstetrical departments (Nouri et al, 2013).Women in the United States undergo approximately 100,000 cycles of IVF annually, with live birth rates from 35% to 50% per cycle (Wright et al, 2006).

Although most studies of IVF offspring to date have demonstrated no added risk for developmental problems, potential difficulties for children born after IVF include: genetic disorders, congenital anomalies, preterm delivery and perinatal health issues, developmental delays and disabilities, and behavioral and mental health difficulties (Cooper et al, 2011; Woldringh et al, 2006; Buckett et al, 2007).

Several recent population-based studies with sound research designs have suggested a small increased risk for birth defects including heart malformations and limb and metabolic disorders among ART infants, including IVF (Klemetti et al, 2005; Olson et al, 2005). However, the motor and cognitive development of IVF children compared with their naturally conceived

peers is not significantly different (Leslie et al, 2003; Ponjaert-Kristoffersen et al, 2004). In a study, in Denmark, IVF children had an increased risk of cerebral palsy (Hvidtjom et al, 2006).

By far, prematurity and low birth weight are the primary risk factors contributing to poor outcomes in IVF offspring. Mothers who undergo IVF take a combination of fertility drugs before and immediately after the procedures, which may have effects on growing embryos (Wenstrom et al, 2004). Problems in offspring increase as gestational age decreases-smaller babies are usually sicker and can have more problems at birth and afterwards including cerebral palsy, learning disabilities, and visual difficulties (Hack et al, 2002; McCormick et al, 2006).

The reasons for the increased incidence of prematurity and low birth weight are not completely understood, but may be related to factors described above such as increased maternal age, infertilityrelated genetic anomalies, human manipulation of gametes and embryos, and use of fertility drugs. It appears that women who take longer to conceive (>1 year) in general are at greater risk for having lower birth weight babies (1.5–2.0 times) than the general population, no matter the method of conception (Van Voorhis, 2006).

Although some studies have found an increased prevalence of birth defects in IVF infants, methodological errors such as failure to correct for multiple births and lack of data on confounding factors (eg, older mothers and higher education and economic attainment) have marred many studies.

Subsequent studies have concluded that the general development of ICSI offspring is comparable to that of naturally conceived children when only singleton births are included (Papaligoura et al, 2004; Place and Englert, 2003).

Pendina and collaborators (2014), conducted the research with a purpose to compare the frequency and the spectrum of karyotype abnormality in the first trimester miscarriages in women aged under and over 35 years, who conceived naturally (NC) and who conceived through in vitro fertilization (IVF). A total of 499 miscarriage karyotypes was analyzed. They concluded that IVF does not increase the risk of a pregnancy loss because of abnormal embryonic karyotype, nor does it increase the preponderance for any specific type of cytogenetic abnormality in both patients aged under and over 35 years.

AIM

The aim of this study was to determine whether there are differences regarding fetal auditive reactibility in pregnancies naturally conceived (NC) in relation to pregnancies conceived via in vitro fertilization (IVF).

RESEARCH METHODOLOGY

The study sample consisted of N=98 pregnant women divided into two groups: experimental (E) group consisted of 51 women whose pregnancies were conceived by in vitro fertilization (IVF), while the control group consisted of 47 women with naturally conceived pregnancies (NC).

Ultrasound prenatal auditory screening was performed between the 28th and 40th week of gestation, following the Method Sovilj-Ljubic (1992). Sound stimulus of 90 dB intensity, frequency range of 1500-4500 Hz and duration of 0.2 seconds, is presenting once, 5 cm away from abdominal wall in order to investigate changes in cerebral circulation of the fetuses (Jeličić,

2007). Color Doppler ultrasound is used to identify middle cerebral artery flow before and after sound stimulation. Measured values of PI before (PIB) and few seconds after exposure to define digitalized generated sound stimulation (PIR) indicate changes in the fetal cerebral circulation (Plesinac et al, 2013; Jankovic-Raznatovic et al, 2014).

Basic part for experiment called MIMS-GENERATOR SOUND STIMULANT (Patent No. P 2010/0519) was developed by the Institute for Experimental Phonetics and Speech Pathology in Belgrade.

RESULTS AND DISCUSSION

Table 1. Age of respondents depending on the way of conception

Way of conception	Mdn	N
NC	32	47
IVF	39	51
	* U = 572.500 (*level 0.05*)	
	** U = 572.500 (*level 0.01*)	

The data in Table 1 indicate that the median age for the respondents with IVF pregnancies was Mdn = 39, whereas median age for the respondents with natural pregnancies was Mdn = 32. The Mann-Whitney U test for independent samples established that this difference was statistically significant on the level of 0.05 (Mann–Whitney U = 572.500, p = 0.000). Therefore, the respondents with IVF pregnancies were significantly older compared to the respondents with natural pregnancies.

Table 2. Measurement time depending on the way of conception

Way of conception	Mdn	N
NC	2.66	47
IVF	3.9	51
	* U = 847.500 (*level 0.05*)	

The data in Table 2 indicate that the duration median of the Pi index in IVF pregnancies is Mdn = 3.9 seconds, which is statistically significantly longer compared to the measurement duration in natural pregnancies, which is indicated by the median value of Mdn = 2.66 seconds (Mann–Whitney U = 847.500, p = 0.012). Therefore, the duration of the pulsatility index measurement is significantly longer in IVF pregnancies compared to NC pregnancies.

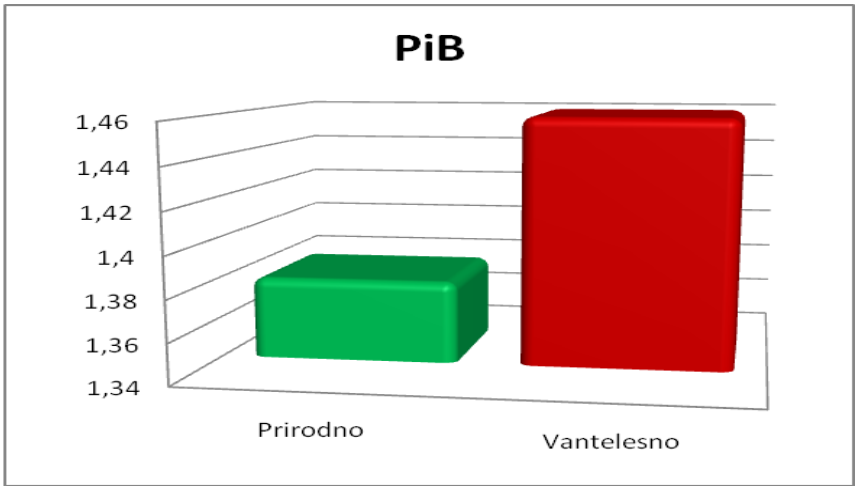

Figure 1. PiB depending on the way of conception

The PiB median in the women with natural pregnancies was Mdn = 1.38, whereas in the women with IVF pregnancies it was Mdn = 1.46. The difference between these medians is not statistically significant (Mann–Whitney U = 1158.000, p = 0.773). Therefore, there are no differences in pulsatility index basic in relation to the way of conception, i.e. these values are equal in both groups of respondents, regardless of NC or IVF conception (Figure 1).

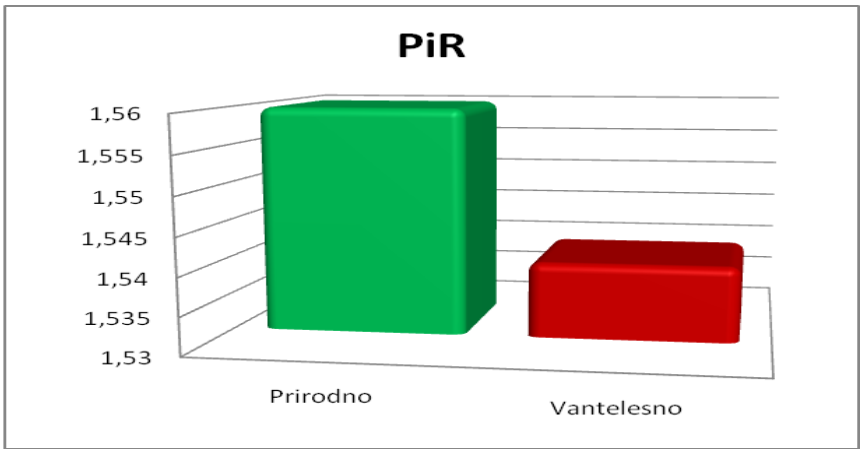

Figure 2. PiR depending on the way of conception

The PiR median in the women with natural pregnancies was Mdn = 1.56, whereas in the women with IVF pregnancies it was Mdn = 1.54. The differences between PiR is not statistically significant (Mann–Whitney U = 1127.500, p = 0.614). Therefore, there are no differences in the values of the pulsatility index in reaction between the groups of respondents with IVF and natural pregnancies (Figure 2).

The data in Table 3 indicate that the PHS median of the women with natural pregnancies was Mdn = -0.133 i.e. -13%, whereas in the women with IVF pregnancies it was -0.029, i.e. -2.9%. The difference between the two medians is not statistically significant (Mann–Whitney U = 1014.500, p = 0.191). Therefore, PHS values are equal regardless of the natural or IVF way of conception.

Table 3. PHS median depending on the way of conception

Way of conception	Mdn	N
NC	- 0.133	47
IVF	- 0.029	51
	* U = 1014.500	

CONCLUSION

The obtained research results enabled the following conclusions:

The respondents with IVF pregnancies were significantly older compared to the respondents with natural pregnancies;

The duration of the pulsatility index measurement is significantly longer in IVF pregnancies compared to NC pregnancies;

There are no differences in pulsatility index basic in relation to the way of conception, i.e. these values are equal in both groups of respondents, regardless of NC or IVF conception;

Statistically significant differences in the values of the pulsatility index in reaction between the groups of respondents with IVF and natural pregnancies were not established;

PHS values are equal regardless of the natural or IVF way of conception.

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AUDITORY SCREENING IN WOMEN WITH THE THERAPY FOR IMMINENT PRETERM DELIVERY

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Abstract. *Background.*Prematurity is the leading cause of death among newborns and the second leading cause of death in children under age 5 years. Risk factors for preterm delivery (PTD) are: short interval between births, poor prepregnancy weight, chronic (diabetes and hypertension) and infectious disease, substance abuse, cervical incompetence, and poor psychological health. Newborns who do survive PTD experience visual, auditory and learning disabilities. We wanted to examine the influence of medical therapy on fetal cerebral circulation after sound stimulation. *Methods.*Study included 143 pregnant women with therapy for imminent PTD, and 50 patients without any therapy. Experimental study thathas been organized as a part of multicentric prospective clinical trial included Belgrade University Medical School (Department of Ob/Gyn "Narodni front" and Institute for Ob/Gyn, Clinical Center of Serbia) and Institute for Experimental Phonetics and Speech Pathology, Belgrade. We analyzed fetal midlle cerebral artery (MCA) circulation using Toshiba Nemio with Doppler and color-Doppler convex sector-probe 3.5 MHz, before and after sound stimulation. *Results.*We cannot say that there is any statistical difference in the PSS value between the two groups. However, bearing in mind that the p-value is the probability of two groups having equal median and that in this case it is not high, we can suspect that with larger sample we might get a different answer. *Conclusions.*Our results have shown influence of sound stimulation on fetal brain circulation during and after therapy for PTD. They also introduce the second stage of research, finding adequate prenatal and postnatal hearing test, which can help us detecting hearing and verbal problems in an early childhood.

Keywords: *Sound Stimulation, Fetal Cerebral Circulation, Preterm Delivery Therapy*

BACKGROUND

Preterm birth is a major challenge in perinatal health care. Preterm birth is the delivery of a baby before 37 gestational weeks. Most mortality and morbidity affects "very preterm" infants (before 32 weeks of the gestation) and especially "extremely preterm" infants (28 gestational weeks). Most perinatal deaths (75-95%) occur in preterm infants, and preterm birth is an important risk factor for neurological impairment and disability. Preterm birth not only affects infants and their families – providing care for preterm infants, who may spend several months in hospital, but has increasing cost implications for health services.Over the past 20-30 years the incidence in Europe has been about 5-9% of live births. The incidence in the United States is 12% (Goldenberg, 2008), and inSerbia and Montenegro 12-13%.Some evidence shows that this incidence has increased slightly in the past few years, but the rate of birth before 32 gestational weeks is almost unchanged: 1-2%.

Complications for the mother and for the child are very various. Most common mother complications are: increased risk of cesarean delivery and complications of tocolytic drug administration. Perinatal complications of prematurity are: respiratory distress syndrome, intraventicular hemorrhage, necrotizing enterocolitis, retrolental fibroplasia, bronchopulmonary dysplasia, feeding problems, neonatal infection and sepsis, birth trauma, hypothermia, hypoglycemia, perinatal asphyxia and long term neurologic sequel.

Prematurity is the leading cause of death among newborns and the second leading cause of death in children under age 5 years. Risk factors for preterm delivery are: spontaneous preterm

prelabour rupture of the amniotic membranes (2/3 of all cases), the history of preterm birth and poor socioeconomic background, cigarettes (twice as likely as non-smoking mothers to deliver before 32 gestational week), alcohol and drugs abuse, multifetal (Goldenberg, 2008) and singleton pregnancies that follow IVF, maternal or fetal complications of pregnancy (15% - 25% is complicated with hypertension and intrauterine growth retardation), decidual hemorrhage (abruption), mechanical factors (uterine over distention or cervical incompetence), hormonal changes (perhaps mediated by fetal or maternal stress), cervicovaginal infections, chorioamnionitis complicates 10-36% of PPROM, short interval between births and poor prepregnancy weight.

Delaying delivery may reduce the rate of long-term morbidity by facilitating the maturation of developing organs and systems. Tocolytic drugs can delay the progress of preterm labour in the short term but maternal side effects include: hypotension, tachycardia, and fluid overload. Tocolytic drugs, which we usually use for the therapy for preventing preterm delivery are: β2 agonists, calcium channel blockers, prostaglandin synthetase inhibitors, magnesium sulphate and oxytocin antagonists.

Beta-adrenergic agonists are potent cardiovascular stimulant that is associated with an increased risk of pulmonary edema and maternal and fetal cardiovascular abnormalities (asthma, bronchitis, and emphysema). In February 2011, the FDA released a safety announcement advising that terbutaline be used for tocolysis no longer than 48 to 72 hours owing to the risk of serious maternal cardiovascular problems that could lead to death. Nifedipine-calcium channel blockerreduces the risk of preterm delivery within 7 days of treatment prior to 34 weeks of the gestation and lowers the risk of respiratory distress syndrome, necrotizing enterocolitis, intraventricular hemorrhage and neonatal jaundice. Nifedipine poses few maternal or fetal risks, but its use with magnesium sulfate has led to cardiovascular collapse in some pregnant women.

Newborns who do survive preterm deliverycould experience visual, auditory and learning disabilities (Nawal, 2012). They could have neurodevelopmental handicap, cerebral palsy, seizure disorders, blindness, deafness and non-neurological disorders such as bronchopulmonarydisplasio and retinopathy.

We wanted to examine the influence of usual medical therapy for preventing preterm delivery on fetal cerebral circulation after the defined sound stimulation.

METHODS

Study included 143 pregnant women with therapy for imminent preterm delivery(experimental group) and 50 healthy patients without any therapy (control group). Experimental study thathas been organized as a part of multicentric prospective clinical trial included Belgrade University Medical School (Department of Ob/Gyn "Narodni front" and Institute for Ob/Gyn, Clinical Center of Serbia) and Institute for Experimental Phonetics and Speech Pathology, Belgrade. We analyzed fetal middle cerebral artery (MCA) circulation using Toshiba Nemio with Doppler and color-Doppler convex sector-probe 3.5 MHz, before and after sound stimulation. Our examination was performed in period from 27 to 41 weeks of gestational age, following the Protocol established in 1992 (Sovilj). Gestational age was determined in relation to last menstruation and estimated by ultrasound examination. Anamnestic data, creation of medical documentation, andstandard ultrasound examination were collected. For the therapy for preventing preterm delivery we used β2 agonists intravenously.

The noise-canceling headphones types EP-107 are applied on women's head. Fetal head

and fetal ear position near the mother's abdominal wall are determinate and the speaker is positioned 5 cm from abdominal wall, to the direction of fetal ear. The circle of Willis is easy to identify with B-scan and blood flow using color Doppler. Using data of blood flow through fetal middle cerebral artery (MCA), Pulsatility index before acoustical stimulation (PIB) was measured.The fetus is exposed only onceto the digitalized generated sound stimulus performed by loudspeaker sets 5 cm away from abdominal wall. Institute for Experimental Phonetics and Speech Pathology in Belgrade developed basic part for experiment called MIMS-GENERATOR SOUND STIMULANT (90dB of intensity, frequency range is 1500-4500Hz and the duration is 0.2s). Using data of blood flow through fetal MCA, we measured Pulsatility index (PI),PI = (S-D) / M,as one of the major Doppler-parameters (Gosling, 1975),representing a difference of systolic (S) and diastolic (D) amplitude values of arterial waveform divided by the mean (M) value of the area under the waveform. This parameter is an indicator of the size of the peripheral resistance and belongs to one of the Doppler-indexes of peripheral vascular resistance. If the PI value after acoustical stimulation (PIR) is lower compared to the basic value of this index before stimulation (PIB), there is an increase of blood flow of fetal middle cerebral artery, while a higher value of PIR compared to PIB signify decreased blood flow in examined middle cerebral artery.

We performed Shapiro-Wilk test for testing normality of distribution in our sample (P values were close to zero, so we had to use non-parametric tests). For testing independence, we used:F-test, Chi-square test and Fisher exact test.

RESULTS

The Pulsatility Index (PIB) value in two groups was as follows: mean PIB value for the control group is 1.45 andmean PIB value for the experimental group is 1.66. The statistics of the Wilcoxon test is W=14813,p=0.000149 which shows the high statistical difference. Therefore, we can say that there is high statistical difference in the PIB value between the two groups (Figure 1).

The PIR value in two groups was as follows: mean PIR value for the control group is 1.43 and mean PIR value for the experimental group is 1.60. The statistics of the Wilcoxon test is W=15571,p=0.001745, which is showing high statistical differencebetween PIR values of the control and experimental group (Figure 1).

However, bearing in mind that PI values are not strictly defined and vary in the relation to gestational week of pregnancywe can conclude that this is the reason for the high statistical difference between the groups. Calculated reference ranges for the MCA PIreaches the peak at 28 gestational week and a fall in the fetal MCA PI with advancing gestational weeks (andprobably reflects a decreased vascular resistance with fetal growing and progressing of the weeks of gestation, or an association with deoxyribonucleic acid production in fetal brain) (Tarzamni, 2009).Fisher exact test f = 0.96 shows that there is no statistical difference in the proportion of"-" (PIB<PIR) and "+" (PIB>PIR). Therefore, we cannot say that there is any statistical difference in the change from PIB to PIR value in the two groups. However, bearing in mind that the P value is the probability of two groups having equal median and that, in this case it is not high, one can suspect that with larger sample one might get a different answer. So, in the second phase of the trial with increasing number of patients, we will probably get statistical significance.

We can conclude that the percentage of fetuses with increased MCA circulation after the auditory stimulation is larger than fetuses with decreased circulation. It could be connected to the defense system of the whole organism, which initiates a generalized interaction of the whole body

and is characterized by the higher heart rate. Decreased blood flow of the cerebral circulation could be explained by establishing the orientation system, which is characterized by calming the body, reduction of the heart rate and enhancement of the attention. This provides evidence of the possible existence of fetal cognition and shows that the roots of the sensory and motor behaviors are established already in the prenatal age.

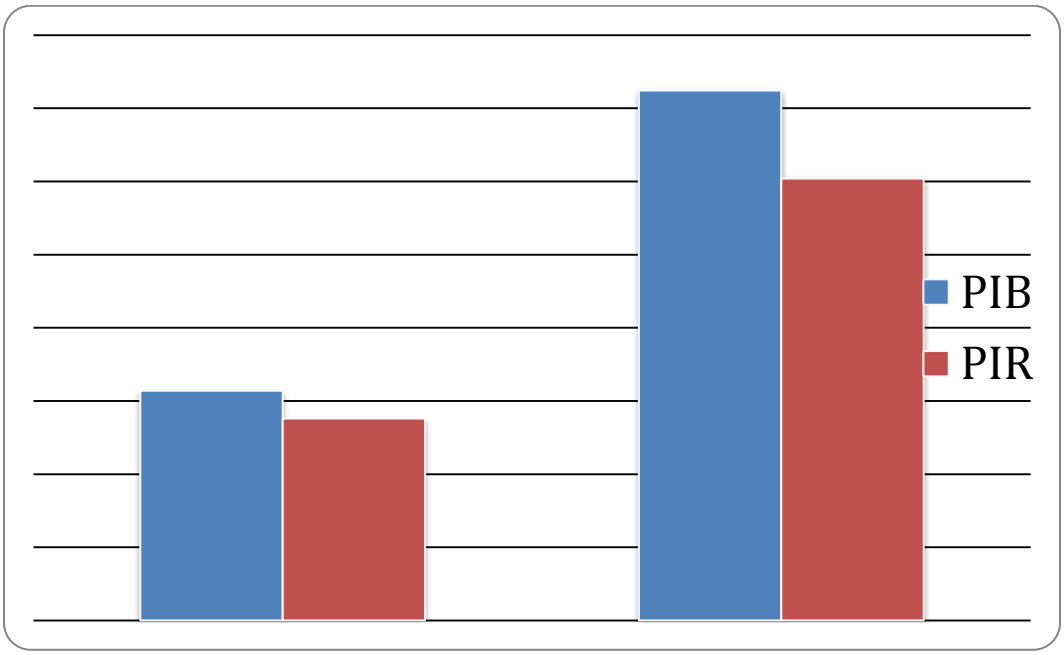

Figure 1.The mean values of PIB and PIR of the control and experimental group

Transient MCA PSV decrease was recorded after 24h of oral nifedipinetreatment andabsolute resolution of this distraction within next 24 h (Grzesiak, 2013).They reported that oral administration of nifedipine seems not to alter uterine nor fetal arterial blood flow pattern seriously. De Heus (2009) reported that the use of tocolytics also did not significantly alter the time courses of PI-values for uterine arteries ($p = 0.37$) and MCA ($p = 0.62$).This study demonstrates for the first time the direct effects of atosiban on fetal movement, heart rate and blood flow. They concluded that tocolysis with either atosiban or nifedipine combined with betamethasone administration appears to have no direct fetal adverse effects.

Piazze (2007)reported that in low risk pregnancies betamethasone therapy in the third trimester is related to a significant but transient reduction of MCA PI, which is more pronounced during tocolytic therapy. Although the physiological basis of this effect is currently unclear, it could be related to the local regulation of intracerebral blood flow.

In our study, the percentage of fetuses with the increased cerebral blood circulation after the acousticalstimulation was slightly higher in the pregnancies with imminent preterm delivery. They had slightly better reactivity and faster response to the sound stimulation.

We cannot say that there is any statistical difference in the reactivity to the external acoustical stimulation between the two groups. However, bearing in mind that the p-value is the probability of two groups having equal median and that in this case it is not high, we can suspect that with larger sample we might get a different answer.

CONCLUSIONS

Our results have shown influence of acoustical stimulation on fetal brain circulation during and after therapy for preventing preterm delivery. Although these changes are not statistically significant, these facts are opening new area of fetal behavior research and imprinting of new tests for early prenatal and postnatal detection of various hearing, verbal and behavioral problems.

Our study shows that the percentage of fetuses with the increased cerebral blood circulation after the acoustical stimulation is slightly higher in the pregnancies with imminent preterm delivery.Although these differences are not statistically significant we concluded that fetuses with the therapy for preventing preterm delivery have slightly better reactivity and faster response to the sound stimulation.

They also introduce the second stage of research, finding adequate prenatal and postnatal hearing test, which can help us detecting hearing and verbal problems in an early childhood.

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THE IMPACT OF PRENATAL AUDITORY STIMULATION ON EARLY CHILD PSYCHOPHYSIOLOGICAL DEVELOPMENT

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Abstract. This time between conception and birth is the critical time to establish the basic architecture of the brain and build the foundations for its future potential. Prenatal auditory stimulation has positive and irreversible affect to early stages of human verbal, cognitive and emotional maturity. Research aim was to estimate the early psychophysiological development in defined ontogenetic ages in children who were intensely stimulated in the prenatal period. The study is longitudinal and included four male children tested at the age of 1 year, then 2-2.5 year and at the age of 4-4.5 years. These children were intensely stimulated by their mothers during the prenatal period. The examination was undertaken in Institute for experimental phonetics and speech pathology (IEPSP) in Belgrade. Methodological procedures included the elaboration of anamnestic data and the application of: Test for visual perception estimation, Test for verbal memory assessment, Global articulation test and The Scale for estimation of psychophysiological abilities of children from 0-7 years (IEPSP Battery tests). On the basis of the obtained data which indicated superior achievements in examined children it can be concluded that early auditory stimulation have the positive effects on children's early speech and language, social emotional development and psychomotorn development.

Keywords*: Prenatal Auditory Stimulation, Early Child Development*

INTRODUCTION

The prenatal stimulation and its importance is extensively discussed in recent decades. It is proved that prenatal stimulations lead to healthy fetal and early child development. The explanation about the positive effects of prenatal stimulation lays in the brain plasticity which potential is very huge in this early developmental period. The more child's auditory nerves (hearing) or child's skin are stimulated, the more those pathways will be developed and become stronger and in that way a born child will be better prepared for the world.

In our research we focused on the most complex psychophysiological function of human organism: speech and language and point to significance which prenatal period may have in the overall child development. It is known that preverbal communication enables a child to learn the language and that communication between a prenatal child and its mother or father begins very early during pregnancy.

Different programs and methods for early prenatal stimulation have been created, but most of them contain general stimulation modules, such as: auditory, vestibular, visual, sensorimotor and tactile stimulation, relaxation, breathing and massage. By these programs mothers learn to communicate with their unborn child and develop aware communication full of emotions. At the same time, parents, brothers, sisters and relatives learn to develop positive conscious relation with a prenatal child and to realize conscious communication.

Development of mother’s positive emotional attitudes releases endorphin in mother’s limbic system, which positively influences: growth of a fetus, development of its immune system, its intelligence, sensorimotorics, cognition, reasoning, language abilities, emotional development, as well as formation of prerequisites for establishment of adequate relation mother-child after birth and during the whole life. Mother voice is the most important factor in fetal world of sounds (Beckedorf, 1995).

