

## Demographics: only quantity or quality as well?

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The analysts of the International Monetary Fund in their presentation to the UN reported with concern: in the last 60 years the population of Earth is increased not only due to the birth rate, but also due to the increase in life expectancy. They predict the collapse of the financial system, because of increased spending on pensions, treatment and care for the elderly, if this trend will continue to 2050<sup>1</sup>. The analysts, focusing their attention on the costs for retirees, did not discuss the huge costs for the people born now and those who will be born in future. However not the number of born children is a problem, but their quality - physical and mental because the new posterity already from the moment of birth requires significant resources of a society on them care, raising, and then - constant health and/or psychological service, and also costs of police, penitentiary systems, armies etc.

**The purpose of presentation:** to involve attention both the scientists and public to mental and physical health of the generation of people, which be born now in order to find ways to improvement of its quality from a position of modern knowledge.

**1.The extragenital diseases of the pregnant women and health of born posterity.** The statistical analysis of morbidity in the different countries shows, that a condition of health of the pregnant women, as a rule, bad. The diseases of circulatory, endocrine, urinary, immune and other systems in many women are finding. This means that children are born with a predisposition to diseases of like systems and organs. These diseases are found out in childhood, they have propensity to chronic current and accompany the individual in his lifetime, periodically aggravated. They require constant treatment, they reduce both mood and work capacity of the man.

As an example we shall consider a problem of diabetes. It is known, that the children who born at parents with diabetes have a genetic predisposition to it, and/or to the disorders of carbohydrate metabolism. In subsequent the damages of various organs at them are formed that requires the help of the various specialists (ophthalmologist, nephrologist, hepatologist, and neurologist). How many children are born with such pathology? Let's address to statistics.

As of 2002 in the World about 120 millions man had the diabetes. On the data the WHO by 2012 in the world the diabetes type-1 was sick already about 366 millions the man<sup>2</sup>. Annually the diabetes at 78 000 children are diagnosed. The disorders of carbohydrate metabolism at 2-3 of 100 pregnant women are found. On the data of United Nations Population Fund (UNFPA) each year in the world occurs approximately of 130 millions labor<sup>3</sup>, that is the opportunity of birth annually 2 millions 600 thousand babies with obvious or latent diabetes. Approximately half of them are girls, future pregnant women - mothers with this pathology.

Another problem binding to above: Research showed the chronic kidney diseases (CKD) risk was 69% higher for children whose mothers had diabetes before pregnancy. The CKD risk was 28 percent higher for children whose mothers developed gestational diabetes, and children

<sup>1</sup> <http://www.imf.org/external/pubs/cat/longres.aspx?sk=25343>

<sup>2</sup> <http://www.idf.org/diabetesatlas/5e/the-global-burden>

<sup>3</sup> <http://www.funtrivia.com/askft/Question75884.html>

whose mothers were obese had only a 22 percent higher risk of CKD<sup>4</sup>. It is known, that the disease the urinary system occupies one of conducting places in structure of an extragenital pathology of pregnant women: their frequency reaches 10-12%<sup>5</sup>. On the most rough calculations from 130 million of laboring women approximately 13 million of them suffer by a pathology of kidneys and they can give birth per one year 11 million 700 thousand children with predisposition to diseases of urinary system. The researches carried out in Russia have shown that the frequency of diseases of urinary system changes depending on ecological conditions from 66 up to 187 on 1000 children<sup>6</sup>. It is possible to assume, that the ecological situation promotes display of genetic predisposition at growing up generation to diseases of urinary system, which in subsequent render at them negative influence on their health, pregnancy and labor, and also can form predisposition to these diseases at the following generation.

We have mentioned only one pathology but it is known the women and men, including those who giving life to the following generation, have also other diseases.

**2. Prematurity of pregnancy and immature children.** Infants born with low weight face a number of serious health risks. The children born with low weight of a body have a high risk of a psychomotor and social retardation (Hediger et al 2002, Reichman 2005), and in case of mental and physical infantilism the imperfection of functioning of organs and systems is observed. It is considered as chronic diseases. Immature children have a high probability of inability to training at usual school, to have low IQ, and inability to study in high school (Reichman 2005. Jackson 2006). The risk of all this is increased with reduction of weight of a body and sizes of a skull (at microcephaly) (Stoler-Porias et al 2010). It is necessary also to mean, that children with low and extremely low weight of a body require long reanimation measures without reliance, that good mental and physical health of the born child will be saved. The survived children are injured by surrounding circumstances during reanimation and care. And it is saved in their unconscious, defining their thinking and behaviour in the future life.

How many children are born before term and with low weight? The birth of children with low weight (less than 2 kg) with 2006 on 2011 rr in the world is at a level 8,1 - 8,3% of all births<sup>7</sup>. It is approximately 10 million 906 thousand babies annually, and approximately half of immature children are girls. The researches which have been carried out in Canada (Boivin et al 2012), have shown: in case of birth of the girls before or about 32 weeks of pregnancy at approach at them of pregnancy more often such complications appear: gestation diabetes (in 2,34 times), pregnancy hypertension (in 1,56 times), preeclampsia or eclampsia (in 1,79 times). By other words, prematurity is a risk of pathology of pregnancy and damage of the following generation. The children born with low weight bring the huge economic costs: on medical needs, on special education and social charges on service, and also they have the reduced efficiency in mature age.

**3. The socio-economic conditions** of life (famine, poverty), in which the pregnancy is passed promotes "the birth of children biologically distinct from those who was born under favorable circumstances" (Barker et al 2001) even in case of birth of children in time. The heavy conditions of development after conception can create predisposition to diseases cardiovascular system (coronary heart disease, hypertension), which are shown in younger age, and people which have experienced the famine together with the mothers up to birth are more sensitive at occurrence of similar stressful situations (Barker 1995; Painter et al. 2006). It relates not only to the women from the poorly advanced countries, but also to the women of western countries, and in an equal measure having superfluous weight or low weight, as according to a modern style many women have a unbalanced diet and continue it to do after conception. And thus women involuntarily bring in this world of children with illnesses or with predisposition to various diseases inclined to chronic current.

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<sup>4</sup> [http://professional.diabetes.org/News\\_Display.aspx?TYP=9&CID=83178](http://professional.diabetes.org/News_Display.aspx?TYP=9&CID=83178)

<sup>5</sup> <http://urotoday.ru/issue/4-2012/article/beremennost-i-imvp-taktika-urologa>

<sup>6</sup> <http://nature.web.ru/db/msg.html?mid=1171062&uri=index.html>

<sup>7</sup> <http://www.childtrendsdatabank.org/?q=node/67>

4. **Prenatal mental trauma and its consequences.** From the beginning of XX century the prenatal and perinatal psychology began are developed. It scientific direction connected to study of mental life of the unborn child and influence of impressions perceived up to birth on his thinking and behavior in subsequent after birth of life. The researches have shown, that:

- The unborn child (prenate) has emotional perception,
- The unborn child has actively functioning memory,
- The memory of prenatate includes events, most emotionally experienced together with the mother,
- At the child and adult the prebirth impressions of the man make their unconscious,
- These unconscious feelings can operate thinking, emotions and behaviour of the man after birth,
- The quiet condition of the mother during pregnancy promotes display of the depositions and talents received by a child with genes from the mother and the father.
- Distress of the pregnant mother can put irreparable damage to a unborn child, his health and development after birth, his destiny in future.

As the researches have shown prenatal mental trauma received by child through his mother becomes a source of various mental condition and disorders: fears, phobias, persuasive conditions, anxiety, panic, neurosis, sexual problems, and also psychosomatic disorders: asthma, megrim, neurodermitis, disorders of speech, stammering, pylorostenosis, enuresis, and such mental disorders as autism, syndrome ADHD, unipolar and bipolar disorder, psychomotor retardation, oth. They show themselves with various intensity in different terms of life after birth.

**Autism** is one of displays of a prenatal trauma. He is characterized by deviations in social interaction and dialogue, and also limited, repeating behaviour. All specified attributes occur in the age of till three years. The related conditions, at which softer attributes and symptoms are marked, carry to disorders of the autistic spectrum. The reasons of autism in many respects connect with genetic aberrations, which result to the prebirth infringement of development both cerebellum and brain as a whole. Last years the significance of emotional distress of a prenatate experienced together with his mother has found. It is high meaningful stressors (death of the husband, loss of job, moving, other), which rendered their action in the period 21-32 weeks of pregnancy with peak at 25-28 of weeks (Beverdorf et al 2001).