Prenatal musically stimulated babies are more superior in growth and fine motor activities, linguistic development, some aspects of physical-sensual coordination and certain cognitive behaviors (Lafuente et al., 1997). Comparative researches on music stimulation and music therapy showed that music, both instrumental and vocal, positively influences development of the brain both in prenatal period and after birth. Nowadays, application of music stimulation has a special role in the neonatal intensive care unit, positively influencing the development and recovery of children (Collins and Kuck, 1991). Generally, music encourages harmonious communication in the triad mother - child - father, both in prenatal and postnatal period. Symbiotic connection between mother and child is carried out in different ways depending on the position of a child, mother's posture and musical stimulation. Stimulation by songs provides higher social and inter-personal awareness, whereas lullabies tend to develop inner, self-centred awareness, awareness of oneself. The same differences are present both in speech and language. If speech stimulation is directed more towards sound structures, it should contain variations of tones, syllables, accents (tone, duration, length) intonation and mind prenatal aspects) to changes of reality of human development. Stimulated children, compared to those who were not stimulated, showed improved development of: language 38%, memory 47%, social intelligence 51%, and reasoning 82%. Also, motor development is faster, intelligence quotients are higher and permanent, birth weight and length are better, Apgar score is higher, teething commences earlier, as well as verbal and cognitive development (Sovilj, 2013).

Researches in the field of prenatal auditory stimulation indicated that auditory stimulation might improve fetal physical and intellectual development (Dobrijevic, 2011). Early auditory stimulation before birth may improve sensory-motor development, prevent deprivation and even epigenetic widen limits of human perception. By auditory stimulation it is possible to activate somato-sensory system of unborn child on very early developmental stage. More than any other stimuli, auditory stimuli can activate intellect and intuition, which are basic components of our mind (Blum, 1998).

Based on these findings we organized follow up pilot study which examined psychological and physiological development of children who were stimulated during the prenatal period. This paper presents the results of estimation the childrens` speech and language abilities on certain developmental stage.

AIM AND METHOD

Research aim was to estimate the early psychophysiological development on defined ontogenetic ages in children who were intensely stimulated in the prenatal period.

Research sample consisted of four male children aged 4 to 4.5 years. Prenatal stimulation included the application of auditory and tactile-kinesthetic exercises which mothers applied throughout the pregnancy. The prenatal stimulation also consisted of: everyday conversation with unborn baby, providing the sense of love and stability to the baby by often thinking about the baby, talking about our everyday and common experiences to our baby and often touching our baby by touching the tummy, listening the classic music, listening the sounds of nature, utilizing some exercises which are comfort and suitable during pregnancy.

Methodological procedures included the elaboration of anamnestic data and the application of: Test for visual perception estimation, Test for verbal memory assessment, Global articulation test, and The Scale for estimation of psychophysiological abilities of children from 0-7 years (IEPSP Battery tests).

RESULTS

Obtained results are presented regarding the estimation of: anamnestic data, visual perception, immediate verbal memory, articulation skills and through aspects of speech-language development, senzory-motor development and social-emotional development examined by The Scale of psychophysiological abilities in children from 0-7 years (IEPSP Test Battery)

Anamnestic date were taken from parents and included: family heredity, pregnancy condition, time of delivery, delivery type, APGAR score, prenatal, perinatal and postnatal risk factors.

Table 1. Anamnestic data

Examined children (N=4)	Pregnancy condition		The term of Labour		Type of labour		APGAR Score - Average value	Perinatal risk factors	Postnatal risk factors	Heredity
	Regular pregnancy, without any complica-tions	Risk pregna-ncy	On term	Pre-term	Natural child birth	Caesar-ean section	9			
Number	4	0	4	0	3	1	4	no	no	no
Total	100%	0%	100 %	0%	75%	25%	100%	100%	100%	100%

The analysis of anamnestic data showed that there were no risk factors which may have influence on early postnatal development in group of examined children (Table 1).

The estimation of ***visual perception*** was performed by Test for visual perception estimation (IEPSP Test Battery). This test examines graphomotoric abilities and drawing. Well developed visual perception is precondition for graphomotoric development (when child learns to draw a circle it should perceive it first). So, this test examines both visual perception and graphomotoric dexterity in children.

Test includes 6 figures which should be drawn by children. Each successfully drawn figure determines the level of visual perception development and corresponds to a particular chronological age. Accordingly, in our study we classified the achieved levels of visual perception into three groups: below, at or above the chronological age.

The analysis of visual perception achieved levels in examined group of children showed that all children have visual perception developed according to chronological age. All four boys have successfully drawn circle and square (Figure 1). As circle presents mature visual perception at the age of 3 years, and square present mature visual perception at tha age of 4 years, it is obviously that all children have developed visual perception in relation to their age.

The estimation of ***short-term verbal memory*** was performed by Test for verbal memory estimation (IEPSP Test Battery). This test examines short-term and long-term memory. It also examines auditory perception, sequence of reproduction, grammatical development and semantic understanding of messages. Test contains 65 verbal stimuli deployed into 8 subgroups which present the achieved level of verbal memory.

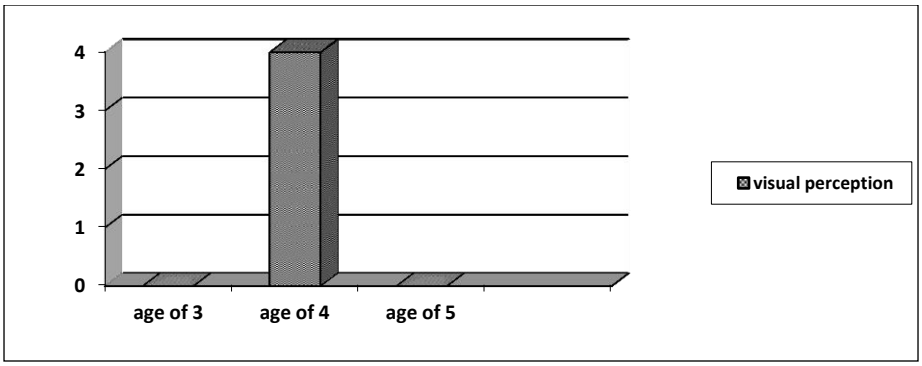

Figure 1. The estimation of visual perception in examined children

All examined children achieved the fourth level of short-term verbal memory (Figure 2). The first level includes monosyllabic words, second level includes disyllabic words with meaning, third level includes disyllabic words without meaning and fourth level includes sentences composed of 2 to 3 words (nouns, verbs and auxiliary verbs). The fifth level of verbal memory includes sentences with more complex grammatical structure which are composed of 4 or 5 words (nouns, verbs, adverbs, prepositions and auxiliary verbs).

Taking into consideration chronological age of examined children it can be concluded that their achieved short-term verbal memory is appropriate.

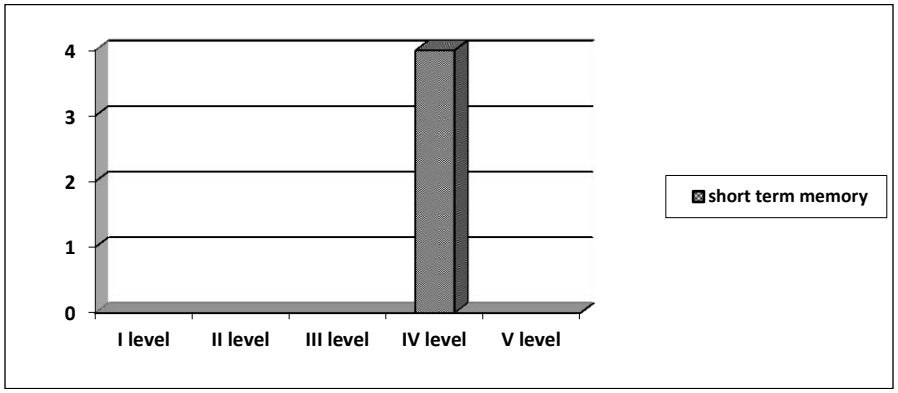

Figure 2. The estimation of short-term verbal memory in examined children

The estimation of ***articulation skills*** was done by Global articulation test (IEPSP Test battery). The estimation of pronunciation showed that pathological distortions and substitutions were registered only in group of laterals (12.5%), affricates (10%) and fricatives (5.6%). Qualitative analysis showed that these pathologically distorted phonemes were: laterals l and lj, affricates č and dž, fricatives š and ž. The percentage of these distortions is not significant in relation to correct articulation of all other phonemes of Serbian language.

Developmental distortions were also expressed in small percent in group of laterals (25%), nasals (8.3%) and fricatives (8.3%). Qualitative analysis showed that these developmental distorted phonemes were: nasal nj, laterals l and lj and fricative r (Table 2).

Table 2. The estimation of pronunciation in examined children

Group of voices	Pronounciation			Total (N=4 children)
	Correct pronunciation	Developmental Distortions and substitution	Pathological distortions and substitutions and omissions	
Vowels (5)	100%	0%	0%	(100%)
Plosives (6)	100%	0%	0%	(100%)
Nasals (3)	91.7%	8.3%	0%	100%
Laterals (2)	62.5%	25%	12.5%	100%
Affricates (5)	90%	0%	10%	100%
Fricatives (9)	86.1%	8.3%	5.6%	100%

S***peech-language development, senzorymotorn development and social-emotional development*** were estimated by The Scale of psychophysiological abilities in children from 0-7 years (IEPSP Test Battery).

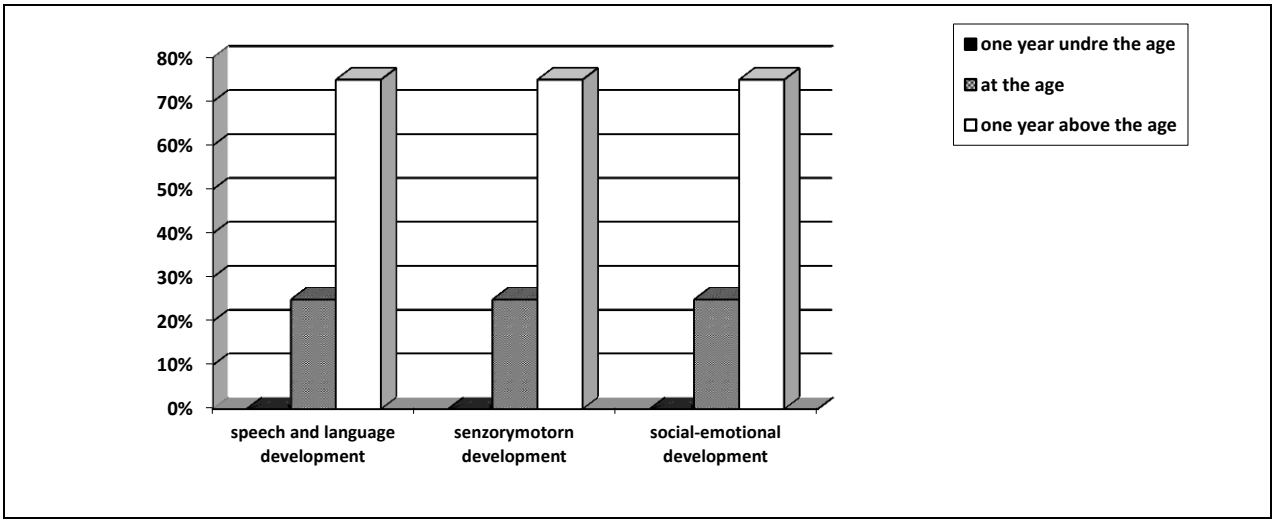

Figure 3. The estimation of speech-language development, senzorymotorn development and social-emotional development in examined children

It was analised weather the children were above, on or under the chronological year regarding developmental level of observed function. Obtained results showed that 75% of examined children were one year above the chronological age and 25% of children were on the chronological age regarding speech and language development, senzorymotorn development and social-emotional development. None of children was under the chronological age regarding speech and language development (Figure 3).

DISCUSSION

All examined children were from pregnancies which did not have any complications and were prenatally stimulated by their mothers. Stimulation included auditory and tactile-kinesthetic exercises which mothers applied throughout the pregnancy. It also included: everyday conversation with unborn baby, providing the sense of love and stability to the baby by often thinking about the baby, talking about our everyday and common experiences to our baby and often touching our baby by touching the tummy, listening the classic music, listening the sounds of nature, utilizing some exercises which are comfort and suitable during pregnancy. The analysis of anamnestic data (prenatal, perinatal and early postnatal development) did not point to significant presence of risk factors which may have influence on early postnatal development. This is in relation with rich emotional stimulation followed by auditory and tactile-kinesthetic excercises which improve early child developement (Blum & Yew, 1993, Blum 1998, Dobrijevic 2011).

The analysis of visual perception showed that in all children visual perception is developed according to chronological age. Circle presents mature visual perception at the age of 3 years while square presents mature visual perception at tha age of 4 years. In this research analysis, all boys had successfully drawn circle and square what was in relation to their chronological age.

All examined children achieved the fourth level of short-term verbal memory what is appropriate for their age. The fourth level includes sentences composed of 2 to 3 words (nouns, verbs and auxiliary verbs). The fifth level of verbal memory is associated with elder chronological age as it includes sentences with more complex grammatical structure (composed of 4 or 5 words: nouns, verbs, adverbs, prepositions and auxiliary verbs).

The estimation of pronunciation was done according to standards in Serbian language. Taking into consideration the fact that all examined children were at the age from 4-4.5 years, their pronunciation was examined in relation to three categories:

- correct pronounciation,
- developmental distortions and substitutions – in which place and in what way of pronunciation is not significantly changed (mild distortions).
- pathological distortions, substitutions and omissions – in which the place and the way of pronunciation is changed in pathological manner (oclusive, interdental, palatal, lateral, nasal sigmatismus); substitutions which are not allowed regarding the chronological age.

Justification for this approach and estimation of pronunciation is substantiated by other authors (Markovic et al., 1997).

The estimation of pronunciation showed that pathological distortions and substitutions were registered only in group of laterals (12.5%), affricates (10%) and fricatives (5.6%). Qualitative analysis showed that these pathologically distorted phonemes were: laterals l and lj, affricates č and dž, fricatives š and ž. The percentage of these distortions is not significant in relation to correct articulation of all other phonemes of Serbian language. Developmental distortions were also expressed in small percent in group of laterals (25%), nasals (8.3%) and fricatives (8.3%). Qualitative analysis showed that these developmental distorted phonemes were: nasal nj, laterals l and lj and fricative r. Generally observed, the examined children have good pronunciation, with small percentage of pathological distortions, what is in relation to their chronological age.

Speech-language development, senzorymotorn development and social-emotional development were estimated by The Scale of psychophysiological abilities in children from 0-7

years. It was analised weather the children were above, on or under the chronological year regarding developmental level of observed function. Obtained results showed that 75% of examined children were one year above the chronological age and 25% of children were on the chronological age regarding speech and language development, senzorymotorn development and social-emotional development. None of children was under the chronological age regarding speech and language development. These results point to superiority of examined children in developing speech-language, senzorymotorn and social-emotional abilites in relation to their chronological age.

CONCLUSION

On the basis of obtained date it can be concluded that:

1. Prenatally stimulated children were from pregnancies without any complications and did not have anamnestic data which would point to presence of any risk factors pre, during or after the pregnancy which may affect their early postnatal development.
2. Prenatally stimulated children have developed visual perception and short-term verbal memory in relation to their chronological age.
3. Prenatally stimulated children at the age from 3.5 – 4.5 years have properly pronunciation with small number of pathological distortions and substitutions registered only in group of laterals, affricates and fricatives. The percentage of these distortions is not significant in relation to correct articulation of all other phonemes of Serbian language. Developmental distortions were also expressed in small percent in group of laterals, nasals and fricatives.
4. Prenatally stimulated children are superior in the field of speech and language development, sensory-motorn development and socio-emotional behaviour.
5. Early prenatal stimulation has great importance as it strongly effect children's early speech and language, cognitive, motor and emotional development.

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THE IMPORTANCE OF EARLY STIMULATION OF SPEECH AND LANGUAGE FOR CHILDREN WITH MICRODELETION ON CHROMOSOME 22

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Abstract. The 22q11.2 Deletion Syndrome (22q11.2DS) also known as DiGeorge or velocardiofacial syndrome is the most common microdeletion syndrome in humans. Moreover, it is the second most common genetic syndrome associated with congenital heart malformations after Down syndrome, with an estimated incidence of approximately 1/4000 per live births. The molecular defect is a ~3-Mb deletion in 87% of the cases known as the "typically deleted region", followed by a proximally nested ~1.5-Mb deletion in 7%, and other atypical deletions at chromosome 22q11.2. The mode of inheritance of the 22q11.2DS is autosomal dominant, but approximately 75%-94%, the deletion occurs *de novo* with only 6 to 25% of deletions having been inherited from a mildly affected or normal parent. Speech impairment is one of the most common findings in children with 22q11.2 DS, occurring in at least 70% of cases. One of the most striking features in this population is the near universality in delay of acquisition of language milestones. This delay was often greater than the delay in general cognitive development. Their learning disabilities are both verbal (language, speech, articulation, reading, comprehension) and non-verbal (motor skills, maths, visuo-spatial organisation). Because of the facts mentioned above, children with 22q11.2DS should be puted in "established risk" category and therefore language stimulation should begin in prenatal period or early infancy to ensure that these children would develop the prelinguistic skills necessary to support language. Therefore, according to the principles of evidence based practice, it would be efficacious for the speech therapist and pathologist to work with the family from the time when the child is a newborn and try to minimize these effects as much as possible.

Keywords*: Microdeletion, Speech, Language, Stimulation*

INTRODUCTION

The 22q11.2 deletion syndrome (22q11.2DS) or velocardiofacilal syndrome (VCFS) is among the most clinically variable syndromes, with more than 180 features related with the deletion, but commonly includes cardiac defect, characteristic facial appearance, thymic hypoplasia, cleft palate/velopharyngeal insufficiency (VPI), hypopara-thyroidism with hypocalcaemia, feeding difficulties, speech and language impairment and developmental delay (Chiara Squarcione, 2013; McDonald-McGinn DM, 1999; Firth H. et al., 2005; Hennekam R. et al., 2010). Additionally, literature data indicate that patients with this syndrome are at high risk of developing schizophrenia and other psychiatric disorders (Bassett AS, et al., 2003).

Speech impairment and delay in language development are common in the patients with 22q11.2 microdeletion (Solot CB., 2001). Children with 22q11.2DS often exhibit persistent hypernasality and articulation skills that are significantly below those of their age peers (Kummer et al., 2007; Scherer et al., 1999; Persson et al., 2003; Golding-Kushner, 2005). In children with VCFS have been described speech disorders that are more severe and complex than those of children with comparable histories of clefting and velopharyngeal dysfunction (VPD) without 22q11.2 microdeletion (Scherer et al., 1999; Scherer et al., 2001; D'Antonio et al., 2001; DeMarco et al., 2004, 2005). This syndrome is caused by an autosomal dominant *heterozygous* microdeletion of the q11.2 band of chromosome 22 (Chiara Squarcione, 2013). It is the most common

microdeletion syndrome and the second most common genetic syndrome associated with congenital heart malformations after Down syndrome (Wiehann G. J., 2004.; Basset A. S., 1999) with an estimated incidence of approximately 1/4000 per live births (Fernandez L., 2005).

MATERIALS AND METHODS

As a part of a multidisciplinary study we examined the speech and language abilities in a two groups of patients: experimental group (E group) consisted of three patients with 22q11.2 microdeletion (Tab.1) and control group (C group) consisted of three patients having a phenotype resembling 22q11.2DS but without microdeletion (Table 2). All examined children were between 6 – 36 months of age and they were monolingual native speakers of Serbian. Patients were included in the study based on the presence of at least two (congenital heart malformation and one more) of the five major characteristics of the 22q11.2DS (congenital heart malformation, facial dysmorphism, hypocalcemia, T-cell immunodeficiency and cleft palate). All patients were Caucasian.

Patients were evaluated by the medical team from University Children's Hospital, Belgrade, Serbia and speech-language specialists from Institute for Experimental Phonetics and Speech pathology (IEPSP), Belgrade, Serbia. Prior to the participation in the study, consent was obtained from their parents.

The presence or absence of 22q11.2 microdeletion was revealed by fluorescence *in situ* hybridization (FISH) and/or multiplex ligation-dependent probe amplification (MLPA). The ethical committee of the University Children's Hospital approved the study protocol.

FISH was performed on metaphase spreads from cultivated lymphocytes with the probe specific for the common deletion interval (TUPLE1, 22q11.2, SpectrumOrange) and control probe (ARSA, 22q13.3, SpectrumGreen) (Vysis/Abbott) as described by Cuturilo *et al.(2013)*. MLPA was performed using Kit P250-A1 DiGeorge (MRC-Holland, Amsterdam, The Netherlands). This kit enables better characterisation of the size and position of 22q11.2 microdeletion, detection of cryptic deletions of 22q11.2 region and analysis of another five genomic loci associated with phenotypes resembling 22q11.2DS. The kit was used according to the instructions of the manufacturer, with some modifications described in Cuturilo et al. (2013).

RESULTS

Children in Group E at the age of 6 - 36 months, showed a delay in the appearance of the first functional words than children from Group C. Two children in Group E have not yet spoken (the appearance of the first functional words with meaning) and one child from the same group pronounced his first real word at the age of 20 months (see Fig.1), while all the children Group C already pronounced his first word with meaning (pat. 1. at 18 months, pat. 2. at 13 months and pat. 3. at 11 months of age) (see Fig. 2). The results obtained in Group C are in the concordance with the average age of the first spoken word for the children with typical speech and language development (Bugarski, 1996).

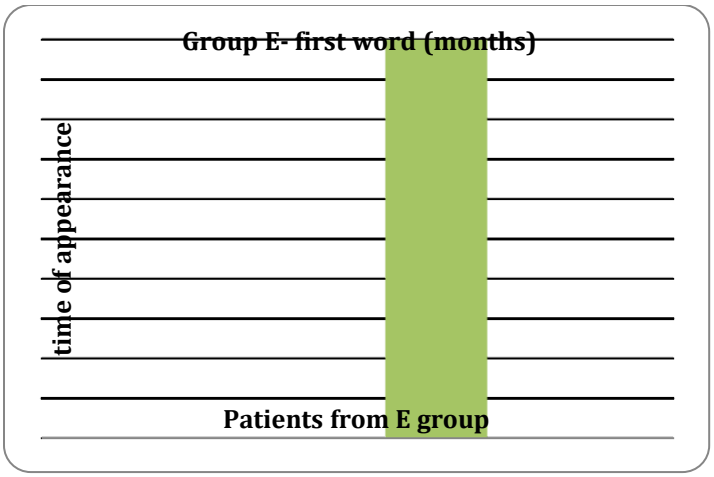

Figure 1. The appearance of the first functional words at children from Group E.

Table 1. Experimental group (E group) consisted of three patients with 22q11.2 microdeletion (FISH +)

Patients from Group E	months of age	FISH	appearance of first word	first word (months)
1. R. H.	12.96	+	NO	0
2. S. D.	18.96	+	NO	0
3. A. S.	30	+	YES	20

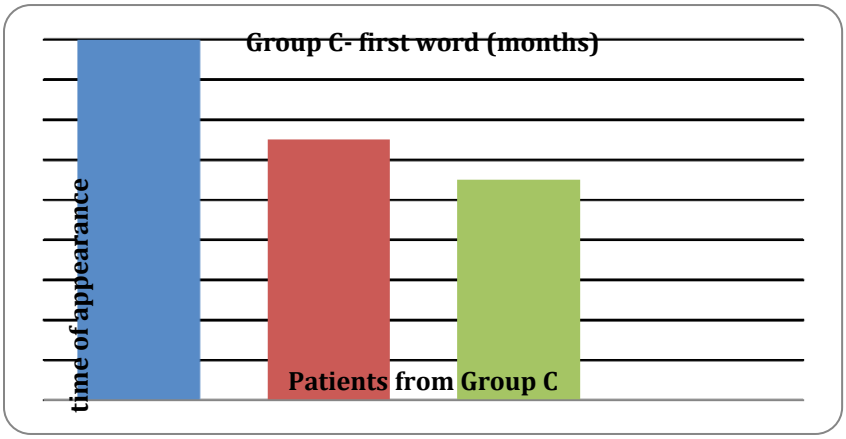

Figure 2. The appearance of the first functional words at children from Group C.

Table 2. Control (C group) consisted of three patients with 22q11.2 microdeletion having a phenotype resembling 22q11.2DS but without microdeletion. All examined children were monolingual native speakers of Serbian.

Patients from Group C	months of age	FISH	appearance of first word	first word (months)
1. I. V.	24,96	-	YES	18
2. S. I.	21	-	YES	13
3. V. M.	10.92	-	YES	11

DISCUSSION

One of the characteristic features of 22q11.2 DS is the presence of speech difficulties. Most children show both developmental delay and learning difficulties and often need special education. Their learning disabilities are both verbal (language, speech, articulation, reading, comprehension) and non-verbal (motor skills, maths, visuo-spatial organisation).

While some aspects of language do represent an area of relative strength, there are also aspects of language that are far weaker. Specifically, the relative strength of receptive language reflects a relative weakness in expressive language.

The first stage of regular language development is known as the prelinguistic, babbling phase. This phase typically lasts from the age of three to nine months and during these period babies begin to make vowel sounds (e.t. oooooo or aaaaaaa). By five months, infants typically begin to babble (ba-ba-ba or da-da-da, ma-ma-ma). The second stage is known as the one-word or holophase stage of language development. During this stage when child says ”mummy” in order to call her it's represents functional real word with the meaning. It is not babbling phase anymore, this is a beginning of lingual phase. In a short-term longitudinal study of our patients with 22q11.2DS ages 6 to 36 months, both aspects were found to be impaired by the age of 12 months, by the parent and medical history. Our findings are in relation with previous conclusion that the developmental delay in expressive language was greater than what would be predicted by the overall delays experienced by the children with 22q11.2DS (Scherer, D’Antonio, & Kalbfleisch, 1999).

Several studies also have shown that children with the deletion show delayed language onset (Scherer et al. 1999; Solot et al. 2000, Persson et al. 2006). Results from our study are in relation with a longitudinal study in which children with 22q11.2DS were assessed at 6, 12, 18, 24, and 30 months, shows significant language impairments in their expressive language (Scherer et al., 1999). At 6 months of age, the children group’s mean age-equivalency score for expressive language was 4 months (33% delay), and at 30 months of age, the group’s mean age-equivalency score was 15 months (50% delay) (Scherer et al., 1999). In another study of 112 preschool children (ages 4 months to 6 years) who were tested using the Preschool Language Scale (Zimmerman et al., 1992), the children’s total language scores showed that 34% of the children with VCFS were significantly delayed (2 *SD*s below mean), 46% were mildly delayed (1 *SD* below mean), and 20% were in the average range (Gerdes et al., 2001). Roizen et al. (2007) measured 17 developmental milestones that children typically acquire before age 3 in 88 children with 22q11.2DS. When compared with age-matched peers, children with VCFS demonstrated significant delays in expressive language, with the gap in expressive language increasing after the first year of life (Roizen et al., 2007). The gap reported for the emergence of babbling in young children with VCFS and children without VCFS was <1 month. This gap expanded to 9 months when reporting on the production of intelligible, single words other than “mama” and “dada” (Roizen et al., 2007). The delay in expressive language reported by Roizen et al. (2007) is consistent with delays reported by Swillen et al. (1997). Swillen et al. (1997) reported a more significant expressive language delay in children with intellectual disabilities.

Extensive mapping and genetic analyses of patients with del22q11 have been unsuccessful in identifying the genes unequivocally responsible for the observed phenotype. As an alternative approach, the expression and function of candidate genes during mouse pharyngeal arch and cardiac development has been examined. Twenty-five percent of mice heterozygous for a chromosome deletion encompassing approximately 15 genes in the mouse equivalent of the

DGCR (Df1) display aortic arch defects, providing a partial mouse model in which to investigate the genes that contribute to del22q11 (Lindsay et al., 1999). UFD1, encoding a protein involved in a ubiquitin-mediated degradation pathway, and the cell cycle regulator, *CDC45*, were specifically deleted in a patient with the del22q11 phenotype (Yamagishi et al., 1999) and are part of the Df1 mouse deletion. However, in mice, heterozygosity of Ufd1 does not result in aortic arch defects, suggesting a critical role for other genes in this locus (Lindsay et al., 1999). The observation that the mouse and chick orthologues of TBX1, which is also present within the Df1 deletion, are expressed specifically in the pharyngeal arches and a limited number of other embryonic tissues makes TBX1 an attractive candidate gene for some of the defects observed in del22q11.

CONCLUSIONS

Because of the facts mentioned above, children with 22q11.2DS should be puted in "established risk" category and therefore language treatment should begin in early infancy to ensure that these children would be develop the prelinguistic skills necessary to support language. Therefore, according to the principles of evidence based practice, it would be efficacious for the speech therapist and pathologist to work with the family from the time the child is a newborn to try to minimize this effect as much as possible.

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PART III. WAYS OF DIAGNOSTICS, TREATMENT, AND PREVENTION OF PSYCHOLOGICAL TRAUMAS IN GENERAL

PRAYER AND/OR PSYCHOTHERAPY[32]

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Abstract. Prayer is remaining a constant natural human need through centuries. Regarding psychotherapy, although all good physicians have also been good psychotherapists through centuries, it was developed as a distinct branch of psychiatry and psychology only in 20th century. In 21st century, there are numerous worth, less worth and worthless psychotherapeutic methods, at disposal of disordered psychical life of people. But, basically, both prayer and psychotherapy (as ways of self-knowing) are necessary for (both healthy and sick) people.

Keywords: *Prayer, Psychotherapy*

INTRODUCTION

If we remind ourselves of four human needs – for roots, for belonging, for identity, and for orientation – as well as of their distortions and abuses, along to their disordered psychic manifestations, it is not difficult to agree that these needs are concerns of both religion and psychiatry (psychotherapy). It is also not difficult to agree that contemporary people are seriously harmed in all these four needs, presumably mainly due to lack of related tradition and religion. They can hardly rely on those reliable external tools which can provide them security and liberation of fear and uncertainty. Hence questions, equally important for psychotherapist and priest, are frequently raised: what is the meaning of life and does it at all exist, and more practically whom to address in trouble – psychotherapist or/and priest [1,2]?

PRAYER AND/OR PSYCHOTHERAPY

When we talk today about illnesses, it should be noted that from the time of Hippocrates it was known that human being is unity of body, soul and spirit. Hence, the goal in medicine and curing, at least of their most talented representatives, was always oriented toward holistic medicine (we remind that "holism is notion that elements of psychic life must be always considered in the framework of psychic whole"). Nowadays, presumably the best representative of contemporary holistic medicine is physician holding knowledge and experience of the essence of psycho-neuro-endocrino-immunology.

Let us now raise the basic question: When a person feels ill, psychically or physically (although we learned that there is no psychical or physical illness, which is not holistic: psychosomatic i.e. somatopsychic) – does he seek help and from whom? In case of our community, generally speaking, sick person seeks help from physician, shaman or priest, or from all of them. It might be strange what I am going to say now (although it might not be that strange even for some time), that a sick person, although fully aware of his illness (even for a long time) – does not seek for help! Why is that so? Do not forget that I am psychiatrist and psychotherapist

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(analytical, of Freud-Jungian orientation), and therefore I can and have to reply (again for many strangely enough): people who know they are sick, and do not ask for help – as stated by renown psychotherapists and quite frequently by Christian scholars – consider themselves (unconsciously and sometimes consciously) guilty for something and therefore need to suffer their illness, or they are narcissistically convinced that they can alone cope with illness.[33]

Let us turn to another side of healthy and, especially, ill life of a contemporary person. We are going to talk about spiritual side of human being, its need to talk to priests, as well as of human natural need for prayer (but spiritual talk should not be equated with an act of confession) [1,2].

Is it necessary to talk about values of prayer, known in quite different modalities by all pre-historical and historical people until to date? As if a person has always known and/or believed in God (gods) and in prayer. After a very long period of sacrificing victims to gods, as a trial to mercy them (including human sacrificing), from the Christian time we have got directly from Jesus Christ an essential and clear prayer for everybody and for all times – "Pater noster" prayer.

During past decades, in American hospitals numerous and accurately led studies were conducted [3], showing that actively religious people were protected or were less exposed to psychosomatic diseases, and in case of illness and surgical interventions their recovery was accelerated. Especially impressive results were in a big hospital in Washington DC, in investigation upon a group of nearly 2000 patients, showing that after-surgical recoveries were significantly accelerated in religious compared to non-religious patients, with essential role of prayers. Even more miraculously, not only prayers of patients themselves were helpful but also prayers of others for them. European skeptics, among both physicians and theologists, have requested repeat of these investigations in European hospitals.

For two thousand years Christians (with open question who real Christian is) did not need confirmations of real effects of prayer, not only in illness but in other dangerous situations (with many examples that atheists also prayed in life-critical situations, sometimes with success!).

We already mentioned about happily chosen notion of "archetype of savior", put by C. G. Jung in depths of human unconscious, which should be activated in cases of life-dangerous situations. Question remains, how? Well, certainly by prayer too, if it is sincere, deeply believing, almost screamingly god-searching. Before conclusion, it is an opportunity to thank Professor Dejan Raković for his long-lasting scientific efforts to demonstrate us (empirically as well, to a possible extent) values of prayer for persons, ill and healthy.

CONCLUSION

Arousal and life-time care of the oldest archetype in human collective unconscious, its homo religiosus, in companion with living moral life taking care of most significant Christian qualities, strengthens resistance against diseases via psycho-neuro-endocrino-immunologic system. In case of getting ill, religious practice of the patient helps in faster recovering or in complete healing of even most difficult diseases, while in cases of chronic or incurable diseases a strong Christian faith in deeper meaning of illness and its purifying value enables relatively calm and peaceful end of a dying Christian.

[33] Several times I was writing about self-healing, as a possible but rare process of self-reviving 'archetype of savior', which can really help a person to overcome even most difficult disease.

Life-time care of "religious person" within us offers a life-time possibility of arising "archetype of savior" (which will be presumably localized in the brain by future neuro-physiologists).

On the entitled question, Prayer and/or Psychotherapy, if answer was not still given implicitely – there is no place for my doubt (based on my long-lasting psychotherapeutic experience, as well as on my twenty-year teaching of Pastoral psychology and medicine at the Orthodox Theology Faculty in University of Belgrade). Psychotherapeutic talks and spiritual talks (with the experienced educated Christian priest) are not mutually excluded. If psychotherapy is "help in development", spiritual talk is "help in faith".

At the beginning of 21st century, I think that time has come for West-European civilization and culture (including Balkans, definitely) to start bridging this most dangerous gap which is artificially splitting human natural need for faith and knowledge: their need for better self-recognition (via psychotherapy and spiritual talks). These trials for meeting religion and science should come from various sides: religious (from Christian Churches), philosophical, artistic (especially), and scientific (naturally; with question why such a sharpening of the relationship of evolutionism and creationism, when Secret of life and death is still all pervading?).

How and why to live (seemingly non-sense) life morally and ethically?

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THE IMPRINT OF TRAUMA AND PATHS OF RECOVERY

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Abstract. This presentation is about the brain, mind, and body in the healing of trauma. We have known that psychological trauma fragments the mind. Nowadays we are able to synthesize the new developments in the field of psychological trauma over the past few decades and to see not only how psychological trauma breaks connections within the brain, but also between mind and body and learn about the exciting new approaches that allow people with severest forms of trauma to put all the parts back together again. As we know from the past about the trauma, our minds desperately try to leave trauma behind, but our bodies keep us trapped in the past with wordless emotions and feelings. So these inner disconnections cascade into ruptures in social relationships with disastrous effects on marriages, families, and friendships. The birth of three new branches of science has had a special impact on an explosion of knowledge about the effects of psychological trauma. These are neuroscience, the study of how the brain supports mental processes; developmental psychopathology, the study of the impact of adverse experiences on the development of mind and brain; and interpersonal neurobiology, the study of how our behavior influences the emotions, biology, and mind-sets of those around us. We can now develop methods and experiences that utilize the brain's own natural neuroplasticity to help traumatized people feel fully alive in the present and move on with their lives. There are fundamentally three paths of recovery: 1) top down, by talking (re-connecting with others, and allowing ourselves to know and understand what is going on with us, while processing the memories of the trauma; 2) by taking medicines that shut down inappropriate alarm reactions, or by utilizing other technologies that change the way the brain organizes information, and 3) bottom up: by allowing the body to have experiences that deeply and viscerally contradict the helplessness, rage, or collapse that result from trauma. To determine what treatment works for whom, we can say that for most people recovery requires a combination.

Keywords: *Trauma, Attachment, Healing, Psychotherapy, Neuroscience*

INTRODUCTION

"The Self is like an orchestra conductor who helps all the parts to function harmoniously as a symphony rather than a cacophony" (Van der Kolk, 2014, p.284).

We can say literally that a cacophony is a state of traumatized mind.

Psychological trauma – ranging from chronic child abuse and neglect, to war trauma and natural disasters – is now generally recognized as a major cause of individual, social, and cultural breakdown.

Our minds desperately try to leave the trauma behind, yet our bodies keep us trapped in the past with wordless emotions and feelings. These inner disconnections cascade into ruptures in social relationships with disastrous effects on marriages, families, and friendships.

The essence of trauma is that "it is overwhelming, unbelievable, and unbearable" experience (Van der Kolk, 2014, p. 195) which an individual experienced in conditions which the individual was unable to control: unable to move and do something to protect oneself. Being able to move and do something to protect oneself is a critical factor in determining whether or not a horrible experience will leave long-lasting scars on mind and body. Traumatized people become stuck, stopped in their growth because they cannot integrate new experiences into their lives. Being traumatized means continuing to organize life as if trauma were still going on – unchanged and immutable – as every new encounter or event is contaminated by the past.

We know now that psychological trauma fragments the mind. However, psychological trauma also breaks connections within the brain as well as between mind and body so in the

process of recovery from a trauma we need to put all the parts back together again, because trauma refers to any threatening, overwhelming experiences that we cannot integrate (Ogden, 2015).

Trauma can be a single event (e.g., an accident, rape, crime, or disaster) or repeated events. Trauma can also be a chronic condition (e.g., child abuse and neglect, combat, ongoing violence, deathcamps). When trauma occurs repeatedly early in life, especially if there was no safe person to turn to, or if it was caused by an attachment figure, the effects can be difficult to resolve. It is important to note that any experience that is stressful enough to leave us feeling helpless, frightened, overwhelmed, or profoundly unsafe is considered a trauma. After such experiences, we are often left with a diminished sense of security with others and in the world, and a sense of feeling unsafe inside our own skin.

Nowadays we are able to synthesize the new developments in the field of psychological trauma over the past few decades and to see not only how psychological trauma also breaks connections within the brain, but also between mind and body, and learn about the exciting new approaches that allow people with serverest forms of trauma to put all the parts back together again.

We can now develop methods and experiences that utilize the brain's own natural neuroplasticity to help traumatized people feel fully alive in the present and move on with their lives. There are fundamentally three paths of recovery: 1) top down, by talking (re-connecting with others, and allowing ourselves to know and understand what is going on with us, while processing the memories of the trauma; 2) by taking medicines that shut down inappropriate alarm reactions, or by utilizing other technologies that change the way the brain organizes information, and 3) bottom up: by allowing the body to have experiences that deeply and viscerally contradict the helplessness, rage, or collapse that result from trauma. To determine what treatment works for whom, we can say that for most people recovery requires a combination (Van der Kolk, 2014).

THE IMPRINT OF TRAUMA: LOSING YOUR BODY, LOSING YOUR SELF

After trauma the world is experienced with a different nervous system. As Bruce Perry (1995) explains it, the brain is formed in a "use-dependent manner". This is another way of describing neuroplasticity, the relatively recent discovery that neurons which "fire together, wire together". When a circuit fires repeatedly it become a default setting – the response most likely to occur. If you feel safe and loved, your brain becomes specialized in exploration, play, and cooperation. If you are frightened and unwanted, it specializes in managing feelings of fear and abandonment.

Traumatized people’s energy becomes focused on suppressing inner chaos, at the expense of spontaneous involvement in their life. These attempts to maintain control over unbearable physiological reactions can result in a whole range of physical symptoms, including a wide spectrum of autoimmune diseases. This explains why it is critical for trauma treatment to engage the entire organism, body, mind, and brain.

When the brain's alarm system is turned on, it automatically triggers preprogrammed physical escape plans in the oldest parts of the brain. If the fight/flight/freeze response is successful and we escape the danger, we recover our internal equilibrium and gradually regain our senses.

If for some reason the normal response is blocked – for example, when people are held down, trapped, or otherwise prevented from taking effective action, be it in a war zone, a car accident, domestic violence, or a rape – the brain keeps secreting stress chemicals, and the brain's

electrical circuits continue to fire in vain. Long after the actual event has passed, the brain may keep sending signals to the body to escape a treat that no longer exists.

Being able to move and do something to protect oneself is a critical factor in determining whether or not a horrible experience will leave long-lasting scars.

The more neuroscience discovers about the brain, the more we realize that it is a vast network of interconnected parts organized to help us survive and flourish. Knowing how these parts work together is essential to understanding how trauma affects every part of the human organism and can serve as an indispensable guide to resolving traumatic stress.

We can ask the questions: How does our brain work under the most normal as well as under traumatic conditions? How does the trauma affect our brain? This is important to be able to understand what's going on in trauma.

It is known (Van der Kolk, 2014, p.55) that the most important job of the brain is to ensure our *survival*, even under the most terrible conditions. In order to do that, the brain needs to:

(1) Generate internal signals that register what our bodies need, such as food, rest, protection, sex, and shelter;
(2) Create a map of the world to point us where to go to satisfy those needs;
(3) Generate the necessary energy and actions to get us there;
(4) Warn us of dangers and opportunities along the way; and
(5) Adjust our actions based on the requirements of the moment.

And since we human beings are mammals, creatures that can only survive and thrive in groups, all of these imperatives require coordination and collaboration. Psychological problems occur when our internal signals don't work, when our maps don't lead us where we need to go, when we are too paralyzed to move, when our actions do not correspond to our needs, or when our relationships break down.

THE BRAIN AND INFORMATION PROCESSING

We can put another question: what are the brain structures that have a role to play in these essential functions? We can see that trauma can interfere with every one of them.

Our *rational, cognitive brain* is actually the youngest part of the brain and occupies only about 30 percent of the area inside our skull. The rational brain is primarily concerned with the world outside us: understanding how things and people work and figuring out how to accomplish our goals, manage our time, and sequence our actions.

Beneath the rational brain lie two evolutionarily older, and to some degree separate, brains, which are in charge of everything else: the moment-by-moment registration and management of our body's physiology and the identification of comfort, safety, threat, hunger, fatigue, desire, longing, excitement, pleasure, and pain.

The brain is built from the bottom up. It develops level by level within every child in the womb, just as it did in the course of evolution. The most primitive part that is already online when we are born is the ancient animal brain, often called the *reptilian brain*. It is located in the brain stem, just above the place where our spinal cord enters the skull. The reptilian brain is responsible for all the things that newborn babies can do: eat, sleep, wake, cry, breathe, feel temperature, hunger, wetness, and pain, and rid the body of toxins by urinating and defecating. The brain stem and the hypothalamus (which sits directly above it) together control the energy levels of the body. They coordinate the functioning of the heart and lungs and also the endocrine

and immune systems, ensuring that these basic life-sustaining systems are maintained within the relatively stable internal balance known as homeostasis.

Breathing, eating, sleeping, pooping, and peeing are so fundamental that their significance is easily neglected when we're considering the complexities of the mind and behavior. It is amazing how many psychological problems involve difficulties with sleep, appetite, touch, digestion, and arousal. Any effective treatment for trauma has to address these basic house-keeping functions of the body.

Right above the reptilian brain is the *limbic system*. It is also known as *the mammalian brain.* It is the seat of the emotions, the monitor of danger, the judge of what is pleasurable or scary, the arbiter of what is or not important for survival purposes. It is also a central command post for coping with the challenges of living within our complex social network.

The limbic system is shaped in response to experience, in partnership with the infant's own genetic makeup and inborn temperament.

As infants and toddlers we learn about the world by moving, grabbing, and crawling and by discovering what happens when we cry, smile, or protest. We are constantly experimenting with our surroundings – how do our interactions change the way our bodies feel? These early explorations shape the limbic structures devoted to emotions and memory, but these structures can also be significantly modified by later experience: for the better by a close friendship or a beautiful first love, for example, or for the worse by a violent assault, relentless bullying, or neglect.

Taken together the reptilian brain and limbic system make up what we'll call the *"emotional brain"*. The emotional brain is at the heart of the central nervous system, and its key task is to look out for someone's welfare. The emotional brain's cellular organization and biochemistry are simpler than those of the neocortex, our rational brain, and it assesses incoming information in a more global way. The emotional brain initiates preprogrammed escape plans, like the fight-or-flight responses. These muscular and physiological reactions are automatic, set in motion without any thought or planning on our part, leaving our conscious, rational capacities to catch up later, often well after the threat is over.

Finally we reach the top layer of the brain, theneocortex (*cognitive brain).* We share this outer layer with other mammals, but it is much thicker in us humans. In the second year of life the frontal lobes, which make up the bulk of our neocortex, begin to develop at a rapid pace. The frontal lobes are responsible for the qualities that make us unique within the animal kingdom. They enable us to use language and abstract thought. They give us our ability to absorb and integrate vast amounts of information and attach meaning to it. Only human beings command the words and symbols necessary to create the communal, spiritual, and historical contexts that shape our lives.

The frontal lobes allow us to plan and reflect, to imagine and play out future scenarios. They help us to predict what will happen if we take one action or neglect another. They make choice possible and underlie our astonishing creativity.

So, if we want to better understand our "triune brain" and information processing considering it, we have to explore the possible effects of experience on the functioning of the three areas that comprise the triune brain (MacLean, 1985) – neocortex, mammalian, and reptilian, which roughly correspond to cognitive, emotional, and sensorimotor (or body) processing. Learning about these "brains" can help clients (and psychotherapists) better understand why they think, feel, and act as they do and support integration among these three levels of information processing (Ogden, 2015).

ATTACHMENT AND TRAUMA

The questions are: what is attachment, what is trauma and what happens in the case of trauma?

Attachment is "a term used to describe the strong emotional connections we feel with certain people that endure over time - in other words, we become "attached to them" (Ogden, 2015, p. 66). The people to whom we are attached are called "attachment figures". In childhood, our primary attachment figures are our caregivers, often our parents, who are attached to us, too. Attachment relationships also include anyone else with whom we form an emotional bond, such as siblings, grandparents, or friends, and as we grow up, romantic partnersand significant others. These relationships bring us great joy but some of them can also be difficult. Our early experiences with attachment figures provide the initial template for all subsequent relationships by instilling in us ways of relating to the world, others, and ourselves. Some of these ways will be constructive for future relationships, but some will not. Although this template does change with experience, we often find ourselves somehow repeating the relational hurts and patterns of the past. In adulthood, the habits that hold us back from engaging fully in our lives and with others may have their roots in past attachment relationships.

Trauma refers to any threatening, overwhelming experiences that we cannot integrate. Sometimes our attachment figures are source of danger, creating a conflict between wanting to turn to them for support, as we do with all attachment figures, and need to protect ourselves from them. Relational trauma can also be perpetrated by strangers. Rape, bullying, hate crimes, and physical or sexual abuse are also examples of relational trauma. Some traumas, such as accidents or disasters, do not involve other people, bur are still traumatic. Trauma can be a single event (e.g., an accident, rape, crime, or disaster) or repeated events. Trauma can also be a chronic condition (e.g., child abuse and neglect, combat, ongoing violence, death camps). When trauma occurs repeatedly early in life, especially if there was no safe person to turn to, or if it was perpetrated by an attachment figure, the effects can be difficult to resolve.

It is important to note that any experience that is stressful enough to leave us feeling helpless, frightened, overwhelmed, or profoundly unsafe is considered a trauma. After such experiences, we are often left with a diminished sense of security with others and in the world, and a sense of feeling unsafe inside our own skin.

We return to the question: what happens in the case of trauma?

Dissociation is the essence of trauma. The overwhelming experience is split off and fragmented, so the emotions, sounds, images, thoughts, and physical sensations related to the trauma take on a life of their own. The sensory fragments of memory intrude into the present, where they are literally relived. As long as the trauma is not resolved, the stress hormones that the body secrets to protect itself keep getting replayed. Many traumatized people may not be aware of the connection between their "crazy" feelings and reactions and the traumatic events that are being replayed. They have no ideas why they respond to some minor irritation as if they were about to be annihilated. Flashbacks and reliving are in some ways worse that the trauma itself. A traumatic event has a beginning and an end – at some point it is over. But for people with PTSD a flashback can occur at any time, whether they are awake or asleep. There is no way of knowing when it's going to occur again or how long it will last. Constantly fighting unseen dangers is exhausting and leaves them fatigued, depressed and weary. Not being able to deeply take in what is going on around them makes it impossible to feel fully alive. It becomes harder to feel the joys and aggravations of ordinary life, harder to concentrate on the tasks at hand. Not

being fully alive in the present keeps them more firmly imprisoned in the past (Van der Kolk, 2014, pp. 66-67).

For instance, victims of child sexual abuse may anesthetize their sexuality and then feel intensely ashamed if they become excited by sensations or images that recall their molestation, even when those sensations are the natural pleasures associated with particular body parts. If trauma survivors are forced to discuss their experiences, one person's blood pressure may increase while another responds with the beginnings of a migraine headache.

They are rarely in touch with the origins of their alienation. That is where therapy comes in – it is the beginning of bringing the emotions back to awareness, the capacity to observe oneself online. However, the bottom line is that the threat-perception system of the brain has changed, and people's physical reactions are dictated by the imprint of the past.

"LEARNED HELPLESSNESS" VS "LEARNED OPTIMISM" (MARTIN SELIGMAN)

The concept of "learned helplessness" and the concept of "learned optimism" were created by Martin Seligman, well-known experimental and clinical psychologist. He described how his explanatory style model developed from his work on learned helplessness in animals (Maier & Seligman, 1967) was then applied successfully to patients to explain their behavior and possible therapeutic interventions.

Martin Seligman of the University of Pennsylvania collaborated with Steven Maier of the University of Colorado. His topic was learned helplessness in animals. They had repeatedly administrated painful electric shocks to dogs who were trapped in locked cages. They called this condition "inescapable shock" (Maier & Seligman, 1967). After administering several courses of electric shock, the researchers opened the doors of the cages and then shocked the dogs again. A group of control dogs who had never been shocked before immediately ran away, but the dogs who had earlier been subjected to inescapable shock made no attempt to flee, even the door was wide open – they just lay there, whimpering and defecating. The opportunity to escape does not necessarily make traumatized animals, or people, take the road to freedom. Like Maier and Seligman's dogs, many traumatized people simply give up. Rather than risk experimenting with new options they stay stuck in the fear they know.

What they had done to these poor dogs, was exactly what happened to the traumatized human patients. They, too, had been exposed to somebody (or something) who had inflicted terrible harm on them – harm they had no way of escaping. Almost all had in some way been trapped or immobilized, unable to take action to stave off the inevitable. Their fight/flight response had been thwarted, and the result was either extreme agitation or collapse.

Seligman's efforts at evaluating this explanatory style, either pessimistic or optimistic, are clearly demonstrated in his later book "Learned optimism" (2003).

Learned helplessness is the *giving-up reaction*, the quitting response that follows from the *belief* that *whatever you do doesn't matter*. Explanatory style is the manner in which you habitually explain to yourself why events happen. It is the great modulator of learned helplessness. *An optimistic explanatory style stops helplessness, whereas a pessimistic explanatory style spreads helplessness.* Your way of explaining events to yourself determines how helpless you can become, or how energized, when you encounter the everyday setbacks as well as momentous details (Seligman, 2003, pp. 15-16).

According to him, optimism stood out as a primary determinant of health. He revisited the mind-body problem. To his opinion, there was convincing evidence that psychological states do affect our health. Depression, grieving, pessimism: all seen by him to worsen health in both the short run and the long term. There is a plausible chain of events that starts with bad life events and ends up in poor health.

The chain begins with a particular set of bad events – loss, failure, defeat – those events that make us feel helpless. He states that everyone reacts to such events with at least momentary helplessness, and people with a pessimistic explanatory style become depressed. Depression produces cathecholamine depletion and increases in endorphin secretion. Endorphin increases can lower the activity of the immune system. The body is at all times exposed to pathogens - agents of disease – normally held in check by the immune system. When the immune system is partly shut down by the catecholamine – endorphin link, these pathogens can go wild. Disease, sometimes life-threatening, becomes more likely.