The majority of the recent reviews converge that the level of autism prevalence makes 1-2 on 1000 man in a population and about 6 man on 1000 for disorders of the autistic spectrum, though admits, that the real quantity can be even more. Unfortunately, a little of autists can live by high-grade life in a community (Howlin et al 2004, Tidmarsh et al 2003, Billstedt et al 2005). The majority of children with autism need the social support, steady relations with other people, prospects of career, feeling of self-determination (Burgess et al 2007). Some symptoms smooth out with age, the moderate improvements in communicative sphere are observed, but the basic problems remain, and at many number of mature autists the line of skills, unfortunately, even are worsened (Helt et al 2008).

**ADHD Syndrome** (Attention deficit hyperactivity disorder) also connect with prenatal stress (Van den Bergh a. Marcoen 2004). ADHD's global prevalence is estimated at 3-5% in people under the age of 19. Rates of ADHD diagnosis and treatment have increased in both the UK and the USA since the 1970s. In the UK an estimated 0.5 per 1,000 children had ADHD in the 1970s, while 3/1,000 in the late 1990s. In the USA in the 1970s 12 per 1,000 children had the diagnosis, while in the late 1990s 34/ 1,000 had the diagnosis and the numbers continue to increase<sup>8</sup>: in 1997 only in USA the syndrome ADHD had 3.3 million children (Polanczyk et al 2007). About half of children with ADHD becoming the adults still will have concentration problems and impulsivity, though the adults are more capable to supervise their behaviour and to mask difficulties.

**Depression** approximately twice more often is found out in the women, than at the men [Kuehner 2003 249]. Depression (major and minor) in the various periods of pregnancy and in

<sup>8</sup> <http://www.nice.org.uk/nicemedia/pdf/CG72FullGuideline.pdf>

the postnatal period comes to light with high frequency - from 6,5% up to 12,9% (Gavin et al., 2005, Le Strat 2011). It often promotes interruption of pregnancy: the frequency of premature labor exceeds 20 % at the pregnant women with depression (Wisner et al 2009). The depressive condition of the pregnant woman renders influence even on still unborn child that can be found out already after his birth. Newborn children, born from the mothers with depression, had a low estimation on an Apgar scale and more often have required reanimation for their revival. They more often cried, and it was more difficult to console them. Than more expressed there was a depression at the mother then angrier were children. These children in subsequent were more inclined to smoking, use of alcohol and drugs. The scientists of the different countries support the idea about pathogenic role of maternal depression concerning occurrence of depression at born posterity (Bettes 1988; Zuckerman et al 1990, Ponirakis et al 1998; Hernandez-Reif et al., 2002, Verny 2002).

The relative increase of frequency of depression begins from pubertal period of development, and by 15-18 of years reaches the frequency, which is present at the adults. Prevalence of depression changes over a wide range, from 3% in Japan up to 17% in USA (Andrade et al 2003). As of 2010 depression suffered approximately 298 million the man (4,3 % from an aggregate number of the population of the Earth) (Vos, 2012). The depression (major and minor) is one of the basic reasons morbidity all over the world. (WHO 2001). It is important also that the depression during pregnancy and after labor often is not the isolated condition, and it is connected to a wide spectrum of accompanying mental disorders. On the data of researches in Germany 2000 - 2004 гг., in 53-61% of the persons suffering by depression, other psychiatric disorders also were observed: generalized anxiety disorder, panic attacks, agoraphobia and posttraumatic stressful disorders. They had in 11 times more days of invalidity, than non depressed patients. The total cost of expenses has increased by the patients with this pathology on the data of the American researchers from 16 billions dollars per 1986 up to 44 billions dollars in 1993.

The monoamine theory of development of depression was dominant until recently and according with it the disease is connected to deficiency in a brain the biogenic amines: serotonin, noradrenalin, and dopamine and the serotonin transporter (5-HTTLPR) polymorphism (Surtees et al. 2006), which ensure the communications between nervous cells. The newest researches have shown, that the deficiency can be caused by feature of a gene (5-HTT), carrier serotonin, and it reveal oneself in case of very stressful vital events for the person (Kuehner 2003). The researches carried out in Sweden have confirmed heritability of depression (Kendler et al 2006). The genetic roots of depression explain, why the depression is run in family and why the child gets propensity to depression from the conception, and suffer from it during lifetime, even after it would seem of insignificant stressful events, sometimes so insignificant, that occurrence of depression consider as a "spontaneous". Frequency of such depression, which consider as endogenic, i.e. without any external influences, is rather high (about 35 % of all cases) (Tiganov et al 1999).