Each link of the loss-pessimism-depression-catecholamine depletion-endorphin secretion depletion-immune suppression-disease chain istestable, and for each, he believes, they already have evidence of its operation. The chain of events involves no spirits and no mysterious, unmeasurable processes. If it is actually the chain, therapy and prevention can work at each link (Seligman, 2003, p. 182).

PATHS TO RECOVERY: HEALING FROM TRAUMA, OWNING YOUR SELF INTEGRATIVE ART PSYCHOTHERAPY AS HOLISTIC WAY OF HEALING TRAUMA

I will focus on integrative art psychotherapy I practice in work with trauma, which includes both strategies: working top down as well as bottom up. Knowing the difference between top down and bottom up regulation is central for understanding and treating traumatic stress. Top-down regulation involves strengthening the capacity to monitor the body's sensations. For instance, mindfulness meditation and yoga can help with this. Bottom-up regulation involves recalibrating the autonomic nervous system. We can access the autonomic nervous system through breath, movement, touch; in short, body is the bridge and we use it all the time in integrative art therapy.

Our self-experience is the product of the balance between our rational and our emotional brains. However, when our survival is at stake, these systems can function relatively independently.

There are some personal notes about my way of doing therapy, specially working with developmental ("relational") trauma.

During more than thirty years of my work as a psychologist, art psychotherapist and professor of Psychotherapy at the University of Novi Sad, I have strived to find a theoretical position which would integrate the philosophical, psychological, scientific and verbal part of myself with the artistic, religious, intuitive, symbolic, non-verbal part. In this process, I have weighed in positions of various schools of thought and their practitioners and finally found my own way of understanding and practicing psychotherapy in the form that I call 'Integrative Art Psychotherapy'.

The following presentation will consist of two parts: the first concerns the specific theoretic position of *Integrative Art Psychotherapy* while the second part is dedicated to an example from my practice in psychotherapeutic work with trauma.

Firstly, I'll give some *basic assumptions* of Integrative Art Psychotherapy:

- Integrative Art Psychotherapy, established by the author of this presentation as her original approach; IAP has its own theory (mainly humanistic) combining different therapeutic methods and techniques: transactional, gestalt, bioenergetic, psychodramatic, cognitive-behavioral, systemic and artistic, reflecting the psychotherapeutic training of its founder, who is in charge of education, investigation, training program, practice, supervision and workshops in Art Psychotherapy.
- Integrative Art Psychotherapy is a holistic approach, not limited to one psychotherapeutic model. It is a multi-modal approach; multi level oriented psychotherapy (1. intra-personally, 2. inter-personally, and 3. trans-personally).
- Integrative Art Psychotherapy's epistemology is circular, instead of being linear (the basic assumption is interconnectedness, which means that everything is connected with everything, and that interdependency exists between the parts of the whole).
- Art and creativity can be useful in several ways: they may help initiate contact, establish communication, serve as means of externalization of inner images and affects from the past, clarify them and provide a safe frame within which to organize a patient/client's communication. The most important attribute of art psychotherapy is the possibility of patients/clients continuing use of art psychotherapy even after the end of the therapeutic treatment. It offers them an additional, fresh meaning and pleasure in life.
- In this manner IAP enables the bridging of the gap and a finer synthesis between the verbal and nonverbal, the conscious and unconscious, the external and internal, speaking and doing, reality and fantasy, rationality and intuition. All of this assists and allows for the unity of body, soul and spirit. Basically, it is *holistic psychotherapy.*

Integrative Art Psychotherapy (Milenković, S., 2000; 2002; 2003; 2006; 2009; 2010) is not limited to one psychotherapeutic model. It opens up doors for the integrative art psychotherapist to be effective with a wide range of individuals, with different techniques and approaches. The process involves use of creative artistic media by the patient/client, in the presence of a psychotherapist, working through issues and concerns which have led him or her into psychotherapy to the positive therapeutic outcome. It is consciousness-based multi levels holistic psychotherapy approach including soul, body and mind.

One of the most prominent ego-psychologists and art historian, Ernst Kris (Kris, 1970), believed that the exploration of art in all of its forms of expression was, in essence, the study of communication. Psychology is also a study in human communication, as well as the ways it can be transformed. A special place, therefore, belongs to the magical power of the image: the image gives power over something which is presented by it, but, at the same time, it represents a future plan of action.

In that way, *the image* in the Integrative Art Psychotherapy has multiple functions:

1. It can be used as *contemporary diagnosis*;
2. It can be used as *psychotherapeutic means* or de-construction or re-construction of the previous, starting image;
3. It can represent the positive *therapeutic goal* and *prognosis for the future;*
4. It can be a way of *creating and keeping contact* with the client/patient;
5. It can be the base for one multi-level consciousness-based transpersonal/spiritual psychotherapy

Art psychotherapy in this form is a powerful humane science, which can be put to work in guiding social change and preventing or mitigating the more severe expressions of the human tendency towards regression.

This presentation includes an example from my practice to illustrate all of the mentioned functions of the Integrative Art Psychotherapeutic work in which the image can be used as a powerful therapeutic tool.

EXAMPLE FROM THERAPY

A person is developmentally traumatized and she has suicidal thoughts; "every day is difficult, unbearable", one eternal 'now' spent in anguish which seams unbearable.

It has taken a lot of work with her. First, it was necessary to gain her confidence by showing real interest in the client and offering undivided attention and unconditional acceptance in the initial stages, as well as safety. It certainly involved making an anti-suicidal contract, making the client agree that she would not kill herself while the therapy lasted. (In the course of therapy, as progress is achieved, the client is expected to make the decision from the perspective of the Child (Core Self) that she wants to live and will not commit suicide. Without such a decision, the therapy is not completed and there is a strong possibility that the client will commit suicide in future.)

Halfway through the work, the client speaks about her dream: she is lying on the pavement, curled up, and the cars run her over, drive over her, and she does nothing to avoid it. She feels completely helpless to do anything except to be passive and to suffer.

We further work on this dream through drama art therapy work. I ask her to take the position from her dream – to lie on the pavement (to use her body as a bridge to deep-seated emotions of sadness, terror and suffering. The room in which our therapeutic work is performed is representative of living space, in this case, 'the street from the dream'. She lies down curled up on the floor (in a foetus-like position), her head covered with her hands and her eyes closed. She is completely closed to the world around her and everything that is happening in it, lonely, isolated, abandoned, 'ran over' and 'trampled' by all who happen to share her life. (The original play is with parents – father and mother.)

I lie down beside her, without touching her, and stay that way for a while in silence, so that she may feel and accept my presence. Then I repeat the words from her dream and ask her how long she will lie in the street and let others 'trample' on her. Compassionately, I continue to stunt double (and speak aloud instead of her) her feelings and say that it is hard and painful when people trample on us, carelessly and indifferently.

She cries. She realizes I have understood her suffering. While continuing to talk near her ear, almost whispering, I suggest that she opens at least one eye and looks at me (because her hands are still over her eyes). I also tell her that she is important and that all of her suffering will stop or at least become lesser if she opens her eyes and sees a quite different world, one in which she is welcome, where there is love for her. (Actually, I ask her to wake up from her nightmare, but also from her daily fear.)

She opens one eye first, then the other, and – seeing my face close to hers – she smiles back in response to my smile and joy that she has woken up.

Then I slowly encourage her to get up and see the world around her, to look at it closely and see if it has anything interesting and beautiful to offer to her.

Thus the process of her recovery runs from suicidal thoughts and wishes to her access or return to her own self, her authentic self – joyful and ready to enjoy, as well as to creating herself in the future.

But the process of recovery from her developmental trauma lasts for a couple of years, being slow but moving forward, finding her voice and decision for a happier, more fulfilling life.

CONCLUSION

The challenge of trauma treatment is not only in dealing with the past but, even more, enhancing the quality of day-to-day experience. As we know now, traumatized patients had learned to shut down the brain areas that transmit the visceral feelings and emotions that accompany and define terror. Yet in everyday life, those same brain areas are responsible for registering the entire range of emotions and sensations that form the foundation of our self-awareness, our sense of who we are. What we witnessed here was a tragic adaptation: in an effort to shut off terrifying sensations, they also deadened their capacity to feel fully alive. So, we must most of all help our client/patients to live fully and securely in the present. Being able to feel safe with other people is probably the single most important aspect of mental health. Safe connections are fundamental to meaningful and satisfying lives. Numerous studies of disaster response around the globe have shown that social support is the most powerful protection against becoming overwhelmed by stress and trauma. Considering the social support,the critical issue is reciprocity: being truly heard and seen by the people around us, feeling that we are held in someone else's mind and heart.

Dalai Lama's words sounded very promising and calming when he said: "Compassion is my religion" pledging for the world which can be friendly and accepting, only when we deeply understand that "we are the world" (Krishnamurti, 1972).

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TEPSYNTESIS APPROACH TO THE TRAUMA

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Abstract. Our Body Psychotherapy School TePsyntesis, as well as numerous scientific research around the world, strongly emphasize that in work with Psychological Trauma we must include body-work. So, success in Trauma work is impossible without knowledge of Body Psychotherapy. Results of famous researches done by Kerstin Moberg, Bessel van der Kolk, Babette Rothschild and their successors are indicating that Body Psychotherapy is the most efficient way to treat Trauma. Tijana Mandic's work with creative bonding is important for our approach. In TePsyntesis, we are using both verbal and nonverbal channels of communication. In our experience, body-work can lead us much deeper in trauma history than any verbal kind of psychotherapy can. This is the only way we can reach prenatal as well as post-natal levels of trauma. In TePsyntesis we are using great variety of methods and techniques to treat Trauma, intensify healing process and help our clients to grow further. All techniques are based on Body Psychotherapy approaches, but because they differ very much we tend to use deeper methods than most, because they lead us to the source of trauma which is necessary in order to eradicate it in a healthy and holistic way. Our research indicates that in trauma healing process first and foremost we have to develop body awareness, to calm down perception of physiological changes, to develop somatic ego functions and resources, to find good support and establish a felling of safety for a client etc. Progress in therapy process for a client is measured by following indicators: centering, grounding, ego-strengths, self-concept and energy flow through body segments (ocular, oral, cervical, thoracic, diaphragmatic, abdominal and pelvic). Furthermore, energy flow through body segments should become stronger and person is expected to learn how to deal with high energy level in order to deal with stress situations related to trauma in the future, and not be re-traumatized by it. Based in TePsyntesis experience, we would also like to mention few specific kinds of trauma that are seldom identified but are important to learn about, in order to make trauma therapy efficient: Onto-trauma, Taboo-trauma, Compassion-trauma, etc.

Keywords: *Trauma Research; Body Psychotherapy School Tepsyntesis; Onto-Trauma, Taboo-Trauma, Compassion-Trauma.*

INTRODUCTION

In this article we will discuss two issues:

1. Successful trauma work is impossible without knowledge of Body Psychotherapy; and
2. Our experience and approach in working with Trauma in the TePsyntesis School.

Working with trauma we see very clearly the limitations of verbal approach. We believe that work with body is important as well as verbal work. Modern scientific research in trauma field are indicating this gap and urging psychotherapists to remember this forgotten unity of body and mind.

In our school TePsyntesis (body-psychological synthesis) we are also dealing with trauma work besides other issues. Often, trauma resolution was a beginning of a successful human development.

TePsyntesis is a scientifically based Body Psychotherapy approach which combines systematic work with the body and the mind helping to achieve integration on somatic, emotional and spiritual level, as well as Power and Love-Bliss development. The aim of our work is Psychotherapy but also Ontogogy – psychological growth to full human potential. In doing so we use original concepts for better understanding of some phases and possible continuation of psycho-sexual development. In praxis, it was obvious that trauma work was necessary all along the whole scale of development.

Also, TePsyntesis is integrating old knowledge and traditions with modern scientific knowledge and research. While specific terminology was changing, trauma work was present in centuries old traditions. For many centuries body and psyche have been understood and treated as unity in China, India, across Greece to Europe.

But what happens with modern science of psychotherapy which starts with P. Janet and S. Freud? Was trauma work actually the start of modern science of psychotherapy?

HISTORY

In trauma treatment the limitations of verbal approach are more than obvious, so body work, along with verbal approach, is crucial and unavoidable. The importance of both verbal approach and body work in psychotherapy in general, as well in treatment of trauma, was evident over a century ago to Pierre Janet as it is today. According to Boadella, Janet founded psychological analysis (psycho-physical therapy) over 100 years ago, Freud's psychoanalysis grew out of this, but Freud limited his way only to verbal approach. In this sense we can understand that body-psychotherapy, at least as practiced and understood by Pierre Janet, is older than psycho-analysis which grew out of Janet's work: so, we can say that Body Psychotherapy is the oldest and first psychotherapy in modern era.

Freud moved away from an integrative approach which gave equal value to the body, into a basically verbal approach tending to neglect of the body and the importance of non-verbal communications and concentrate on primarily verbal communications. Wilhelm Reich later gave again equal value to the body. Actually, Janet was the first body-psychotherapist and a predecessor of Wilhelm Reich and neo-reichians as well other body psychotherapists.

Janet understood the relationship between breathing and emotionality, how important is to investigate it and how important in trauma-work is re-education of movement. As David Boadella states, Janet "understood that psychological analysis was a psycho-physical process, and that analysis needed to be followed by synthesis of the neurotic patient's previously fragmented and dissociated states… Janet's vast work has been relatively neglected until it was rediscovered by modern research into post-traumatic stress syndrome, where his insights are seen to be of crucial importance… Body and mind were inseparably connected: to change one involved the other…".[34] So, it can be argued that trauma work is actually the start of modern science of psychotherapy.

IS VERBAL THERAPY ENOUGH?

New investigations in Psychology of Trauma are suggesting that: psychotherapy's holy of holies - the talking cure - may not be of much use in treating trauma patients! Contemporary and famous scientist Bessel Van der Kolk: *"As long as people don't feel their bodies, we're wasting our time and theirs trying to do psychotherapy."*

We need to be reminded by Van der Kolk: "Words can't integrate the disordered sensations and action patterns that form the core imprint of the trauma. Treatment needs to

[34] Boadella, D. (l997). Awakening sensibility, recovering motility. Psycho-physical synthesis at the foundations of body-psychotherapy: the 100-year legacy of Pierre Janet (1859-1947), *International journal of Psychotherapy,* Vol. 2, No. 1, 45-56.

integrate the sensations and actions that have become stuck". He also notes, "Clients may look for 'relationship' in therapy because they can't stand what they feel in their own bodies – as long as the therapist is with them, they can distract themselves from their inner experience." In conclusion Bessel van der Kolk describes body psychotherapy as the most effective way to treat trauma and reinforce it with many investigations.

First, Janet understands that: 'the reminiscence became traumatic only because the reaction to the event was faulty. …He must now be helped to perform the internal acts connected to the past events' (Janet, 1924). This insight is still the key principle for many Body Psychotherapy schools: to forget the past is really to change behavior in the present.

TEPSYNTESIS METODOLOGY WITH TRAUMA

In general, treatment process in TePsyntesis is divided into 7 phases:

1. Establishing of vital safety and trust,
2. Developing Somatic Resources for Stabilization, Ego functions and strengths;
3. Processing traumatic Memory,
4. Decision work, specially Core decision redefinition,
5. Restoring Acts of Triumph or Peak Experience,
6. Integration,
7. Success in Normal Life.

Of course, this is not to be understood as formula, there are variations to specific cases, structures and situations. But it is important to understand that in dealing with Trauma we must work very gently and slowly. Trauma work is best done very slowly, only going in little steps at a time and then coming out and establishing equilibrium again. Than we would say the process should continue very softly, not focusing on going deeper into fear, but very gently to approach being with feeling, not going deeper into it, but sensing what happens in the body.

During past decades many kinds of Body Psychotherapy and among them Radix, as it was taught to us before, involved too much tearing down armor and insufficient building up structure. We agree, armor needs to be dealt with, so the feelings and trauma can emerge but this can often leave the person too vulnerable and unable to deal with the world around them especially in a case of trauma. There was no understanding that at the same time, structure is needed to be built for the individual to stand grounded and move forward in a healthy way. We are doing it here in our school. So we insist on building up structure and psychological resources to stand this process in the best way.

We make it here more adjusted to the present time, softer and less pushing. We keep breathing and working with pulsation and charge, letting down armor and building up structure: adding ego functions and ego strengths, Emphasizing Body Awareness, safe place, boundaries, containing, contact etc.

Before entering in Treatment we are working to understand each case the best we can and theirs specific cognitive, emotional and sensory-motor dimensions of hierarchical information processing. We analyzed further: defense, attachment, exploration, energy regulation, care-giving, sociability, play, and sexuality. Finally we explore the way of integration.

In TePsyntesis we are emphasizing few important principles in work with trauma. We can not describe all of them here, but besides principles of non-verbal approach, unity of body and mind, we have been talking about, we find important to speak more about Ego strengths for beginning.

EGO STRENGTHS AND FUNCTIONS

In TePsyntesis we are learning how to develop Ego Strengths and Functions. We are working always parallel on psychological and somatic level. The advantage of this work is that you can almost touch Ego functions, for instance. The way of work depends from each Character structure and each personality.

To give you orientation, we will present to you a little bit simplified list of Ego Functions:

1. CONNECTING – ability to open, make contact, bonding, accepting support, the emphasis is on the heart as the centre of a love relationship, and on patterns of cooperation in partnership; both in-stroke and out-stroke.
2. GROUNDING – contact with outer reality, ability to stand one's ground, feel rooted and supported by it; relationship to periphery and reality; emphasis is on the feet and the spine as the basis of autonomy, OUT-stroke is emphasized.
3. CENTERING – contact with the self, emotions, being oneself in one's different roles; feelings of self worth; the emphasis is on the abdomen and on pre- and peri-natal aspects of experience, womb life, birthing. IN-stroke is emphasized.
4. BOUNDARIES – ability to set boundary, to define personal space, energetic boundaries, self assertion – making space for oneself in social contact; the emphasis is on the solar plexus, constructive movement patterns of constructive aggression, and constructive self defense, or safety-seeking.
5. CHARGING – ability to charge and to manage energy: build it, contain it and discharge it. The emphasis is on the energy centers, and on pulsations of pleasure in the body, the handling of healthy sexuality, as well as sexual problems. Somatic basis for stress management.
6. BALANCING – Stability, if situation changes – emotions should not be pulled; balancing one's own feelings and desires against others' expectations; balance of facade versus openness in interactions; balancing being oneself with being a group member; balance of managing stress and resolving it.
7. "ČOJSTVO" (assertiveness and honor expression) – Ancient Serbian concept, indicating assertiveness, ability to stand for my/others rights, to protect myself and other – in first phase, in second phase is also to protect other from my own selfishness, greed, animal instincts and cruelty. It is humanizing the other – not to treat him/her as a object.
8. EXISTENING – position in own existence; stance towards life; poise for action, our attitudes to time, space, energy and money; personal stance; standing on one's own; position on values and norms; orienting (keeping or losing one's head); holding patterns in the body, polarity tendencies in the body, and impulse qualities in movement.
9. COMUNICATION – ability for interpersonal contacts, simultaneous OUT&IN Stroke, patterns of closeness and distancing; ability for FACING (eye-contact, imagery) Sounding (voice, speech, language); reaching out, gripping and holding on; drawing toward oneself and holding close; receiving and giving from one's core; pushing away – saying no, and holding at a distance; releasing, letting go.
10. DEVELOPMENT – ability for psychological growth, to fulfill potentials, ability to differentiate healthy spirituality as opposed to pseudo spiritual escape from the body. Attitudes to death, resources and qualities of essence.
11. OTHER – principles of reality, reality testing, cognitive skills, grasp of reality; ability to apply cognitive understanding to different situations; planning; (contemplation-

consideration; body awareness, psychological harmonization, integration) and other – depending from specific case, culture, character, personality, etc.

There are many other classifications, but we find this one the most functional in practice. So, the principle is: develop Ego strengths!

SYNTHESIS

In our school TePsyntesis, as name says, we are trying to make best synthesis of the contemporary knowledge with ancient. In the case of Trauma, body awareness is another important principle emphasized in modern as well in ancient traditions like Yoga, for example Yoga Nidra, etc. Then we can proceed toward another principle.

Somatic experiencing

Basis for this is Janet psycho-physical analysis: "In psychotherapy we are always concerned with changing actions, of diminishing them or of increasing them. A psychological therapy ... is the transformation of the mode of functioning' (Janet, 1924). Based on it, Peter Levine founded the somatic experiencing approach, which is focused on resolving trauma by releasing the unused motoric potentials. Body memories (body memory or motoric memory) are learned sequences of coordinated motor acts chained together into meaningful actions (walking, riding a bike, skiing, etc.). "Trauma is about body memories the organism executes when exposed to overwhelming stress, threat and injury. The failure to neutralize these motoric procedures and restore homeostasis is at the basis for the debilitating symptoms of trauma… In response to threat and injury we orient, dodge, duck, stiffen, brace, retract, fight, flee, freeze, collapse, etc. All of these coordinated responses are somatically based – they are things that the body does to protect and defend itself. It is when these orienting and defending responses are overwhelmed that we see trauma… Trauma is fundamentally a highly activated incomplete biological response to threat, frozen in time. For example, when our full neuromuscular and metabolic machinery prepares us to fight or to flee, muscles throughout the entire body are tensed in specific patterns of high energy readiness. When we are unable to complete the appropriate actions and discharge the tremendous energy generated by our survival preparations, this energy becomes fixated into specific patterns of neuromuscular readiness. Feedback generated from these incomplete neuromuscular/ autonomic responses maintains a state of acute and then chronic arousal, tension and dysfunction in the central nervous system. Traumatized people have become fixated in an aroused state."[35] The principle is to complete, finish body memory and neutralize it, discharge energy, to complete biological responses.

Tree level integration

The integration of all three levels – sensorimotor, emotional and cognitive – is essential for recovery to occur. That is why in TePsyntesis, by studying the relationships of these three layers, we can better understand our responses to trigger events, memories, words and situations. Each layer can be a source of inner guidance and strength, but can also overwhelm and control

[35] Levine, P. (1990). Memory, trauma and healing, *Energy and Character*, 2, 2, 22-43.

us. Finally we explore the way of integration. "While functionally the three levels of information processing are mutually dependent and intertwined (Damasio, 1999; LeDoux, 1996; Schore, 1994), clinically we find that it is important for the therapist to observe the client's processing of information on each of these three related but distinct levels of experience, differentiate which level of processing will most successfully support integration of traumatic experience in any moment of therapy, and apply specific techniques that facilitate processing at that particular level. Such an approach ultimately fosters "holistic" processing where all three levels will operate synergistically.[36] So, principle is Integration.

Trauma as two types of arousal

Traumatized people can have: hyperactive or passive defense or an alternation between the two. "When defenses become hyperactive, they manifest as habitual defensiveness, aggression against self or others, hyper-alertness, hyper-vigilance, excessive motoric activity and un-controllable bouts of rage, and so on. Habitual passive defenses may manifest as chronic patterns of submission, helplessness, inability to set boundaries, feelings of inadequacy, automatic obedience, and repetition of the victim role. The person may appear lifeless and non-expressive, and may fail to defend against or orient toward danger, or even attempt to get help. Poor tolerance for arousal is characteristic of traumatized individuals" (Van der Kolk, 1987). Optimal for work is zone between hyper and hypo arousal. If we work in the zone of hyper or hypo arousal problems and dissociations are starting to appear.

TePsyntesis is inspired with the knowledge of "The Capacity for Modulating Arousal" (addressing the issue of cathartic psychotherapy techniques tendency to re-traumatize if not properly modulated). Our professionals find that this kind of work often reduces trauma symptoms such as phobias, panic attacks, aggressive outbursts, flashbacks, insomnia or obsessive thinking related to traumatic events. New ability to track body sensation helps clients experience present reality rather than reacting as if the trauma were still occurring. Our experience shows that TePsyntesis model of working with trauma is an efficient way of helping the client re-establish a healthy reflex system such as fight, flight or freeze response and to recognize, understand and end dissociation patterns that maintain the trauma active. So, principle is: keep Arousal in Optimal working zone.

The body remembers

We find highly useful Babette Rothshild`s (colleague from Radix school and Bodynamic) recommendations for work with Trauma, importance of maintaining Defensive responses, to achieve safety and create bonding, about avoiding Touch in Trauma in some cases, achieving confidence in applying the brake before use the "accelerator", etc.

Another important principle is that body remembers and we should develop our actions first toward understanding it and then to integrate with another levels, like emotional or cognitive, but not to forget to comfort, take care about body during the whole process of integration. Do not get lost in instable levels. So, the principle is: Remember the Body!

[36] Ogden, P. (2000), Traumatology: One method for processing trauma memory, Volume VI, Issue 3, Article 3, Sensorimotor Psychotherapy Institute and Naropa University, Colorado.

Developmental and Over trauma

In clinical practice is very important to understand the difference between Developmental Trauma and Over Trauma, how we call them in TePsyntesis. Developmental Trauma happens normally during growth, with parents, social environment, more or less to all human beings, stress is often in educational systems, etc (and we can call it GO Trauma because of passing characteristics and because Ego goes trough it, more or less easily and functionally). OVER Trauma is usually traumatic event, huge catastrophe, great dangerous, shock, wound, out of normal experiences, etc.

GO trauma characteristics: CNS dominance and mediated, Character structure and its defenses are functional, Ego functional and mediating, etc.

OVER trauma characteristics: ANS dominance, biological reflexes: fight or flight, are insufficient; dissociation is frequent, Ego disorganized, Structure easy to fragment, etc.

Therapy with GO trauma can include more stress or cathartic ways, etc.

With OVER trauma we must be very careful with stimulation and arousal; therapist should not stimulate dramatic catharsis, should work a lot on body awareness, strengthening the whole structure, etc.

Body Psychotherapy approaches are not synchronized in terminology in this field. For example, Hakomi school name it Developmental Issues and Traumatic Wounds. Bodynamic name it Developmental Trauma and Shock Trauma. There are other terminology variations, but it is important to understand principles behind it.

So, the principle is: differentiate Developmental Trauma and Over Trauma and work differently with each.

From integrative perspective we have tried to present to you some important principles in Trauma work and to express our gratitude to each school who shared its knowledge with us. Of course, Trauma work is very complicate and here time and space are limited, so we can not complete all, it can be only revue of some important points and principles for Trauma work.

Based on work with trauma and another important achievements and contributions, it looks like Body Psychotherapy is becoming mainstream in the beginning of this century. But note that serious Body Psychotherapy schools are no longer considered a new age approaches (we know it is millenniums old knowledge with important modern improvements and procedures). We are respecting General Standards in Psychotherapy as well standards for Training. But there are many superficial and partial Body Psychotherapy approaches who are not respecting standards and principles and who are still considered a new age approaches.

Trauma case

In TePsyntesis praxis of working with trauma we find very often a great deal of different abuses. In female cases, it is often sexual abuse which is mainly suppressed and even if they have no memory of it is still a great obstacle in their daily life. Often it takes a few years of psychotherapy in order to make them ready to face the source of their problems, the trauma itself. In a case of a young beautiful woman who enrolled in our Training program she had this type of trauma she couldn't remember. She always felt like there was something wrong with her, she was prolonging her studies, she was having problems in dealing with her family and social situations, she had troubles to find a partner and even more trouble to make those relationships work and she felt like she was sexually challenged. She was lonely, anxious and desperate. After

a two years of training and lot of psychotherapy, verbal but especially body work, her suppressed memories started to emerge. She was shocked she could "forget" that kind of intense traumatic experience. But before we started Trauma treatment, we did a lot of work in body awareness exercises and somatic ego functions. When she was ready, slowly we approached the theme of the rape she experienced. While doing Trauma treatment, in the same time we made sure to build her psychological resources, to make her feel safe and supported. Thanks to that, she had the strength to confront her rapist, turn the tables of power around and come out victorious in the end. Her ability to find healthy and assertive solutions in stressful life situations have significantly increased. She finished university, made positive changes in her personal relationships with friends and family. She started to have more luck in romantic relationships. Now she is happily married and has three children and satisfied with her life.

NEW UNDERSTANDING OF TRAUMA IN TEPSYNTESIS

While working with people, besides well known kinds of trauma, we are noticing some new contemporary sorts of trauma, caused probably with more and more alienated way of life. Actually, these traumas are not new, just our ability to see it, recognize, name it and talk about it is new. This ability is based on growing scientific interest in dealing with problems: lack of empathy, personality disorders, two dimensional people, psychopaths and snake in business.

Based in TePsyntesis experience in working with clients, we would also like to mention few specific kinds of trauma that are seldom identified but are important to learn about, in order to make trauma therapy efficient: Onto-trauma, Taboo-trauma and Compassion-trauma.

ONTO TRAUMA is preventing full human development and potentials of psychological growth. We are referring to Maslov and Bugental suggestions that we call counseling or therapy "ontogogy", which means trying to help people to grow to their fullest possible height. Perhaps that is a better word than a word derived from German: "psychogogy," which means the education of the psyche, but body is missing what limits it. Onto trauma is abortion of ability to reach peak of human capacities. For example: dependence from parents is transferring to boss or politician or some authority from environment. Because fear is not resolved that leads to over adaptation rather than full development. Constant fear of confrontation, and delusions that they must adapt to all given conditions, stops human psychological growth. Inside, accepting this over adaptation is, mainly unconscious, destroying self-esteem and often causing psychosomatic illness. (NO-GROWTH)

TABOO TRAUMA is inability to think and talk about important individual and social events or decisions in life. It is recognized by dead silence or silly talk. This people have learned to close the eyes. Those frozen people are impotent to influence important decisions. But at the superficial level to the silly people it gives image of Healthy society. It is not only one time trauma, they are almost every day re-traumatized. Those people become alienated from real self, real goals and real world. Those people are giving-up their own power and staying powerless. (NO-TRUTH)

COMPASSION TRAUMA is killing empathy and gentle feelings in humans. More and more on work, especially in international company and corporations, requests are to be senseless, cruel, to hurt people easy. People, especially those with empathy, compassion and other human qualities are punished and re-traumatized almost every day. (NO-HUMANITY)

Maybe we can add the biggest trauma possible: GROSS CIVILIZATIONAL TRAUMA – present inability of the whole society to deal with people who are causing most of all this traumas – names are different: no-empathy people, sociopaths, two dimensional people, psychopaths and similar. W. Reich was describing part of it in his concept of emotional plague. His student, Eric From, was writing about Fear from Freedom and malignant aggression, but all this is forgotten. We are missing good and efficient strategies, even the ability to name it properly. If we do not develop better social organization, all this talks, books, Congresses about Trauma are senseless. We all in global civilization are on the path of destruction. (NO-EXISTANCE)

Quo vadis? What is the way?

At the moment, in general, 3 dimensional people are afraid of their humanity and very confused, but 2 dimensional people are simply, focused and persuazing all of them that they are better. Very often, 3 dimensional people have no awareness about their qualities, missing self-confidence and self-esteem. They have ceased to develop their human potentialities. How to help? Maybe 4-th dimension is missing?

We need to find good ways to personal growth after trauma as well to growth of society after this permanent social trauma. Society organization is very problematic at the moment, lower than personal growth work organization and need lot of contributions to improve it. Maybe development of these ideas can also help?

WCBP SYNTHESIS

In our school TePsyntesis, besides our original concepts and neo-reichian Radix tradition, we are trying to do the best synthesis of similar approaches in some points. Some Body Psychotherapy schools have developed very good ways to work with Trauma in specific areas, but it is very hard for colleagues to use it because each school has developed its own terminology and different names for basically same techniques. Readers are confused. We believe that it is necessary to unite all BP - Body Psychotherapy schools. We have founded WCBP - World Council for Body Psychotherapy with aim to form one **unified modality: Body Psychotherapy**. This modality will be part of general knowledge in Psychotherapy, not something split and lost. Also, from another perspective, if we look at some methods and techniques in BP schools, we can see that partially they are borrowed from old spiritual traditions. Just names are different. Parts are taken from old eastern traditions. It was once in the time one big wholeness. Now is split and partially forgotten. Better social organization was missing at that times and abuses have been often. Well, if it was whole, again can become whole. It will take more time and effort to learn, but it is possible.

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RENEGOTIATING OF THE TRAUMA

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Abstract. This paper explores the method of "Renegotiating the trauma" inspired by the work of Peter A. Levine (1997). Faced with various, diverse and incredibly heterogeneous definitions, theoretical models for conceptualizing trauma and huge variety of contradictory methods and techniques for treatment, we felt encouraged to create an Integrative approach. Our Integrative approach consists of Body psychotherapy (Klisić, 2004), Relational Transactional Analysis (Hargaden and Sills, 2008) and Creative bonding (Mandić and Ristić, 2013). In this rapidly changing world, traumatic experience became a more frequent and universal than a rare and exceptional human experience. Individual and societal traumas are inseparable part our reality. The process of healing trauma begins with focusing, learning about and concentrating on somatic experiencing and somatic ego. By recharging, supporting and strengthening the healing process we are developing body awareness of it. Contrary to the confrontational or interpretative models, we start carefully and gently, using the power of psychotherapist's sensitivity, gentleness and tenderness. In a safe, human context, we are facilitating a needed creative bonding. Psychotherapist must be able to contain traumatic process, offer protection, permission, potency and purposing to interacting processes, leading toward integration. Psychotherapist is encouraging, balancing, timing and harmonizing the zigzag movement of two opposite processes that are in the double bind dynamic point at the core of trauma. We use a metaphor of the "Body as a Theatre" where we are able to see the drama and the reality of the traumatized person. Reaching the core and the dynamic point of traumatizing process, after safely reinforcing the healing powers, having a safe relationship with the psychotherapist (and sometimes with the group) make transformation possible. Renegotiation at the trauma core is enabling integrative, transformational process to flow. We begin the process of psychotherapy, follow it and finish it on physiological level, moving to psychological, social and spiritual levels as we progress. Gradual and gentle integration of processes and levels enable the flow of transformation. Successful renegotiation leaves deep personality changes.

Keywords: *Trauma Core, Healing Process, Trauma Process, Renegotiation, Somatic Ego*

INTRODUCTION

Some people believe that civilization has brought us safer and more protected environment to live and create in. But, in this quickly and sometimes abruptly changing world, the process of adaptation is neither simple nor undemanding. Amongst other things, substantial and extensive climate changes, accompanied with political, economic and cultural changes, require and command complex and swifter adaptations. Therefore traumatic experience became a more frequent and universal event than a rare and exceptional human experience. Individual and societal traumas are inseparable part of our reality. We should not deny them because the long term consequences are numerable, on an individual as well as on societal level, and they prove to be destructive in considerable variety of ways.

If we do our research of the subject, we will find that modern concepts of stress were created over two and a half millenniums. In all of them human survival was a key concept. We might learn that Greek thinkers insisted on a picture of harmonious and united human nature. Perception and description of a particular disaster were more or less clear, but description and understanding of human life after that disaster was debatable. Greek thinkers associated human functioning with homeostasis and placed dynamic internal harmony in agreement with nature. Along these lines of thinking emerged Hypocrite's term dyscrasia (disturbance), which describes

the disturbance in human functioning opposite to idiosyncrasie (unique and specific human adaptation to a specific event). Much later, in 1818 J. Heinroth wrote about somatopsychic disturbance, Claude Bernard made researches on disharmony and disturbance and Walter Cannon's formulated homeostatic theory which was particularly relevant to today's research into stress issues. While perceiving inconsistencies in some cases histories and borrowing a concept of stress form physics, Hans Selye (Selye, 1976) made a distinction between stress and stressor, crucial for today's research. In this field of research it is essential to distinguish the stimuli that arouse us from the individual response to them. Stress is a general reaction cluster of nonspecific bodily reactions to a demand for adaptation in changed external conditions and it also represents a general adaptation syndrome in an attempt to restore internal homeostasis important for survival. It is clear that the use of only one, specific defense mechanism in that situation would not suffice and that homeostasis would be seriously imbalanced. It is a process in which the organism uses all available defense mechanism and fails. A person could be heavily and permanently damaged. Unique and undivided self demands the holistic approach in understanding and treating those issues. Its biological, psychological, sociological, ethic, aesthetic and spiritual unity must be restored. Furthermore, the concept of "psycho-neuro-immunology" of R. Ader (Ader, 1981) was very inspiring for this research. In our research and practice we use the definition offered by Predrag Kaličanin i Dušica Lečic-Toševski, 1994. According to them (Kaličanin and Lečić Toševski, 1994) stress is a highly individual psycho-neuro-endocrine-immune reaction to a stressor. Holistic approach and circular determinism are required and wanted for understanding this model. Stress might be explained with multifactor etiology and requires consideration of various factors influencing its pathogenesis, so that prevention and therapy should also be multidimensional.

Faced with various, diverse and incredibly heterogeneous definitions, theoretical models for conceptualizing trauma, and huge variety of contradictory methods and techniques for treatment, we felt encouraged to create an Integrative approach. Our Integrative approach consists of Body psychotherapy (Klisić, 2004), Relational Transactional Analysis (Hargaden and Sills, 2008) and Creative bonding (Mandić and Ristić, 2013).

DEFINING TRAUMA

Simply put, trauma is a type of damage with an incredibly diverse range of symptoms, leaving the person damaged, sometimes for ever. Trauma − which means injured in Greek − is often the result of an overwhelming amount of stress that exceeds one's ability to cope or integrate the experiences involved with that traumatic experience. Trauma can be caused by a wide variety of events, but its etiology is associated with aspects connected to an individual sense of survival and sense of security. There is frequently a violation of person's familiar frame of reference and private psychological theory as well as bringing the person into a state of extreme danger, confusion and insecurity. It is easier to understand that a catastrophic natural disaster such as earthquake, volcanic eruption, war or other mass violence caused psychological trauma. Less visible could be long-term exposure to situations such as extreme deprivation or milder forms of psychological abuse.

It is clear that the definition of trauma differs among individuals by their subjective experiences, not the objective facts. People will react to similar events very differently. In other words, not all people who experience a potentially traumatic event will actually become psychologically traumatized. The concept of resilience is coined, amongst other things, to

describe, understand and explain how some individuals manage to move on and grow in so horrifying circumstances. This discrepancy in risk rate can be attributed to protective factors from within (some individuals may have that `something` enabling them to cope with trauma) and buffers from without (some cultures cope better with trauma). Mild exposure to stressor early in life might result in building a resilient personality, and active seeking of help (reaching out) might provide societal support and mitigation. A societal network built on professionals and non professionals is of a paramount importance.

According to the (DSM-5, 2013: 828) stress is defined as the pattern of specific and nonspecific responses a person makes to stimulus events that disturb his or her equilibrium and tax or exceed his or her ability to cope. Stressor is defined as any emotional, physical, social, economic or other factor that disrupts the normal physiological, cognitive, emotional or behavioral balance of an individual. Psychologically, stressor is defined as any life event or life change that may be associated temporally (and perhaps causally) with the onset, occurrence or exacerbation of a mental disorder. Traumatic stressor is defined as any event (or events) that may cause or threaten death, serious injury or sexual violence to an individual, a close family member or a close friend.

Our working definition is taken form Peter A. Levine (Levine, 1997; 24):

"Serious threat to ones life or physical integrity: serious threat or harm to ones children, spouse, or other relatives or friends; sudden destruction of ones home or community; seeing another person who is or has recently been seriously injured or killed as the result of an accident or physical violence."

Nevertheless, alongside with these new definitions, we find Freud's definition, at the beginning of his career, still very inspiring: "An event in the subject's life, defined by its intensity, by the subject's incapacity to respond adequately to it and by the upheaval and long-lasting effects that it brings about in the psychical organization". He continued with defined trauma of the boundary as "a breach in the protective barrier against stimuli leading to feelings of overwhelming helplessness" (Freud, 1922). The idea of damaged personality boundary and boundary lesion helped understanding the impact of a huge external force breaking through the personality boundary, thus creating the traumatic flows and the traumatic vortex. This breach starts the traumatic flow.

Some proactive responses include attempts to address and correct a stressor before it has made a noticeable effect on lifestyle. Reactive responses occur after the stress and possible trauma have happened and they are aimed more at correcting or minimizing the damage of a stressful event. A passive response is often characterized by an emotional numbness or ignorance of a stressor. Those who are able to be proactive can often overcome stressors and are more likely to be able to cope well with unexpected situations. On the other hand, those who are more reactive will often experience more noticeable effects from an unexpected stressor. In case of passive responses, victims of a stressful event are more likely to suffer from long-term traumatic effects and often enact no intentional coping actions. These observations may suggest that the level of trauma associated with a victim is related to such independent coping abilities.

THE REALITY OF THE TRAUMATIZED PERSON

Traumatized person lives in anger or fear, paralysis or agitation, victimization or persecution, with such a complex variety of symptoms that it is very difficult sometimes to

understand what the original Big Threat was. The person finds herself in a vicious circle without the contact with the vital internal energy, which could enable her to solve the problem. Not only that the natural discharge is impossible, but also it becomes a threat *per se* and the orientation reaction becomes a displaced, obsessive search for danger. Without the possibility to identify the real treat, confused and bound by repetitive, compulsive actions, the person is chronically tensed. Armed with, unfortunately dysfunctional former habits, she is unable and insecure to think clearly, learn and solve problems. Traumatized person doesn't understand herself, doesn't understand her own body or mind, so it is very difficult for her to express and communicate to others what is happening. Shame and fear of «going crazy» further complicate the traumatic process.

If we are patient enough, we might find a paradoxical trauma core in the center of the traumatized process. Trauma is not resolved and the person seems to be caught in a vicious circle. That vicious circle is composed of: hyperarousal without the possibility of discharge, various constrictions, feeling of extreme helplessness, multiple dissociation and a communicative double bind. The symptoms develop at the point where hyperarousal, denial, dissociations, constrictions, passivity and trapped situation in the double bind have become chronic.

Arousal is a normal and an indispensable reaction for energizing different survival reactions. It is a natural beginning of a defensive process when we are in danger or near death, literally or symbolically. Once the optimal solution is selected, arousal is closed, the cycle is closed and the person is relaxed and quiet. But when the natural cycle cannot be completed, hyperarousal compels traumatized people, who are with no solution, no trust in their biological self and its processes, to be constantly on a watch. As a crazy soldier, immobilized by fear, imploding with aggression, traumatized person is haunted with rapid heart rate, difficulties in breathing, cold sweating and tensed muscles as only some of the signs that the organism is still ready to fight the thereat. If we add constant worry, compulsive thinking, behaving and various emotional charges to that, we might begin to understand the traumatized person. The person is hyperaroused, but the energy of the nervous system is not able to discharge and the symptoms appear.

Constriction is also a natural and a healthy response in a dangerous situation. Whole attention and other processes are focused on the perceived threat and all the other processes are constricted. Priorities are naturally connected to the Big Threat. But for a traumatized person the priorities are not adequately set and the constriction might govern, amongst other functions, breathing, muscles, body movements, visceral processes and perception. Constriction is coupled with chronic hypervigilance, anxiety, panic attacks, intrusive memory contents and flashbacks.

We have noticed earlier that the reaction of an individual during a traumatic event becomes more important than the trauma itself. The same goes for dissociation. Full extent and range of the traumatic experience is too much for the person to assimilate at one time without dysfunctional consequences, therefore dissociation becomes a valid and basic survival mechanism. But if it remains the only or the main one over the long time span, dissociation becomes chronic and dysfunctional. Quantity and quality of dissociation are crucial for understanding the traumatic process. Symptoms like disorientation and feelings of lost are the first warnings for us not to end up in major personality splitting. The first, functional reason of dissociations is to break the continuity of the trauma flow and give time to the person so she can reorient and readjust, but on the other hand it can dangerously and misleadingly give her dysfunctional impression of a safe pseudo-equilibrium. Too strong, too long and wide range dissociation breaks the continuity in the healing processes. During that time, distortions of time and space occur often. For example, people arrive home from the place of accident without any memory about how they did get there. Split off from trauma, we became split off from our

memory, feelings and behavior. The quality, level and duration of the dissociation are to be monitored. The more rigid and global dissociation, the less is the possibility of integration. Dissociation sabotages continuity in healing process, it separates mind from the body, splits off cognitive, emotional and motivational process from one another, conscious from unconscious, self awareness of different parts of the body and their connection to different mental processes.

Helplessness is closely connected to a universal, primitive biological strategy when facing a life threatening situation. If the hyperarousal represents an additional energy from the nervous system used to solve a problem, like a battery in a car, the helplessness syndrome is an equivalent of the brake. In a trauma they both function like *stop* and *go* commands. Stepping on a gas pedal and a brake at the same time is a good analogy for creation of a traumatic paradox. On one level of our functioning we understand that the threat is over when the energy is discharged, but if we do not have this feed back, we will continue to accumulate more energy while being more focused and constricted and eventually we will hit the gas. When we try to accelerate and break at the same time, hell happens. The confusing mixture of agitation and immobilization is not an illusion, body is immobilized and torn at the same tame, and personality is desperate. The internal forces are in conflict, very different from normal and usual maturing conflicts.

The more we research and go in depth, we will find that the roots of the trauma are instinctive and physiological. Unclosed gestalts are far away from our consciousness and the usual body functioning. Symptoms are basically unfinished physiological responses frozen into fear. The normal process of trembling and reorienting are inhibited and the traumatic process becomes fixated ad defined by symptoms and reenactment. How severe these symptoms are depends on the person, the type of trauma involved and the emotional support they receive from others.

We might also consider adding the communication dimension to this internal chaos where we will see the double bind situation. We might find the internal double bind in the trauma core (communication traps within the intrapersonal dialogue) and we might find those with the other people who try to communicate with the traumatized person. Internal double bind includes both the trauma vortex and the healing vortex. Double bind is a communication trap (Mandic, 2003) in which the person finds herself in `doomed if she does and doomed if she doesn't` kind of a situation. The messages might be defined as follows:

The first message − survive the best you can: fight, flight or faint, or whatever helps.

The second message − you will remain alive only if you die. You failed in fighting, you failed in running away, and you failed in fainting. You are a survival failure.

The third message − don't think about this and don't be aware of the paradox. You don't have the time to think, thinking doesn't help anyway. Nobody will understand you anyway.

The fourth message − follow my instructions – you should be strong and tough. If that doesn't help it is your responsibility, shame on you.

The fifth message − don't believe there are any recipes − this is life, tough luck. You are a coward.

The sixth message − don't leave the situation until you find a solution. Solve the problem now, and if not, I will leave and criticize you.

This is just an attempt to analyze the parts of the double bind communication, having in mind that the messages are not open, overt, conscious nor verbal, except the first one.

Imagine a stage where a traumatized body and soul are trying to survive, keep living with other people and express itself in this way.

RENEGOTIATION VS. REENACTMENT OF TRAUMA

Contrary to the confrontational or interpretative models, we start carefully collecting the data from the body experience and using the power of psychotherapist's sensitivity, gentleness and tenderness. In a safe, human context, we are, at the same time, facilitating a very much needed creative bonding (Mandic and Ristic, 2013). We do not dig deep into the trauma nor go for big emotional discharge. The person is traumatized enough. We start with empowering the healing process.

„Somatic Experiencing" is an approach by which Levine begins the process of healing, reintegrating the split off parts into a whole. He is assuming an existence of a biological need for healing and „The Felt Sense" – a concept verbally difficult to describe and understand with linear determinism in mind. The process of healing trauma begins with focusing, learning about and concentrating on somatic experiencing and somatic ego. By recharging, supporting and strengthening the healing process we are developing body awareness of it. The healing process starts with gathering, assembling, pulling together and understanding large amount of information scattered in the body. The healing process is enabling clarity, finding meaning and restoring instinctive power, fluidity and discharge of the traumatic event experience. The healing process has a specific duality of an individual idiosyncratic quality and universal process quality, associated in the same body. With good timing and pace, the psychotherapist listens and collects the information from the organism, wakening up the energy and following the building rhythm. Sensations will arise from the symptom and symptom will arrive from compressed energy. Creatively related to a psychotherapist, the patient is learning how to trust his instinctive ego functions and empower the healing process.

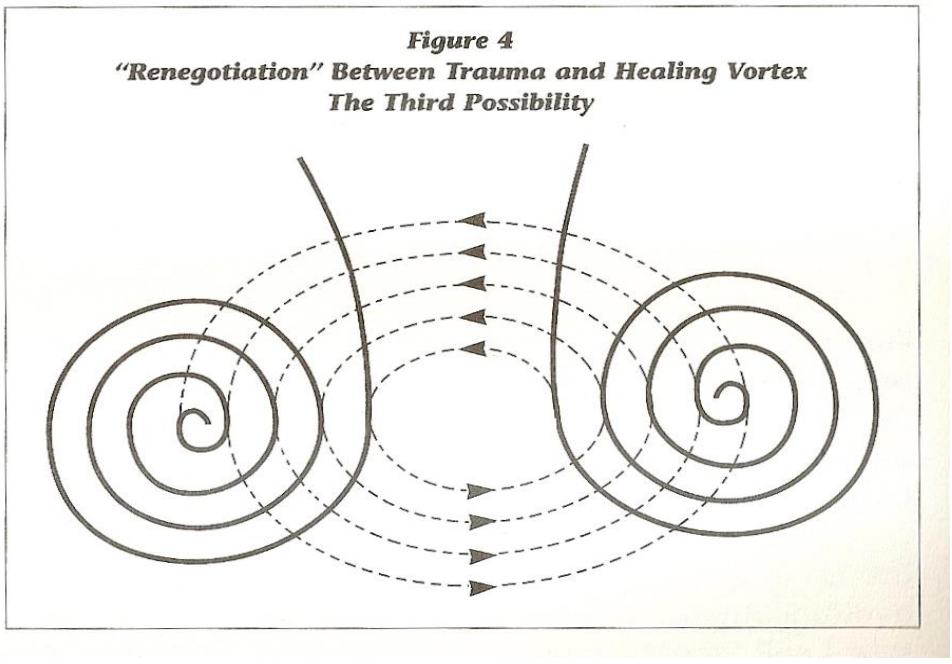
With the patient feeling as safe and secure as possible, the psychotherapist might continue with focusing on the presenting symptoms. Armed with some classical methodology a psychotherapist might dive deep into trauma through the presenting symptoms, following the false and distorted memory fragments that are heavily emotionally charged, thus reinforcing the trauma nexus. We know that to traumatized person, false memories and associated cognitive, emotional and motivational responses appear as real as others, but we also know that they might have never happened so they prove to be fallacious to start with. At the same time, psychotherapist must be able to contain traumatic process, offer protection, permission, potency and purposing to interacting processes, leading toward integration. Psychotherapist is encouraging, balancing, timing and harmonizing the zigzag movement of two opposite processes (the trauma process and the healing process) that are in the double bind dynamic knot at the core of trauma. We use a metaphor of the "Body as a Theatre" where we are able to see the drama and the conflicts of the traumatized person. Having a structured strategy enables us to go gradually and respect the timing of the healing process. Reaching the core and the dynamic point of traumatizing process, after safely reinforcing the healing powers, having as safe as possible relationship with the psychotherapist (and sometimes with the group) makes transformation possible. Renegotiation at the trauma core is enabling integrative, transformational process to flow. We begin the process of psychotherapy, follow it and finish it on physiological level, moving to psychological, social and spiritual levels as we progress. Gradual and gentle integrations of processes and levels enable the flow of transformation. Successful renegotiation leaves deep personality changes. This process is supported with the idea deeply related to our intuitive self that the cure or healing is as old as trauma is, thus implying that healing represents our innate, natural ability to restore physical, mental and spiritual power.

Once we understand the history, the onset of the trauma and how it is maintained by reenactment, we continue with the somatic ego and empowering. We begin searching for the information needed to initiate renegotiation available in the body. We need relationship information coming from the Big Threat and after it. Who was there and how did they react. Those are the crucial information for the possibility of renegotiation. The body will disclose pain, tension, blocks, but it will also disclose positive sensation, positive relationships with nature, animals and some people on which we might build on. The psychotherapist is reinforcing patient's self-awareness of those bodily sensations. Survival strategy is externalized in reenactments and it does not change until somebody disrupts the vicious circles, offers another perspective and bonding. From the possible safe position that has been created, we look at who is traumatized (his physical and psychological status at this time, the capacity to face trauma) and also where, when, how, why and by whom. Further, we need to know who was there to see, understand and comment.

Knowing and understanding the context is as important in understanding trauma as in planning the renegotiation stage and relationship with others. Cultural context is crucial; knowledge of patient's internal world, his dreams, emotions, myths and rituals give us a new context for renegotiation the trauma.

Relationship between reenactment and the original traumatic situation is sometimes not visible, therefore function of the insight and consciousness in the healing process becomes vital. The aim of reenactment process is not only eliminating the apparent, superficial dissociation and splitting, but also introducing the possible conscious levels into perception of deep bodily sensations and movements. In an optimal situation the patient will become aware of the kind, degree and ways he is disassociating. We are also looking for the trigger associated with the major dissociations.

After that we can build a specific, individually tailored relationship between the flow of the trauma and the flow of the healing process to obtain the optimal movement. We move slowly in order to enable "digesting" and assimilation aspects of the trauma in accordance with the rhythm that individual can tolerate (Figure 4, Levine, 1997:200).



Reenactment is a compulsive process and represents a direct attempt to repair a natural activation and deactivation processes and cycles. Fighting, running, struggling or some other behavior in the face of danger could close deactivation. We shouldn't be surprised if running away was blocked in the original traumatic situation and then again in the reenactment. The reenactment scenario could be simple and open but in some situations it could be disguised and difficult to understand.

We are more alienated from our healing processes than animals, but we are equipped with consciousness (bearing in mind that insights in this psychotherapy are not enough) that is an enormous ally in planning the strategy of healing. It is crucial that the patient understands the value of gentle energetic discharge − trembling, sweating, tingling, hair raising and other different subtle sensations and discharges − as regeneration. Discharge, with good control of traumatic process, individual timing, capableness for symbolic thinking and creating functional fantasy constructs, while remembering mythology, are the core of the healing process. Thus the patient is not only connected to the psychotherapist, but to the collective unconscious mythology.

Levine believes in the law of opposites and the law of transformation. His observation is that everything existing is a combination or unity of opposites. That everything contains two mutually incompatible and exclusive but nevertheless equally essential and indispensable parts or aspects that can be applied to a trauma and the healing process. The basic concept here is that this unity of opposites in nature is a phenomenon that makes each entity auto-dynamic and provides its constant motivation for movement and change. A continuous quantitative development of particular process often results in a leap in nature whereby a completely new process is produced. What we call a trauma renegotiation, inspired by Levine, is a zigzag shift, from a *circulus vitiosus* (of «acting in» or «acting out» behavior in a compulsion repetition) toward a transformational, healing process and human growth. Person who transforms doesn't have a need for revenge, violence, shame, guilt, fear or sadness. For a transformed person the path towards spontaneous and energetic life means much more than a simple reduction of symptoms. And if we successfully renegotiate trauma, we will achieve transformation.

A person chooses a change model in accordance with her personality preferences (Mandic, 2009). After a time of accumulated changes, transformation is set on another level, above the traumatized one. Not only that our nervous system is calm, but also we are ready to go on with meaningful living. We have acquired cognitive, emotional and perception shifts from the traumatized one. Through transformation our nervous system regains the possibility of self-regulation. The body and the personality are in harmony. We have become resilient and spontaneous. New forms of self-confidence develop enabling us to relax, enjoy and have meaningful lives. The previous overcompensated self esteem or a very low one is replaced with a realistic, vital new one. It is a form of deep metamorphosis whose quality affects our innermost being as well as people around us. We develop vital trust instead of chronic anxiety or damaged basic trust. We dare to risk living again.

The two faces of trauma can be found in a myth of Medusa. From one perspective, we find that myths deal with the hero who has transcended ordinary people, and from the other − the hero often falls, suffers great pain, becomes extremely constricted in every aspect of his life. Trauma is a chance for authentic transformation as well as for `living death` and Medusa metaphor is used to describe it. The way we react facing Medusa makes the crucial difference. We might turn to stone or become spiritual leaders in our community. In the myth Medusa's eyes and her blood could kill, but could also bring a dead person to life again. A metaphor is crystal clear. The two faces of a trauma are its potential to destroy our life but also to offer auto-

reconstruction and transformation. It is necessary to bridge over the rupture between hell and heaven, or physiologically speaking – between constriction and expansion. With the gradual consolidation trauma is gently and slowly integrated and has a possibility of healing. Every organism possesses the ability to unite polarities and to transform them (Levine, 1997:196).

We have been clear that trauma transformation is not mechanically done ritual nor series of acting out behaviors with spectacular emotional discharges after which we wait for the magical result. There is no magic pill or a magic technique. For the process of transformation to work optimally we need a motivation and willingness to question our basic belief systems. We need to reinforce or create beliefs and trust in bodily sensations that we don't understand, don't even have name for them, and also we need to trust in primitive natural laws that will take over the control in achieving homeostasis through seemingly incongruent perceptions of what is going on. To give in to the healing process, traumatized people have to give up different beliefs about healing. Healing doesn't happen at once. In reenactment we sink back to the trauma core spinning us up and down, and we froze and dissociate. Relaxation seems impossible and doesn't happen at once. The tasks of relaxing and clear seeing are not contradictory. We do not think about questioning centrifugal forces keeping us safe in this roller coaster.

There are dangers on the way, for example, amounts of horror we have experienced could be coupled with the experience and excitement of staying alive which can make us excitement addicts. During the renegotiation we slowly learn those laws, learn how to give in to those restorative forces, how to move in a zigzag way between the traumatic and healing forces, learn how to develop vital trust and reach out to a psychotherapist who will coach the journey introducing the elements to renegotiate the trauma. That rhythmical movement builds up the vital trust because the basic trust has been destroyed in the original trauma.

It is of the utmost importance to understand the role of memory in the healing process. In our experience we are sure that we are damaged, distressed, compartmentalized with, sometimes incomprehensible behavior, lonely and deeply unhappy. Our first hypothesis about how to cure ourselves is to find the causes, to remember what happened. We believe that the Absolute Truth will cure us. The correct details should be remembered to obtain the truth that will set us fee from the trauma. The last thing we want to hear is that the Absolute Truth doesn't exist and that oppressiveness about the split off details, charged with emotions, might reinforce the traumatic core. Misinterpretation of the memory will reinforce the prejudices we have, contaminated thinking and irrational premises about ourselves, the world and our relationship with that world (our private personality theory and logic). That can sabotage our transformation. But after the transformation is completed, we are proud to have survived, we have courage to be vital, we are honoring the wish to heal and we feel safe in the newborn, vital trust.

Psychotherapist is awakening the cyclic process and is using the signs of opposition as trail marks. The psychotherapist is creating a situation and bonding quality for slow, pulsing, cyclical process and he is giving permission to heal. Creative bonding with the therapist represents creating internal and external resources, activating healing process, insights, working through denials, splitting and dissociation, empowering to unite, integrate and transform. In a safe, human context, we are facilitating a needed creative bonding. Psychotherapist must be able to contain traumatic process, offer protection, permission, potency and purposing to interacting processes, leading toward integration. Psychotherapist is encouraging, balancing, timing and harmonizing the zigzag movement of two opposite processes that are in the double bind dynamic point at the core of trauma. We use a metaphor of the "Body as a Theatre" where we might see the drama and the reality of the traumatized person. Reaching the core and the dynamic point of

traumatizing process after safely reinforcing the healing powers, having a safe relationship with the psychotherapist (and sometimes with the group) makes transformation possible. Renegotiation at the trauma core is enabling integrative, transformational process to flow. We begin the process of psychotherapy, follow it and finish it on physiological level, moving to psychological, social and spiritual levels as we progress. Gradual and gentle integrations of processes and levels enable the flow of transformation. Successful renegotiation leaves deep personality changes.

A SHORT CASE STUDY

Emma, a 43 young professional woman, in the middle of her divorce process, went to psychotherapy. After being diagnosed as an anxiety personality disorder, she went through numerous different treatments and came to the Integrative body work. Our research indicates that in trauma healing process it is necessary at the beginning to develop body awareness, strong somatic ego functions and resources, to find good support, stimulation and establish a felling of new vital safety, to be able to confront the trauma.

Emma's healing process started with grounding, breathing, centering and learning how to relax. Her ego-strengths grew, her self-concept started changing and her energy started flowing through body segments. In the beginning she started looking for strength in her legs, having long walks while learning how to discharge slowly, connecting to the psychotherapist. Once she has developed a facility for the felt sense (Levine, 1997:122), she could surrender to spontaneous discharges learning the difference between excitement and fear. Building her resilient strengths from here and now, feeling more vigorous and energetic she could afford her assertive energies to appear. New orientation, mastery and personal authority were created. She could trust her body to continue reorienting and self-corrections.

In the meantime, she brought her dream diaries, favorite fairy tales and stories her father had read to her. The trauma process continued trough the symptoms of anxiety attacks.

She reported her two hospitalizations when she was young: for tonsillectomies operation at the age of 5 and a leg wound after a dog bite at the age of 11. It was under the local anesthesia and the dog bite kept her only one night at the hospital at the age of 11. She remembers the pain, the fear, the attempt to scream, the attempt to run away and reach for her parents. She also remembers her father trying to reach her, even trying to climb the hospital window and being caught, while the nursing staff ridicules them, calling her crybaby with a hysterical father. During that drama her mother was cold and aloof, allying with the staff. Emma perceived her as disloyal and unfaithful. She felt shame and guilt on top of everything. Similar situation happened with the dog bite which she described almost as a wolf. Her father and she were defined as weak, primitive and fearful.

She zigzagged between the scared powerless child and the strong person growing into a woman. The trauma process nourished itself from the recurrent excessive distress when anticipating or experiencing separation from her friends, anticipating change in her work and life habits while persistent and excessive worry were expressed about losing her health leaving her without the capacity for confronting her worries.

Easily fatigued, irritable, with sleeping and digestive problems, tormented with fears, anxieties and avoidances of new and unfamiliar life, Emma felt ready to give up. Her anxieties of getting lost, becoming ill and having an accident coupled with refusal to go out with her friends

and at the same time she felt anxious about being alone which produced new anxieties of "going crazy".

In one session, when Emma was grounded, empowered and relaxed, she used her creativity and fantasy to go trough those traumas as a young worrier woman coaching children of 5 and 11 through some rites of passage. Originally, in both of those traumas she froze, couldn't scream nor fight. In the guided fantasy later in the process she has developed and created options in which she could loudly scream for help and there were people to hear her. She imagined herself assertive and angry, stood on her feet and at one point imagined being armed with a huge stick, so she could defend herself against the wolf, and she even killed the "big bad wolf " and made a fashionable coat out of his skin. At the end of that session she cried calmingly. She saw herself walking slowly in that coat down the road holding hands with her father and mother feeling proud of her. That experience started the process of transformation.

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SOCIO-EMOTIONAL LEARNING THROUGH FAUSTLOS IN GERMANY

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Abstract. FAUSTLOS is a violence prevention program that aims at socio-emotional skills and competencies as early as in Kindergarten children four to six years of age (FAUSTLOS meaning Without Fists; an adaptation of SECOND STEP). Self-regulation of negative emotions, impulse control, and empathy are the goals to be achieved through 28 lessons conducted by well-trained Kindergarten staff. The program has been developed at the University of Heidelberg and has continually been modified for elementary school and middle school. A rigorous evaluation of the Kindergarten curriculum between 2001 and 2004 proved the program to be effective, followed by further evaluation of the program in secondary education from 2005 to 2007. Since it has been well-accepted by state ministries and practitioners, FAUSTLOS has been implemented at many institutions of first and secondary education in Germany. Especially self-regulation has been proven to be difficult in traumatized and insecurely attached children. FAUSTLOS offers a wide variety of techniques and strategies for pre-schoolers in order to learn how to cope with inner impulses. Also, the program is conducted by constant relational persons in a closed group cycle of one year. This gives children a secure realm of learning and transfer. No-one is excluded from the group; stigmatization is avoided. Instead, children learn from one another how to apply FAUSTLOS in everyday surroundings. Parents are involved, too. By way of continuous parental meetings, parents are grown accustomed to a healthier way of dealing with one another. Ideally, a new culture of intra- and interpersonal conflict solutions is developed with the parents. Accompanying courses and additional literature are offered, too. The overall response ranging from well-received to enthusiastic due to its very special relational approach prove the program to be convincing as to early childhood learning and, with that, to the prevention of bullying and violence in general.

Keywords*: Early Childhood, Socio-Emotional Learning, Empathy, Impulse Control, Coping*

INTRODUCTION

Children with aggressive and violent behavior inflict injuries on others, either physically, psychically, or both. They may express threats, or destroy objects. Aggressive and violent behavior, as social scientists like Hurrelmann (Hurrelmann, 1992) or Heitmeyer (Heitmeyer, 1994; Moeller-Leimkuehler & Bogerts, 2013) have shown, is mainly to be understood as a "social disease", generated by intrapsychic, interpersonal and societal conflicts. It shows in contexts such as family, kindergarten, and school. Yet, the location of conflicts is not necessarily identical with the location of expressed aggression or violence. Conflicts at home may be enacted in school or kindergarten, and experiences of victimization and conflict may be brought back home, leading to aggressive behavior, e.g. in siblings or in parent interaction. At any rate, aggressive behavior is mostly used as a personal "solution" of interpersonal conflicts, and is expressive of escalating situations that seem to leave no other option of communication (Ratzke et al., 1997). As to a multi-factorial concept of the generating of aggressive and violent behavior, it is mostly important to intervene early in the socialization process of children. Not only is the personal organization of emotions subjected to early childhood (Grossmann, 2003), but interactional processes of recognition, of boundaries, of intersubjective experiencing allow the creation of subjectivity (Flechner, 2005).

Therefore, especially family, and institutional surroundings of early childhood such as kindergarten and pre-school play a significant role in promoting personal individuation that allows for a communicative mode of non-violent dealings. Any culture of non-violence has to grow out of mutual empathy and respect. Along certain guidelines that can be derived from a developmental psychology rationale, useful interventions can help in the process.

While aggressive impulses in their most neutral form of expansion and initiative are not to be eliminated but instead directed toward pro-social application, potentially destructive aggression has to be re-directed before it is realized. Initiative, exploration, and expansion belong to the individual process of growing up and thus are to be supported in a pro-social way, whereas destructive aggression has to undergo a subtle transformation into behavioral modes that are socially acceptable.

WHAT CHILDREN DON'T KNOW ABOUT

Early childhood is the most sensitive period of behavioral learning. Pro-social behavior can be learned to some extent. It is often impaired both in clinically conspicuous and in "normal" children. A culture of pro-social dealings with one another is by no means common in many families, nor does it come out of the blue. This is why, quite often (Cierpka, 2002):

- Children don't know about appropriate behavior in certain situations since they don't have an inner working model of alternative conflict solution
- They do know about appropriate behavior but haven't been supported enough in doing so
- They show emotional reactions like anger, fear or anxiety that keep them from developing appropriate behavior
- They are not able to assess aggressive behavior appropriately
- They may have physiologically based developmental deviation or retardation stemming from genetic or parental influence

ASPECTS OF VIOLENCE

Quite often, aggressive children have a dysfunctional family background (Cierpka, 1999). In these families, parents are not capable of taking enough care of their children, either physically or psychically. Sometimes there are lacks of attachment in the mother-infant-relation existing from birth on, or there are disorders of early attachment that have developed in baby´s first year of age (Grossmann et al., 1989). Different sorts of psycho-pathology in parents can affect the infant´s emotional development; the parent-infant-relation encompasses a multitude of interactional processes which are prone to dys-functional behavior. Intuitive parental competencies fundamentally influence the infant´s emotional development and may be vulnerable (Papoušek & Cierpka, 2012). Even social status and the overall status of societal development may compromise these competencies (Djordjevic & Egloff, 2011). Dysfunctional and non-coherent educational practices in some families can puzzle and disturb children and direct their development toward dys-functional modes of behavior. The loss of societal structures may disturb families in developing consistent educational modes (Egloff, 2012).

Moreover, aggressive children have often been victims of violence themselves (Levold et al., 1993; Cierpka & Cierpka, 1997). These children have learned to react in violent ways.

Additionally, TV programs of violent contents mediate violence as a means of conflict solution. As has been recognized early, children consuming many of these programs tend to use violence in dealings with their peers more often than those who do not (Bandura, 1973).

Last but not least, educational institutions – school probably more than kindergarten – can be viewed as a place of structural violence in which children are put under requirements of discipline, accomplishment, and selection. Even while school offers chances of development to children, it infallibly has them experience boundaries (Valtin, 1995). Under these circumstances and along their personal biographic experiencing, some children may react violently.

FAUSTLOS

Socio-emotional learning aims at skills and competencies to be learned within an interactional framework. At the heart of FAUSTLOS, which is an adaptation of SECOND STEP (Beland, 1988), there are three issues to be transferred to children: getting to know empathy and the training to be empathic, learning to be capable of controlling one´s impulses, and dealing with emotions of anger and rage. These issues are playfully dealt with in the Kindergarten curriculum by way of 28 continuous lessons. Each lesson contains a story that is told by the educator and is illustrated by an accompanying picture. Each lesson is structured the same way: at first, the topic of the lesson is outlined by playfully fantasizing what the lesson will bring. Moreover, hand puppets (a toy dog and a toy snail) open up getting in contact with each other, further illustrating the issue of the lesson to come. This is followed by the actual lesson in which the story is told, shown in the picture, and discussed with the group. Role-playing, or alternative exercises at the end of the lesson will make sure the transfer to everyday life of the children is initiated. Additionally, the educator is advised to return to the contents of the lesson during the following week. Ideally, one lesson per week is conducted.

LESSONS OF THE KINDERGARTEN CURRICULUM

The 28 continuous lessons follow a consecutive order that will become more complex the further the topics develop. At first, fundamental emotions are dealt with, and the focus is on empathy. After that, coping strategies for dealing with negative emotions in interaction are focused at.

I. Empathy:

1. What is FAUSTLOS?
2. Emotions (joy, grief, anger)
3. Emotions (surprise, fear, disgust)
4. Same or Other
5. Emotions Change
6. If… Then…
7. Not Now – Maybe Later
8. Mishaps
9. What is Just?
10. I am Feeling…
11. Active Listening
12. I Care

II. Impulse Control:

1. Calming Down
2. What is the Problem?
3. What can I do?
4. Choosing
5. Will it Work?
6. Sharing
7. Taking Turns
8. Negotiating
9. Listening
10. Interrupting Politely

III. Dealing with Anger and Rage:

1. Am I Angry?
2. Calming Yourself Down
3. Dealing with Violations
4. Dealing with Name-Callings
5. Dealing with Getting Something Taken Away
6. Dealing with Not Getting What You Want

Parental involvement is part of the curriculum, too. By way of continuous parental meetings, parents are grown accustomed to dealing with one another in rather empathic and non-violent terms. Ideally, a new culture of intra- and interpersonal conflict solutions is developed with the parents. Specific accompanying courses and additional literature are offered, too (Cierpka, 2005).

Since especially self-regulation has been proven to be difficult in traumatized and insecurely attached children, by way of a wide variety of techniques and strategies children learn how to cope with inner impulses, by that broadening the range of possible reactions in stressful and conflict situations. Within a secure realm of learning and transfer, children learn from one another how to apply empathy, impulse control, and coping with anger and rage in everyday surroundings. No-one is excluded from the group, and stigmatization is avoided. Especially, a change of perspective through stories viewed from different personal viewpoints is supported; something which has regularly been experienced revelatory (Egloff & Cierpka, 2002). In traumatized children not only changing of perspectives is difficult, but essentially persisting stress disorders can compromise their biographies severely (Schindler, 2006).

EVALUATION

The FAUSTLOS Kindergarten curriculum has been developed and evaluated between 2001 and 2004 at the University of Heidelberg, Germany; a process evaluation (Cierpka, Egloff, Schick & Ott, 2001) was followed by a pre/post randomized control trial (RCT) study which proved the program to be effective especially as to a decrease of verbal aggression in children (Cierpka & Schick, 2006). Identifying emotions turned out to be easier for children who took part in the program than for those who did not; the same for pro-social dealings with conflicts. Generally, FAUSTLOS has been proven to have a specific anxiety-reducing effect supporting the transfer of competencies to everyday life (Schick & Cierpka, 2003b) which is highly important since effects on the level of personal emotion entail even more appropriate interpersonal, social

behavior (Cierpka, 2005). Further evaluation of the program has been conducted in elementary education, as has in secondary education from 2005 to 2007 (Schick & Ott, 2002; Schick & Cierpka, 2003a; 2004; 2010; 2013).

Since it has been well-accepted by state ministries and practitioners, FAUSTLOS has been implemented at many institutions of first and secondary education in Germany. The overall response ranging from well-received to enthusiastic due to its very special relational approach prove the program to be convincing as to early childhood learning and, with that, to the prevention of bullying and violence in general.

German-based Heidelberger Praeventionszentrum (HPZ) is the distributing agent for German-speaking countries and has also competence for research and further development of FAUSTLOS. For further information, one may contact the HPZ (www.h-p-z.de) or the authors.

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SEPARATION FEAR AND ASTHMA IN CHILDREN

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Abstract. This paper presents an immediate onset of asthma in children from 1 to 8 years, after separation from parents (physical or emotional), enrollment into nursery / kindergarten, hospitalization or the arrival of new babies in the family. We have examined 88 children with asthma. In children up to 3 years, 51.13% were attending the kindergarten and 64.44% of them had bronchial obstruction. Starting from the fourth year, 18.18% of the children started going to the kindergarten and 43.75% of them became ill from asthma. The most common reactions of children, as dissatisfaction because of separation, were crying, screaming and throwing to the floor, asthma attacks, depression, increased anxiety, regression, rejection of separation and enuresis (85% of children), while the small number of them have accepted the change (15%). Children older than 7 years have well-accepted separation in 50% of cases, while other 50% of them protest with crying, asthma attacks and depression. In conclusion, 69.31% of children with asthma were attending the nursery / kindergarten, while physical or emotional rejection by the mother have caused asthma in 100% of children, with crying, depression and asthma attacks as most common reactions to separation.

Keywords: *Childhood Asthma, Separation, Immediate Reactions*

INTRODUCTION

Based on the specificities of personality characteristics of children with asthma: heightened anxiety and feelings of dependence (mostly from the mother), distrust, passivity, anxiety and poorer organization of the Ego (I), were analyzed potential impacts of separating the child from the mother / father, a close relative or a family environment and the occurrence of asthma as a complex psycho-neuro-immune disorders. At the early age of 3 years, the most important for the formation of the concept of "I", it is necessary to have the continuity of experience of contact, facial and space, while disruption of this interactive process is the result of elevated anxiety, unfinished mother-child relationship and depression.

AIM

The aim of this paper is to point to a specific way of experiencing of fear of separation and increased anxieties that, in predisposed children, cause weakness of personality organization, neurological immaturity, immunologically-atopic disorders and the development of bronchial hyperreactivity (BHR).

METHODOLOGY AND RESULTS OF THE WORK

We examined 88 children with asthma, who came to psychotherapy and neuropsychological re-education in the City Institute for Lung Diseases and Tuberculosis, ages 1 to 8 years. All children had a diagnosis of asthma by pulmonary criteria and therapy according to current medical doctrine. The medical histories of illness of a child, immediately after separation, were taken from their parents and from pediatric records of the patient.

Form of separation	Ages 1 to 3	Asthma emerged at that time
Nursery	45 children (51,13%)	29 children (64,44%)
Hospitalization without mothers	43 children (48,86%)	35 children (81,39%)
With relatives, new baby	26 children (29,54%)	16 children (61,53%)
Separation from the mother, unwanted child	14 children (15,90%)	14 children (100%)
Separation from the father	6 children (6,81%)	2 children (33,33%)

Form of separation	Ages 4 to 8	Asthma emerged at that time
Kindergarten	16 children (18,18%)	7 children (43.75%)
Hospitalization without mothers	35 children (39,77%)	14 children (40%)
With relatives, new baby	26 children (29,54%)	10 children (38,46%)
Separation from the mother, unwanted child	4 children (4,45%)	4 children (100%)
Separation from the father	4 children (4,45%)	No cases

Simultaneous effects of multiple stressful events: 55 children (62,5%)

Ages 1 to 3	35 children (63,63%)
Ages 4 to 7	8 children (14,54%)
Ages over 8	12 children (21,18%)

MOST COMMON REACTION OF CHILDREN WITH ASTHMA ON SEPARATION FROM PARENTS

	Ages 1 to 3	Ages 4 to 8	Ages over 8
With reactions	**85% of children:** • crying • asthma attack • depression • strong fear • Screaming and throwing on the floor • regressive behavior • refusal of separation • enuresis	**82,28% of children** • crying • asthma attack • depression • strong fear	**50% of children** • crying • asthma attack • depression
Without reactions	**15% of children**	**17,72% of children**	**50% of children**

CONCLUSION

- The largest number of children with asthma went to nursery / kindergarten (69.31%)
- Physical or emotional rejection by the mother caused the asthma in 100% children
- The most common reactions of children with asthma on the separation were: crying, depression and asthma attack

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TWO TRAUMAS: A PERINATAL TRAUMA AND AN AMBIGUOUS LOSS
(Personal experiences)

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Abstract. I hereby present two traumas: a perinatal trauma and an ambiguous loss. The first trauma of a perinatal traumatic stressor in 1944 was engraved in my memory in different levels of my consciousness. As unconscious level does not have a time dimension, this explains why a traumatic experience appeared several decades after the traumatic experience, and in different kinds of manifestations: anxiety when I am closed in a small place, new borders and war, repeated dreams. Final distress was in 1992 in a very similar situation when the noise of three UNPROFOR helicopters provoked the same anxiety as when the three bombers flew three times over my pregnant mother and me in 1944. The second trauma of ambiguous loss of my son since 2 April 1997 is a real permanent 18 years traumatic event. I miss my son who is psychologically present, but physically absent. Life with the paradox of absence and presence! Keep calm and validate everything… Always with different scenarios to be resolved… Is the reason for his disappearance a personal (intentional) decision, kidnapping, loss of awareness, an accident, or being a victim? My problem is my attachment to my missing son and the uncertainty about what had happened. Wondering how to support his further development, I permanently pray for him.

Keywords: *Two Case Studies: A Perinatal Trauma, An Ambiguous Loss*

PERINATAL TRAUMA

I accept that psychological trauma is an emotional response to a terrible event. It is a deeply distressing, disturbing experience which may lead to long-term anxiety.

A perinatal traumatic stressor was engraved in my memory. My pregnant mother, forced to walk 15 kilometers with my head on the cervix, ready for delivery, postponed my birth for one day by caressing me and praying for me to wait. I was able to accept my mother's messages, but also to hear the terrible noise of the bombers! Namely, three bombers flew three times next to displaced people trying to throw oneself into a ditch. The circulation of the air was like a storm. During the third return of the bombers, my mother was trying to stop them by waving with a white blanket prepared for me. She tried to send the message that a baby was waiting to be born! Once she arrived in the freed territory, where the headquarters of the Partisans was located, the best room was prepared especially for my mother's delivery by a woman assisted my mother. Many years after the Partisans and people with a great joy offered me presents and cheerful remembrance of this happy day for me and all the displaced community in 1944. It was proposed, as a joke, to nominate me for soldier's pension.

This perinatal traumatic stressor aroused me on different levels of my consciousness. The unconscious level does not have a time dimension. This explains why a perinatal traumatic experience appeared several decades later, and with different kinds of manifestations:

- Anxiety when I am closed in a small place, with lack of light and windows;
- Great anxiety when in 1992 Republic of Macedonia closed its border with Serbia;
- Before the war started in Yugoslavia I was working for peace, and I was preoccupied with work for refugees, trainings for alternatives to violence, establishing peace studies on academic level in Skopje;

- Repeated dreams where I am a small girl walking in a hot long day with my family and we are saved and closed in a uterus-like shelter where there is everything necessary for life, but I pretend to go outside through a small cleft entry over my head. People inside calmly told me to wait a little bit!

My mother's love and prayers prevented the situation from becoming a real catastrophic trauma. She was calming herself and me, waiting for me to be born in a secure place - in the first free territory as a first child, loved by all displaced people in 1944. Final distress of this psychological trauma was in 1992 in a very similar situation when the noise of three UNPROFOR helicopters provoked the same anxiety as when the three bombers flew very low, three times over my pregnant mother and me! That day I was working on the computer when suddenly I lost my breath. I felt sick and, losing no time, I ran to the balcony to breathe! I was surprised to see one military helicopter flying on the level of the balcony near me, strongly agitating the air. The same was happened one more time! When the same symptoms of panic came again, I was sure that the third helicopter of UNPROFOR is approaching, without having to see or to listen it! Before consciously hearing the noise of the helicopter, what I sensed was the same subconscious noise like the one I could have heard in the womb of my mother when the bombers approached in 1944. I re-lived, once more, the moment of birth, with nightmare and great trouble waiting to be born. This was a kind of rebirthing therapy! All the troubles from the perinatal trauma disappeared. I was re-experiencing my own birth. Maybe the use of breathing techniques together with praying would have been able to release me from these traumatic experiences much earlier!

AMBIGUOUS LOSS

Ambiguous loss is a traumatic experience provoking changes on all levels of a person: physical, psychological, social, spiritual, change in our understanding of personal identity, believes about the essence of life, knowledge about the human nature, change in interpersonal relations…

The ambiguous loss of my son Lazar in 2 April 1997 is a real, permanent 18 years long traumatic event. I miss my son who is psychologically present, but physically absent. Life with the paradox of absence and presence! Keep calm and validate everything… Always with different scenarios to be resolved… Is the reason for his disappearance a personal (intentional) decision, kidnapping, loss of awareness, an accident, or victimization? My problem is my attachment to my missing son and the uncertainty about what had happened to him. I am always in search for him in different ways.

Wondering *how to support his further development*, I permanently pray for him. He disappeared when he was at age of 25, student at Belgrade ETF. I was unsuccessfully trying to obtain his diploma at the ETF in Belgrade because he had passed with high marks 38 exams out o 40 necessary ones, and diploma work was accepted and afterwards published. In a dream Lazar, consoles me by telling me that he does not need the diploma for where he is now and for what he is doing there!

The problem, by definition, is to be resolved. When there is not solution at the moment, I have to shift to what is possible to do. Only the fear of being afraid of looking for solutions was permitted to me.

Thousands of good people have been engaged in the search for Lazar. Police, Interpol, helicopter of UNPREDEP, mountaineers, students and colleagues, friends and relatives, clairvoyants, monks, all of them from Macedonia, Greece, Serbia, USA, France, Germany, Russia, Israel… I express my great gratitude to all of them.

Shock, anxiety and fears, helplessness, culpability and feeling guilty that I was not a sufficiently good mother, yearning to see and hear from my son…

My thoughts confused, obsessively focused, day and night, on Lazar… Different illusive experiences, impressions that he is present, near me… Always with the hope to be together again, to have good information… hope to resolve his disappearance…

I was in the state of permanent tension but I was not tired, I was always ready to search, to ask… I was permanently active, with sleeping problems, felling pain on womb, avoiding being happy, preoccupied to be where he was and with things and work he was doing…

Many thousands of dreams, plenty of lucid dreams, trying to resolve the enigma of Lazar… To fall asleep I used to repeat the short Jesus Christ prayer (mind-heart's pray) with special technique of breathing: Jesus (I breath in), have mercy (I breath out) . I used the same prayer for relaxation. No doctors, no drugs to calm me!

Self-help so I don't stop until all the work is done, writing books in my field in psychology, teaching, volunteering in civil society activities, helping people in trouble…

My emotion in relation to my missing son was a deep sadness. The first months in a monastery in Jerusalem I heard nuns saying, whispering, that my grief was a very big sin. O my God, how to accept that this is a sin, and more, how to solve this? Three young monks from Russia, in another monastery in Jerusalem, tried to console me by saying that for God it is the same to be or not to be in life. One of them, in soft voice, told us to be careful because I am a mother!

Is there any grief like a mother's when she loses her child?

After much hesitation, with deep anxiety, I decided (on March 29^{th,} 2015) to write a short text of my experience with ambiguous loss of my son to be presented on a conference dedicated to trauma (Belgrade, May 2015). In the early morning of the next day, I had a lucid dream: I am not afraid to know anything, only total dark, there is no energy… There is a big paradox: existence of nothingness, nullity… For me this meant a once more repeated suggestion to continue with the Zero limits basic principle: I don't have a clue what is going on; I don't have control over everything; I can heal whatever comes my way; I am 100 percent responsible for all my experience; my ticket to zero limits is saying 'I love you'… Yes, here or there, Lazar I love you!

March 31st 2015 - I was preoccupied with how to approach the text for this conference, as some kind of release for me, from the great sadness and tension, and at the same time I wanted it to be a miracle key for opening the door to Lazar. I feel grateful for this lucid dream early in the morning and its messages as a guideline: many packages of dark excrements, similar to drugs-narcotics, sand by archbishop whose name means Dawn (Daybreak) Crows-Expel. My job was to analyze the excrements. My decision was to throw them out as trash.

For me, the message from the subconscious was that in this moment it is the time to release myself from 18 years of preoccupation with different packages of possible scenarios of what happened to Lazar. All this was like some kind of drug for me, but in the end the body cannot survive in good health without proper elimination. Just when I was elaborating in last few days the content of the text for the conference my blood pressure became extremely high for the first time in my life! My psyche requires releasing the psychic waste. New ways of approaching

it have to be open, more intelligent ways (such as the crows are among species of birds). Namely, just this text is a kind of way to express and to free myself from the great uncertainty for the destiny of Lazar.

Maybe this is the moment for some kind of "rebirth" in a new way of existence.

On April 2nd, 2015 at 3 o'clock in the morning: a dream suggesting that my search for Lazar is now 18 years, as 18 stops on Via Dolorosa, the long way carrying my cross of grief!

On April 3rd, 2015 at 3 o'clock a dream with a clear message to stop writing this text today. In the dream Volens-nolens (willy-nilly) in my search for Lazar I arrive to the zero point limits. I am not satisfied with all kinds of discoveries for the interpretation of the reality by quantum-holographic information processes, of the illusive "touch" by quantum transformation two points techniques, the "fly" in meditation and relaxation, to arrive with the wings of angel in paradise in my experience of clinical death and to be forced by deceased mother to go back because I still have work to do for Lazar, my pregnant daughter and for my granddaughter… In all this Rashomon, in this full container with conflicting information in my mind, I will be the STABAT MATER – the sorrowful mother standing, carrying my cross on Earth! In the end of this dream, and persisting all day, I am listening Pergolesi's Stabat Mater (interpretation that Lazar liked): Stabat Mater dolorosa/ Juxta crucem lacrimosa/ Dum pendebat filius (At the Cross her station keeping/ Stood the mournful Mother weeping/ close to her Son to the last).

I summarize by saying that I was a pro-active reality creator, with some kind of constructivist form of psychotherapy. Profoundly traumatized, I stand as an active participant, determining my own life path. In perinatal trauma my motherly love protected me. In the ambiguous loss of my son, there is our mutual love protecting the both of us?

The zero state is love and I accept the ho'oponopono healing method by saying: I'm sorry, please forgive me, thank you, I love you! This is the same as my preferred Jesus mind-heart prayer: "Jesus, have mercy".

Today I am again at my starting point in the circulus vitiosus: Lazar, Mom loves you!

2-3 April 2015, Skopje

PSYCHOLOGICAL AND PHYSICAL TRAUMA CAUSED BY THE INFLUENCE OF MOBILE PHONES

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Abstract. Using a mobile phone creates a state of acute and/or chronic stress and it is a risk factor for mental and physical health of both sexes and all ages. Pregnant women and their embryos/ fetuses are very sensitive part of the population to radiation of mobile phones. Excessive use of mobile phones in pregnancy can cause health problems, especially behavior, including normal flow of pregnancy. In addition to the direct effects on the pregnant woman's head, there is indirect action on the metabolism of the embryo/ fetus, not just over the head of the mother, but also through her pelvis when carry a mobile phone in the pocket or ladies handbags. In younger people is higher energy absorption, and thus the higher possibility of harmful effects of mobile phone radiation on the brain and body. The child's head is smaller, and the brain is still developing, so children are more sensitive than adults. There is a correlation between prenatal and postnatal exposure to mobile phones and neurobehavioral problems in children and adolescents, including behavioral problems (emotional problems, conduct problems, hyperactivity, peer relationship problems) and cognitive problems (poorer accuracy of working memory, shorter reaction time for a simple learning task, shorter associative learning response time and poorer accuracy). There is an increased prevalence of unwanted neurobehavioral symptoms and/or cancers in a population of people who live less than 500 meters from mobile phone base stations. The consequences of mobile phone used by children and adolescents have acute or chronic occurrences: headache, irritation, nervousness, dizziness, concentration problems, fear and sleeping problems, allergies, symptoms of depression, feelings of heat, fatigue. There is an increased risk of childhood leukemia and brain tumors in children of all ages as well as adults, especially pregnant women.

Keywords: *Psychological Trauma, Physical Trauma, Mobile Phones Influences*

INTRODUCTION

During the last two decades, there has been a widespread increase of using wireless telecommunication devices including mobile phones resulting increase in levels of electromagnetic radiation (EMR) in the natural environment.

The enormous and indiscriminate use of mobile phones throughout the world has made our communication instant, advance and fast but along with their advantages they have raised the problems of electromagnetic pollution such as electromagnetic field smog and the risk of tissue level damage in all living organisms (humans, animals, and plants) [Parihar L., Mawal P., 2015]. Today one-third of the world's population is using mobile phones for everyday communication [Kesari K.K., et al., 2013a]. Increased exposure to mobile phones and their base stations radiations, together with exposure to other sources of non-ionizing radiation (NIR) (electricity in the household, power lines, microwave ovens, radars, etc.), leads to greater possibilities of harmful effects on the health of the human population [Đorđević D.M., 2015].

BIOPHYSICS OF MOBILE PHONE ELECTROMAGNETIC RADIATION

Mobile (cellular) phones are defined as devices emitting radiofrequency electromagnetic waves (RF–EMW). These waves transmit signals from the mobile phone to the base stations and antennas. The frequency of such waves is low and ranges from 450–2700 MHz [ICNIRP

16/2009], and power range from 0,1–2 W [WHO, 2010; Wargo J., et al., 2012]. However, there is still risk to the human user, because our bodies can act as antennas that absorb these waves and convert them into eddy currents [Hamada A.J., et al., 2011]. The mechanisms of cell phones operate in such a way that the sound wave produced from the speaker goes through a transmitter that converts the sound into a sine wave. This sine wave then travels to the antenna, which then emits the wave out into space.

The propagation of the electric sine wave running through the transmitter circuit also yields an electromagnetic field (EMF). As the electric current oscillates back and forth, these electromagnetic fields continue to build up and collapse, resulting in EMR.

Mobile phone networks worldwide use the extremely low frequency (ELF) (<300 Hz) and ultra high frequency/ microwave (UHF/MW) (300 MHz – 3 GHz) portions of the RF spectrum (300 Hz – 300 GHz) for transmission and reception, part of it being absorbed by the head or body during use or exposure [Đorđević D.M., 2015]. It is well accepted that low frequency electric field is attenuated by the surface of any physical body, including biological bodies, while magnetic field of the same frequency penetrates the human bodies without any loses [Markov M.S., 2000; Djordjevich D.M., et al., 2012].

The affect of any form of radiation depends on the nature of the mechanical and/or electromagnetic waves: frequency (pace), amplitude (power), pulse (beats), intensity (power density), polarity, and information content. At lower frequencies (<100 kHz), many biological effects are quantified in terms of current density in tissue (expressed in V/m) and this parameter is most often used as a dosimetric quantity. At higher frequencies (>100 kHz), many (but not all) interactions are quantified in terms of the rate of energy deposition (or absorption) per unit mass. This is why the specific absorption rate (SAR) is used as the dosimetric measure at these frequencies (100 kHz – 10 GHz) and expressed in W/kg or mW/g [Djordjevic D., 2014; Đorđević D.M., 2015]. The SAR is thus the absorbed power by the absorbing mass.

INTERACTION WITH BIOLOGICAL TISSUES

The energy carried in EMW is composed of electrical and magnetic fields and it is better represented by the term *power density* (PD). The PD is defined as the amount of power per unit area in a radiated microwave field and is usually expressed in milli- or microwatts per square centimeter (mW/cm^2 or $\mu W/cm^2$). The level of energy in such EMW is so low that it cannot break the covalent bonds in biological molecules (<12,40 eV) [Đorđević D.M., 2015].

In general, the exposure to EMW from different sources is divided into two categories: “continuous” and “pulsed” according to the characteristics of the emitted waves. The biological effects of pulsed wave exposure are even more harmful than that of. continuous sources

The human body acts as parasitic antenna that receives EMW from external sources [Hamada A.J., et al., 2011]. Specifically, both electrical fields (*E*) and magnetic fields (*B*) can induce electrical fields and currents inside living tissues. However, the generated internal electrical currents are of much lower strength and of different directions from the external ones. These alterations in strength and directions reflect the electrical properties of the human body, such as permittivity and conductivity. To understand these properties, human tissue is the best described as lossy medium with dielectric properties due to high content of water in addition to other organic molecules and ions. When living tissue is exposed to EMW the dielectric (dipole)

molecules will be polarized, the extent of such polarization is called permittivity. Conductivity, however, describes the conduction current density produced by an applied electrical field.

Essentially, the high water content renders human body poor conductor to the applied electrical field. In contrast, the applied magnetic field is easily transmitted through human body and this property is called permeability [Habash R.W.Y., 2008a]. Moreover, magnetic field act as another source of induced alternating currents inside the human body.

Biological effects of radiofrequency radiation (RFR) are based on the fact that the human body is a transceiver antenna [Guest editorial (Sage C., Huttunen P.), 2012], which operates on the principle of "biological window" (frequency and amplitude) [Djordjevich D.M., et al., 2012] through which they can express themselves as: (1) thermal effects; (2) non-thermal effects; and (3) other effects, among which there are overlapping [Đorđević D.M., 2015].

THERMAL EFFECTS

The tissue temperature increase resulting from exposure to EMW is referred to as "thermal effects". Heat is primarily associated with absorption of high frequency EMW radiation resulting from enhanced electrical conductivity of the tissue media or increased electrical resistivity. Thermal mechanisms in the form of heating are primary interactions of EMR at higher frequencies, especially above ~ 1 MHz [Habash R.W.Y., 2008a].

Increment of tissue temperature in an organ is related to imbalance between heat generation and heat dissipation. Heat generation depends on SAR and energy level (power density) of emitted EMW which must exceed 100 mW/cm^2 to have heating affect on biological tissues [Habash R.W.Y., 2008a]. In contrast, heat dissipation involves three mechanisms: heat conduction to the other tissues, convection through the blood perfusion, and radiation to the surroundings (eyes and testes have limited capacity of heat dissipation).

NON-THERMAL EFFECTS

The magnetic field, rather than the electrical field, of EMW has the most harmful potential on living organism because of its ability for human skin penetration. Biological effects of MF/EMF mobile phones are more a result of the mechanisms of action induced electric fields of small amplitudes (below ~ 1 MHz), than MF/EMF [Kesari K.K., et al., 2013a] and their induced alternating currents in our bodies at tissue, cellular and sub-cellular levels [Markov M.S., 2012].

A key role in the transfer and storage of energy of mechanical and/ or electromagnetic waves has water that is organized in space and time, free and bound (hydration of ions, proteins, and cell structures, cytoplasmic and intercellular), which serves as a "sensor for non-ionizing radiation" [Martirosyan V., et al., 2012; Ayrapetyan S., et al., 2015].

According to this hypothesis, the valence angle in water molecules between O–H bonds, which determines its dissociation, is highly sensitive to different environmental factors [Ayrapetyan S., et al., 2015]. This serves as a key target for NIR impacts on extracellular and intracellular aqua medium, which serves as a main medium for metabolic process [Ayrapetyan S., et al., 2015]. The NIR-induced changes of cell hydration are suggested as a gate for metabolic cascade through which its biological effects on cells and organisms are realized [Ayrapetyan S.,

et al., 2015]. Water during its light irradiation changes the angle between the legs of hydrogen and cluster structure, as the main carrier of information, especially MF/ EMF nature [Đorđević D.M., 2015]!

OTHER EFFECTS

Other effects of RF energy include: current flow through the tissue (induced current effects), resonance processes (ion resonance, nuclear magnetic resonance), and other mechanisms (Ca^{2+} ion oscillations, interference of bound ions, current rectification by cell membrane). [Đorđević D.M., 2015].

CELLULAR AND SUB-CELLULAR LEVEL

At the cellular and sub-cellular level, EMW may exert direct and/or indirect effects on cell membranes, cytoplasm and nucleus [Hamada A.J., et al., 2011]. Effects of RF–EMW on cellular and sub-cellular structures are inducing alterations in many sub-cellular mechanisms [Hamada A.J., et al., 2011].

TISSUE LEVEL

Various cell types displayed inconsistent results in response to EMW. Moreover, tissue types such as epithelial, muscular, connective, neural, and muscular tissues differ in their rate of radiation absorption and consequently, in their interactions with EMW [Habash R.W.Y., 2008a]. Body organs, on the other hand, are composed of different proportions of various tissue types with different electrical properties.

GENERAL BODY AND ENVIRONMENTAL EFFECTS

Impacts of mobile phone can be classified as: (1) environmental impacts: a) physical waste [heavy metals (Pb, Sn, Hg, Be, As, etc.), non-biodegradable materials and persistent, bioaccumulative toxins], b) energy consumption (overall energy consumption due to such devices continues to increase as their total number increase); and (2) health impacts [Awadalla H., 2013]. Mobile phone poses threat to humans and other flora and fauna in two ways: direct (environmental) and indirect (health) hazards [Awadalla H., 2013].

Russian and Eastern European scientists issued the earliest reports that low-level exposure to RF radiation could cause a wide range of health effects, including behavioral changes, effects on the immunological system, reproductive effects, changes in hormone levels, headaches, irritability, fatigue, and cardiovascular effects [Wargo J., et al., 2012].

Many studies have looked at various body tissues reaction to the radiation exposure. Alternations in the central nervous system, cardiovascular system, and localized tissue effects have been analyzed. Fluctuations in EEG pattern, sleep pattern and neuroendrocrine functions have been observed with increased cell phone handling, along with decreased cognitive function

and melatonin secretion [Hamada A.J., et al., 2011]. Cell phone exposure has been shown also to increase resting blood pressure and elevate heart rate [Hamada A.J., et al., 2011]. Moreover, EMW radiation may alter Leydig and Sertoli cell function, leading to hormone secretion decreasing, which may lead to altered cell proliferation [Hamada A.J., et al., 2011]. Frequent cell phone users described a difficulty concentrating, increased fatigue, and frequent headaches, coupled with a burning sensation near the ear and tingling or numbness of exposed tissue [Hamada A.J., et al., 2011]. As the science has progressed, researchers and government officials have become increasingly concerned about exposures that affect pregnant women – and their embryos or fetuses. Their concern is also for children whose brains and organs do not fully mature until age 21 [Wargo J., et al., 2012].

Using a mobile phone creates a state of acute and/or chronic stress [Parliamentary Assembly Council of Europe, 2011] and it is a risk factor for mental and physical health of both sexes at all ages [Thomée S., et al., 2011]. Pregnant women and their embryos/ fetuses are very sensitive part of the population to radiation of mobile phones. Excessive use of mobile phones in pregnancy can cause health problems, especially behavior, including normal flow of pregnancy. In addition to the direct effects on the pregnant woman's head, there is indirect action on the metabolism of the embryo/ fetus, not just over the head of the mother, but also through her pelvis when you carry a mobile phone in the pocket or ladies handbags.

Exposing to RW and ELF radiation does not make the same effects in children and adults. As people are younger, there is higher energy absorption, and thus the possibility of harmful effects of mobile phone radiation on the brain and body. The child's head is smaller, and the brain is still developing, so children are more sensitive than adults.

The human body like any mixed-dielectric structure can show the resonance frequency [Moghavvemi M., et al., 2011]. It means that in certain frequencies and in that specific body's position the amount of SAR can raise to a maximum, and that standing, sitting, lying and so on, have different response to SAR [Moghavvemi M., et al., 2011].

In EMF exposed body may occurs hot spots regions. The hot spots usually occurred due to non-uniformity of EM characteristics of tissues [Moghavvemi M., et al., 2011]. Because of such mixed structure, the power density is not distributed uniformly between tissues, and in some parts its dielectric loss or SAR is higher and it could have maximum temperature [Moghavvemi M., et al., 2011].

The organic parts that cannot be cooled by blood circulation are the weakest parts in terms of radio-wave radiation [Moghavvemi M., et al., 2011]. The eyes and gonads are the most sensitive parts since there are not enough vessels for cooling down by blood circulation [Moghavvemi M., et al., 2011]. The major effect of EMF on eyes could be the cataract in which the lens is clouded [Moghavvemi M., et al., 2011], but weaker efect are on the retina, cornea and other ocular systems [Wargo J., et al., 2012].

The experiments on rats proved that there is a direct relation between EMF exposing and disability in fertility during gonads' temperature which has risen by EMF [Moghavvemi M., et al., 2011]. Too high using of mobile phone is associated with sleep disturbances and symptoms of depression for the men and symptoms of depression for the women at 1-year follow-up [Thomée S., et al., 2011]. It is interesting that the effects on sleeping groups are more than awaken groups, because the threshold SAR level is lower for sleeping people [Moghavvemi M., et al., 2011].

During the penetration of radiation from mobile phone antennas, hyppocampus and pineal gland may be affected by the reduction of their protein kinase C activity and melatonin

[Kesari K.K., et al., 2011]. The EMF lowers our melatonin levels (radical scavenger) which control our all sleep components [Vesselinova L., 2015] and immune system response to cancer and other diseases [Moghavvemi M., et al., 2011]. The peak pulsed power was more important than average power and some perception by brain was involved in hearing the microwave pulses [Moghavvemi M., et al., 2011], which is often later followed by tinnitus and/or earache [Thomée S., et al., 2011]. Using mobile phones for more than 3 years is considered as a risk factor for damage of the cochlea and auditory cortex [Panda N.K., et al., 2011].

Studies have shown that about two times more energy from a mobile phone is absorbed into the peripheral tissues of the brain in children aged 5-8 years than in adults [Aydin D., et al., 2011]. The energy absorption of mobile phone is the highest in the temporal, frontal and cerebellar regions compared to other regions of the brain either ipsilateral or even contralateral [Aydin D., et al., 2011].

There is a correlation between prenatal and postnatal exposure to mobile phones and neurobehavioral problems in children and adolescents, including behavioral problems (emotional problems, conduct problems, hyperactivity, and peer relationship problems) and cognitive problems (poorer accuracy of working memory, shorter reaction time for a simple learning task, shorter associative learning response time and poorer accuracy) [Feychting M., 2011].

Many studies shown that there are neurodevelopmental and behavioral effects to the fetal exposure by the mobile phones. The fetal RF radiation exposure led to neurobehavioral disorders in mice [Aldad T.S., et al., 2012]. Mice exposed *in utero* were hyperactive, had impaired memory, and demonstrated behavioral changes due to an alteration of normal neuronal developmental programming [Aldad T.S., et al., 2012].

Results of studies on nervous system have showed that rat's prenatal and/or postanatal long duration exposure to 900 MHz EMF leads to decreases of Purkinje cell numbers in the cerebellum, pyramidal cell numbers in the cornu ammonis (CA) and granule cell number in dentate gyrus of hippocampus [Kaplan S., 2013].

Investigation of the changes in protein expression profile induced by mobile phone EMF in human chorionic tissues of early pregnancy *in vivo* shown that mobile phone EMF might alter the protein profile of chorionic tissue of early pregnancy during the most sensitive stage of the embryos, and the exposure to EMF may cause adverse effects on cell proliferation and development of nervous system in early embryos [Luo Q., et al., 2013].

Short term EMF exposure induces mild stress to cells, which then produce cytokines that function as alarms or so called danger signals for the immune system [Cuppen J.J.M., et al., 2007]. This mechanism is the basis for development Electromagnetic Hypersensitivity (EHS) on MF/EMF of some individuals [Dahmen N., et al., 2009; Rubin G.J., et al., 2010], including mobile phones [The Swedish Radiation Safety Authority`s (SSM), 2013].

ELF–MF can activate immune relevant cells and free radicals: reactive oxigen species (ROS) and reactive nitrogen species (RNS), causing of increase their concentration and length of life [Selaković V., et al., 2013]. Mobile phone causes oxidative stress and possible mechanism creation of ROS [Kesari K.K., et al., 2013a]. The increase in ROS plays an important role in enhancing the effects of the MWR, which can cause development of neurodegenerative diseases [Kesari K.K., et al., 2013b].

There is an increased prevalence of unwanted neurobehavioral symptoms and/or cancers in a population of people who live less than 500 meters from mobile phone base stations (MPBS) [Khurana V.G., et al., 2010]. The most common symptoms of excessive use of mobile phones or

stay near MPBS are sleep disorders, headaches, allergies, dizziness and concentration problems [Parliamentary Assembly Council of Europe, 2011].

The consequences of mobile phone used by children and adolescents but also by young adults, are acute or chronic occurrences headache, irritation, nervousness, dizziness, concentration problems, fear and sleeping problems, allergies, symptoms of depression, feelings of heat, fatigue [Thomée S., et al., 2011].

Changes in blood pressure (hypertension more often than hypotension) are the result of increased stress-hormonal levels by EMF radiation, which are suspected as a deleterious factor on the cardiovascular system [Vesselinova L., 2015].

Mobile phones emit non-ionizing EMR that can energize nearby tissues in a manner that can alter the biochemistry of human tissues and change the structure of human DNA [Wargo J., et al., 2012]. Among 101 papers that examined the genotoxic effects of radiofrequency EMF, nearly half reported damage to genetic material [Wargo J., et al., 2012]. Other studies found that exposures impair the ability to repair DNA damage [Wargo J., et al., 2012]. Under the influence of RFR are possible direct and indirect inductions of all three types genotoxic actions: (1) the effect on chromosomes; (2) fragmentation of the DNA; and (3) gene mutations [Lee J.W., et al., 2011]. Since stem cells are more active in children, researchers argue that children may be at an increased risk of genotoxic effects from cell phone exposures and development of cancer and/or leukemia [Wargo J., et al., 2012].

STUDIES SPECIFIC TO CHILDREN

Children may be potentially susceptible to RF effects because of their developing nervous systems, increased levels of cell division, undeveloped immune systems, thinner skulls, and more conductive brain tissue. Children experience greater RF penetration relative to head size, and longer lifetime exposure in comparison with adults [Kheifets L., et al., 2005].

The few studies that have specifically focused on mobile phones and children have focused on cancer, behavior, and neonatal heart rate. The people who started mobile phone use before the age of 20 had a more than fivefold increase in glioma [Hardell L., 2008]. Those who started using mobile phones when they were young were also five times more likely to develop acoustic neuromas [Hardell L., 2008]. Children who used mobile phones for at least 2.8 years were more than twice as likely to have a brain tumor than those who never regularly used cell phones [Wolchover N., 2011]. Exposure to mobile phones prenatally and postnatally was associated with behavioral difficulties or behavioral problems in children [Divan H.A., et al., 2008]. Pregnant women exposed to EMF emitted by mobile phones on telephone-dialing mode for 10 minutes a day during pregnancy and after birth had babies with statistically significant increases in fetal and neonatal heart rate (HR), and decrease in stroke volume and cardiac output (COP) [Rezk A.Y., et al., 2008]. All these changes are attenuated with increase in gestational age [Rezk A.Y., et al., 2008].

Acute mobile phone exposure affects brain glucose metabolism, a marker of brain activity. Whole-brain metabolism did not differ between on and off conditions [Volkow N.D., et al., 2011]. In contrast, metabolism in the region closest to the antenna [orbitofrontal cortex and temporal (right) pole] was significantly higher for on than off conditions [Volkow N.D., et al., 2011]. Spending 50 minutes with a mobile phone turned on against the ear significantly alters cerebral glucose metabolism [Volkow N.D., et al., 2011].

Longterm affects of MF/EMF producing unspecific chronic stress causing physiological and biochemical changes, as well as consequential alterations in behavior of cells and tissues due to the effects of all the anisotropic structures of the cell (membrane, receptors, cytoplasm, nucleus, and organelles), influencing on ionic channels, synthesis stress proteins, enzyme function (metalloenzymes – 1/3 all = 80) [Djordjevic D., 2014], electron transfer in mitochondria, expression of genes (genotoxic effects of mobile phones) [Blank M., Goodman R., 2009].

RF/MW affects cellular structure and/or function. RF/MW radiation has negative health impacts: damages DNA, disrupts blood brain barrier (BBB), changes brain metabolism, weakens and damages sperm [Davis D.L., 2012].

Studies of children (8-12 yrs) and adolescents (13-17 yrs) have shown that, as a result of the use of mobile phones, occur acute or chronic headache, irritation, nervousness, dizziness, concentration problems, fatigue, anxiety and sleep problems [Feychting M., 2011]. The most frequently occurs acute symptoms during the early morning hours (headache, irritation, fatigue), while chronic symptoms relating to sleep in children, but irritation to adolescents [Feychting M., 2011].

Exposure to RFR change circadian rhythms that regulate sleep, hormonal balance changes; affects tumorogenesis, damage short-term memory, learning, function of sensory organs (especially hearing and vision) [Panakhova E.N., et al., 2008], damage of the motor actions and behavior, which is especially important for children and young people [Guest editorial (Sage C., Huttunen P.), 2012].

Chronic exposure to RFR resulting in athermal effects with appearance of a variety of disorders and diseases, ending with the most difficult-mutations and carcinogenesis [Kowalczuk C., et al., 2010]. A key role in their development has RF–EMF, which can encourage the generation of ROS in cells *in vivo* and *in vitro* [Ruediger H.W., 2009]. Often and long-term of using of mobile phone, as well as carrying in pocket near the testicle or ovary, increases the risk of infertility [Kesari K.K., et al., 2013a]. In overuse, there is a possibility of developing of addiction or dependency syndrome of the mobile phone or its functions [Kumar S.S., 2014]. Addiction can consist of all kinds of improper behaviors, and some factors may be present in all types of addictions (eg., aggressiveness, tolerance, withdrawal, conflict and recidive) [Kumar S.S., 2014]. The addictive nature of mobile phones has concerned psychologists for years. Some people can experience withdrawal symptoms typically associated with substance abuse, such as anxiety, insomnia, and depression, when they are without their smartphones [Wargo J., et al., 2012].

Mobile phone users are at increased risk of developing: acoustic neuromas (or *Schvanoma vestibulare*) [Schüz J., et al., 2009], salivary gland tumors (cancerous and non-cancerous), meningiomas, gliomas [Schüz J., et al., 2009; Parliamentary Assembly Council of Europe, 2011], astrocytomas [Schüz J., et al., 2009], breast carcinomas [Sage C., Carpenter D.O., 2009; West J.G., et al., 2013], Ca ovarii and Ca testis [Kesari K.K., et al., 2013a], leukemias [Kesari K.K., et al., 2013a].

International Agency for Research on Cancer (IARC) classified ELF–EMF and RF–EMF as possibly carcinogenic to humans (Group 2B) [IARC, 2002, 2011, 2013] on the basis of epidemiological findings, based on a 10 year studies, which indicate a correlation between exposure to ELF–EMF and children's leukemia and exposure to RF–EMF and glioma [Chen G., et al., 2012]. Three independent lines of data (*in vitro*, animal, epidemiological) show that exposure of the RF–MF/EMF leads to an increase cancer in humans [SCENIHR, 2009]. Epidemiological findings indicate that the use of mobile phones <10 years is not associated with

the incidence of cancer [SCENIHR, 2009]. Using a mobile phone >10 years is related to the occurrence of cancer in some people [SCENIHR, 2009]. Studies indicate that there is a certain risk of developing brain tumors in short-term use of mobile phones for <5 years and ~20% increased risk for >10 years of use [Schüz J., et al., 2009]. It is estimated that the latency period of appearance of brain tumors or any cancer, including leukemia, is 10-15 years in children and adults after the first exposure of mobile phone [ICNIRP, 2011].

A variety of health problems, chronic illness, fatigue, disability, or death can be the result of cumulative effects of RFR with the modulation of the ELF region or without it, in the "RFR-sick people" who are the victims of application development technology "wireless everywhere" [Guest editorial (Sage C., Huttunen P.), 2012].

CONCLUSION

All artificial sources of non-ionizing radiation, depending on the features, time influence and state of the organism, can exert harmful effects on the health of humans, animals and plants. Mobile phones, because of their method of use and widespread have the greatest negative influence on human health, which can be seen in the form of acute or chronic disorders or diseases.

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THE ROLE OF MADU NEW INTEGRATIVE MEDICINE METHOD IN THE POSTNATAL PERIOD

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Abstract. Preinformative knowladge of our organism includes the areas of reflexology (RF), acupuncturology (AP), Su Jok (SJ) acupuncture, Embryo Contains Informations of Whole Organism (ECIWO) acupuncture, with gap junction (GJ) channels as control centres for reparation processes. All of these therapies allow corrections and reparations in any life periods. Confirmation of efficiency of those therapies is scientifically approved. Such integrative medical approach is additional to scientific medical treatment. Obtaining balanced energetic level is healing for psycho-physical state. The best results are gained and maintained in the area of psychically caused somatic reactions. New medical technology MADU (MAgnetic Deep Unipolar oriented field) is based on few hours lasting therapeutical series of non-invasive procedures in the aim of reduction of swelling, arrangement of dipols and energetic well-being. Well balanced state is being maintained for a long period by application of MADU medical devices on therapetical zones which results with reparative processes. Psychic traumas are changing energetic level of the acupuncture channels of liver and gall blader, with corrective tonification or sadation for balancing energy. Holistic medical approach integrates view of health status in whole and application of quatum-informational medicine (QIM) corrections in post-natal period by applying MADU method. This methodology is being used for 23 years. Results are being achieved in process of reparation in connection with anti-stress and psycho-somatization. Significant progress is made in fields of chondroneogenesis, osteoneogenesis, angioneogenesis, limphoneogenesis, neuroneogenesis and generally various regenerative processes.

Keywords: *MADU Magnet, Psychosomatisation, Anti-Stress, Regeneration, Restitution*

Preinformative knowledge of our organism includes the areas of *reflexology* (RF), *acupuncturology* (AP), *Su Jok* (SJ) *acupuncture, Embryo Contains Information of Whole Organism* (ECIWO) *acupuncture*, with *Gap Junction* (GJ) channels as control centres for reparation processes. In order to achieve energetic equilibration of the organism and to keep therapeutical effects for a long period we use *MADU* (MAgnetic Deep Unipolar oriented) therapeutical procedures and MADU medical devices. All these therapies are scientifically approved and confirmed.

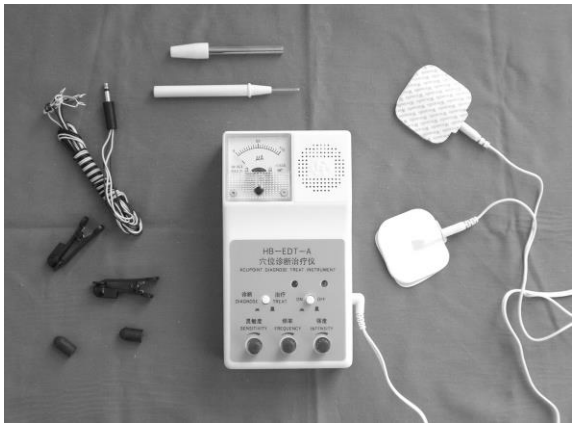
MADU therapy is a modern medical discipline promoting non-invasive diagnostics and therapy based on biophysical drivers of positive, healing changes in the body which takes place at a quantum, i.e. energy level and belongs to *holistic* and *quantum-informational medicine* (QIM). It should be kept in mind that the holistic medicine is a form of healing that considers a person as a whole (body, emotions, mind) for obtaining optimal wellness and health. So, a holistic doctor may use conventional scientific medication as well as complementary therapeutic methods, to treat patient successfully.

The *human organism* does not function solely on the basis of biological and biochemical cellular reactions, the humans are also electromagnetic beings. It has been established that bioelectricity plays a main role in the physiology. The *psychological traumas* are changing the energetic levels of acupunctural channels of liver and gall bladder, thus the corrective tonification or sadation are needed to balance energy. The *acupuncture* enables tonification or sadation that is not possible in scientific medicine, making this advantage beneficial for energetic

equilibration. The *energy balance* can be achieved through various methods, but the preservation of obtained condition for a longer period is due to MADU therapy.

Acupuncture – traditional Chinese medicine

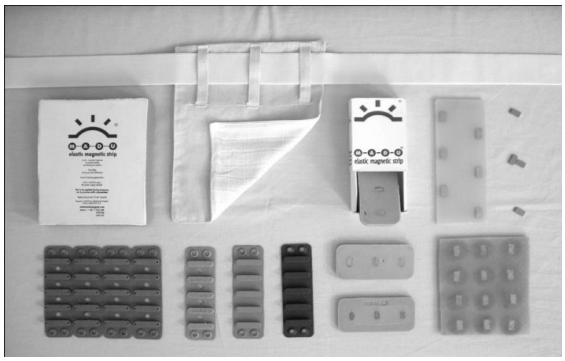
The diseases can be classified into two huge groups, one leading to atony or paralysis of the organs, and other to excitation or inflammation. The object of medicine is to excite the functions of the atonic organs and to calm or moderate those which are too active. The magnetism becomes an exact science that is reestablishing and maintaining the physiological human polarity. The diagnosis can be confirmed through observing various symptoms and signs from the reflexogenic centers that could be found all over the organism.



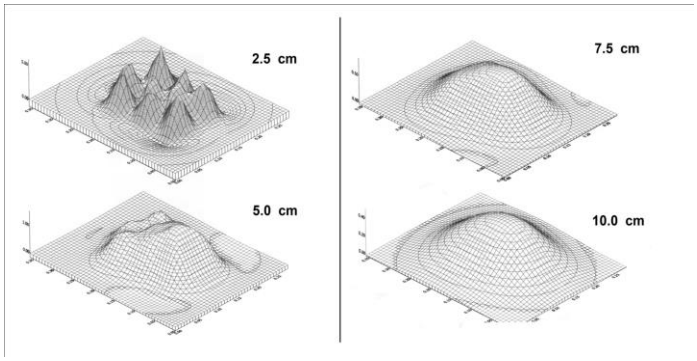
HB-EDT-A – diagnostic and therapeutical device for tonification and dispersion

The holistic medical approach integrates the health status as possible corrections in all life periods, but our best results are by applying MADU method in post-natal period.

MADU method is registered new healing technology. It is clinically examined, ecologically clear and environmentally friendly, non-invasive, painless, anti-stress therapy applicable in clinical, outpatients and field conditions. It opens new possibilities in shortened time of healing of soft and hard tissue, faster and more efficient anti-stress removal and rehabilitation processes, achieving efficient medical protection and better quality of life with both young and old patients, increased sportsmen fitness level.

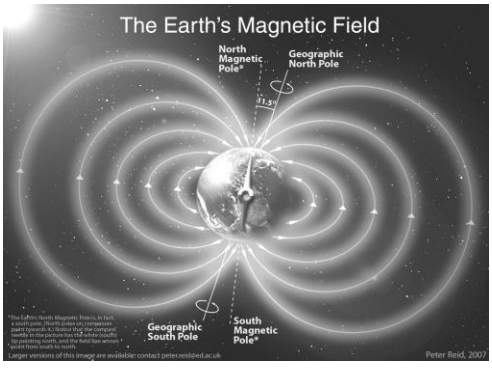


MADU devices



The measurements of MADU field

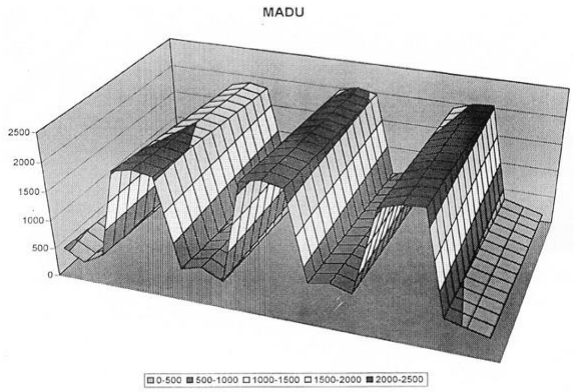
Why MADU therapy is *substitutional* one? Earth magnetism is one of four natural central forces beneficiary to upstanding and sustaining prosperity of the mankind. Our Earth is one huge week magnet declining magnetic induction in half for the last five centuries. In the last century, the faster declining of the natural Earth's magnetic field was detected. This is being reflected on the mankind and all living beings. Therefore the additional MADU field is useful to promote, keep and stimulate the vital functions.



The Earth's magnetic field

The *substitutional therapy of MADU* new medical technology is based on the application of two inventions acclaimed as patents and registered as medical devices. MADU therapy is acknowledged as the new health technology in 2007 by The Ministry of Health, Republic of Serbia (No. 022-04-19/2006-07).

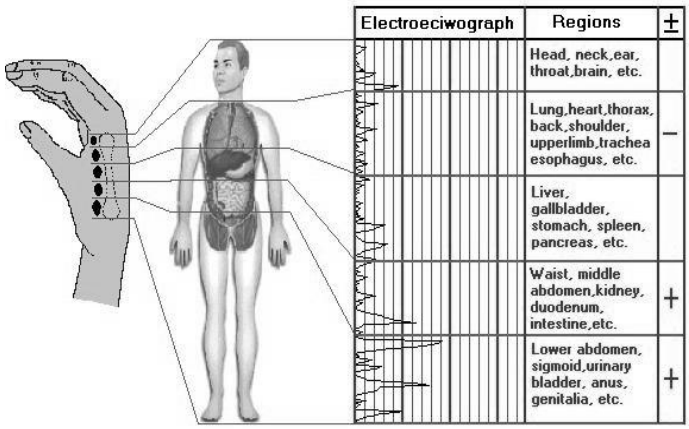
MADU Magnetic Therapy is based on application of (non-oscillatory) unipolary oriented magnetic field based on quality of Earth's magnetic field. *MADU method* includes 2-3 hours therapy with a number of different medical devices, and finally application of the magnetic strips. MADU strips, which are 10 to 15 times weaker in mT than the WHO's prescribed maximum magnetic field levels (up to 2 T), were applied and observed in patients over a period between 3 months and 4.5 years. Some patients were observed during a 10-year period. Magnetic field created by those strips penetrates human body up to 55 cm deep.



MAgnetic Deep Unipolary oriented field (spread 55 cm)

The strips are placed on the surface of the skin above the diseased organ in order to achieve desired effect. The period of application of MADU strips, was usually between six month and a year with most of our patients. MADU therapy and the two MADU medical devices had been used over the last 23 years. WIPO UN research (2000) qualifies MADU STRIP as: Novelty (N), Inventive step (IS), of Industrial applicability (IA).

Such *integrative medical approach* is complementary to scientific medical treatment. The permanent magnetic field improves the quantum-informational biological processes in the organism and stimulates regenerative processes. The processes of regeneration are of the great significance for the mankind. The ancient knowledge (as reflexology, acupuncture, ECIWO) is very effectively used as the basis of opening GJ channels – preinformative centers in the organisms. It was accumulated throught the centuries of the human history and today is explained and scientifically approved.



ECIWO – diagnostics and therapy

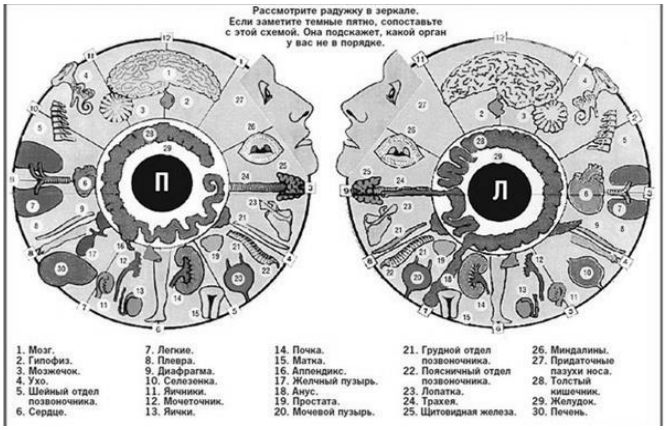
The *intention of MADU treatment* is: providing methabolic conditions, reducing pain and stress, enhancing regenerative processes and energetic equilibration, presenting the new possibilites of subtle noninvasive treatment, and reducing the period of physical, psychical and social rehabilitation.

According to traditional Tibetian medicine the chronical deseases may represent the sentiments of worthlessness, selfpunishment or revenge. In those cases the disorder can be successfully treated by achieving energy equilibration in human organism. By means of *reflexology* this balance can be obtained through affecting corresponding reflexogenic centers all over the organism.

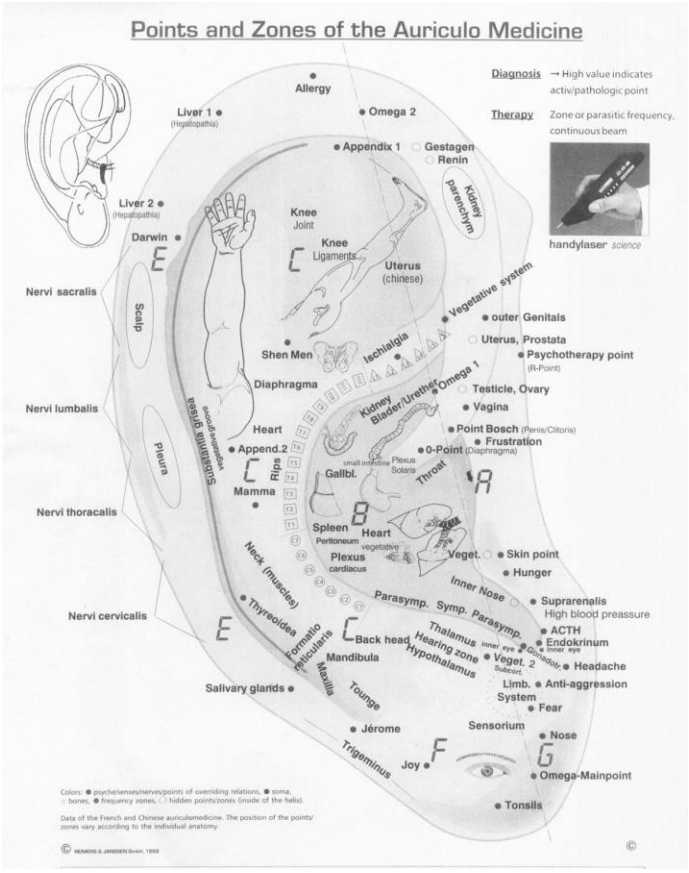
The *effects of MADU therapy* are based on set of principles that aim to restart the free flow of the organism's energy. We have to make biophysical initiation of energy (biomagnets) to transfer it to biochemical level and then to bioelectrical level. *Biophysical* effects at the cellular level include the impact on water and its cluster structure, ferro- and paramagnetics and opening of ionic channels. *Biochemical* effects include changing of membrane potentials, improvement of modulation of the potential of the K/Na (potassium/natrium) pump, synchronization of endogen oscillations of Ca ions, enzymes activation (especially of metalloenzymes) and ATP production improvement. *Bioelectric* effects include bio-conductivity increase (the cell's membrane is equivalent to electrical battery due to diffusible ionic concentrations).

The *confirmed therapeutical effects of MADU* are: reducing pain (analgesic, hypoesthesic, morphine mimetic effects), reducing inflammation (anti-inflammation and ache-like effects), reducing stress level, reducing swelling (antiedematous effect, dipoles settlement), tissues oxygenation and nourishment (vasodilatation, spasmolytic effect, microcirculation metabolism activation and acidity reduced), various tissues regeneration (alkaline reaction improved, enabling regeneration and angioneogenesis, Ca^{++} ions entering in bones, favoring mature and healthy cells by opening GJ channels - primeval informative centers), improving liquids viscosity (better flow, reduced angle between atoms in water molecules – from $104{,}5^{o}$ to 85^{o} in cluster conformational structure), opening GJ channels and refreshing ECIWO information. The side effects that were recognized in the cases of treated hypertension patients are a mild increase in TA that can appear in first 3 days of therapy (in 3% of MADU threated patients). The precaution should be payed in case of pregnancy, in patients with pacemaker and in the case of patients with malignant disease during first 3 years of anti-malignant treatment.

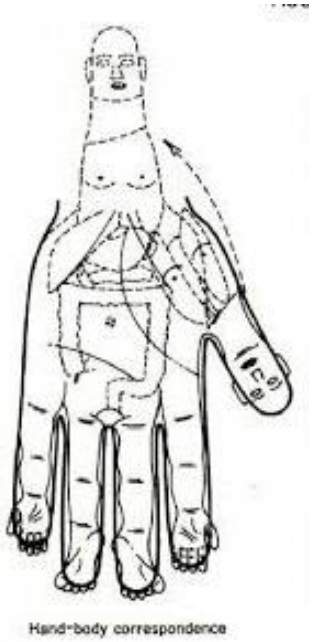
For the sake of completeness, in figures below we illustrate some additional traditional methods of holistic diagnostics.



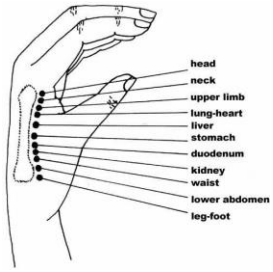
Irido-diagnostics



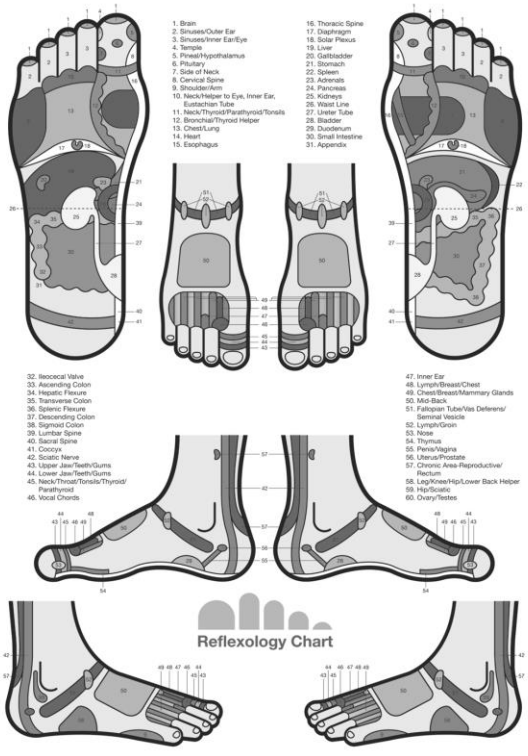
Ear reflexotherapy



Su Jok Korean medicine



Hand reflexotherapy



Foot reflexotherapy

CONCLUSION

The *holistic medical approach* integrates the view of health status in whole and application of QIM corrections in post-natal period by applying MADU method. This methodology is being used for 23 years. The results are being achieved in process of reparation in connection with anti-stress and psychosomatization. The significant progress is made also in the fields of chondro-neogenesis, osteoneogenesis, angioneogenesis, lymphoneogenesis, neuroneogenesis and generally in various regenerative processes.

The *sucessfully treated* groups of common diseases, have huge medical and social-economic relevancy. The MADU therapy could be applied as the additional therapy together with the contemporary medical procedures thus improving quality of life.

Having in mind the expiriences gathered to date, through the application of MADU and its effects on the local and global level, the indicational field is getting wider and wider while the contraindications and the precautions are narrowing down. Thus, this type of magnetotherapy belongs to the future.

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