The similar mechanisms of pathogenesis are found out not only at unipolar disorders, but also at bipolar affective disorders and even schizophrenia (Lake 1979; Benedetti 1983; Janus 2001; Brekhman et al, 2010).

**Psychomotor retardation** involves a slowing-down of thought and a reduction of physical movements in an individual, including speech and affect (Tryon 1991). Psychomotor impairment can accompany children with mental disorders mentioned above (major depression, bipolar disorder), and as the clinical researches have shown the prenatal stress itself can cause the motormental retardation of children (Maldonado-Duran et al 2000; O'Connor et al 2002; Huizink et al 2003). These researches were confirmed experimentally by scientists of Wisconsin - Madison University (USA), who have found that the disorders of psychomotor development were more expressed, if the influence of stressor occurred in early terms of pregnancy (Schneider et al 2005, 2008). Moreover, the scientists from Haifa University (Israel) in their experiments

have shown that the stress exposure before conception results in to pathological social behaviour at born offspring (Shachar-Dadon et al 2009).

5. **The unwanted pregnancy** is the important factor of breaking quality of the born people. The prenatal psychologists have opened, that children, who born from unwanted pregnancies, have a line of psychological peculiarities that bring sufferings both to them and surrounding people. They experience the psychological discomfort, complex of inferiority which induces them to special, sociopathic, and sometimes even psychopathic behaviour. Specialists also have found in them different psychosomatic diseases or syndromes. More over, they have found a high frequency of aggression, violent behaviour and auto-aggression among the people which have experienced the attempt of an abortion, and in subsequent, after birth, the rejection of them as a confirmation of their undesirability (David et al. 1988; Matejchek et al. 1994; Sonne 2005). These children require often the medical aid and psychological support, and their destructive behaviour can put serious damage to a society depending on the position in a society. Last example - the massacre in December 2012 at school of State Connecticut (USA), where psychopath has killed 26 men<sup>9</sup>.

Whether it is a lot of undesirable pregnancy in the world? The data on quantity of abortions could give some representation about it. On the data of the experts the WHO in 2003 in the world more than 42 million of abortions have made. Frequency of abortions on the average on the world 31 abortions on 100 live births, highest frequency in East Europe - 105 abortions on 100 live births. On the data National Center for Health Statistics (USA)<sup>10</sup> follows, that for 15 years (1973-1988) from all fixed labor 35% (5,8 million) were undesirable. Among these 30% of born children - were definitely unwanted, and 70% - were not planned, i.e. they have come to this world at the improper moment of time.

6. **Birth** and everything, that surrounds it, also can leave at unborn children injuring impressions. These impressions are result of a complex of influencing factors such as: increasing fears of the mothers in connection with approximation and beginning of labor, disorders of labor activity because of stress or other reasons, medical measures directed on regulation of pains, etc. The recent research in the USA showed the electronic fetal monitoring used at 93% of mothers; epidurals – at 63%; membranes ruptured - 55%; oxytocin to stimulate labor progress received 53%; episiotomies received 52% of mothers.<sup>11</sup> The cesarean section often is a speedy way (at the woman's request or at the obstetrician's suggestion), its frequency in different countries varies from 25 to 70%. The researches have shown, children, born by such way, in subsequent have various psychological and psychosomatic problem (Odent 2004). According to the statistical data in Russia in 2001 the number of natural labor (labor without any intervention) was on the average at 31,2% of the women, with limits of fluctuations in various regions from 10,8% up to 54,8%<sup>12</sup>. All these factors cause trauma both the mothers and the children that are transformed at them as the psychological and psychosomatic problems, which often requiring the psychiatric and psychotherapeutic help (Grof 1975, 1985; oth.).

**Discussion.** We showed the incomplete list of the factors influencing the unborn child during his intrauterine period of development when genetic program is realized. These occur not always correct because it includes some mutations that parents accumulated before the conception. The mutations continue pile up also during nine month of prenatal life together with mother. Adding to it prenatate has opportunity to receive new information from outside, from social and ecological environment. This information can be constructive and destructive unfortunately. The constructive information promotes the positive development of prenatate, which after birth manifests as talents of individual. The destructive information can partially to break the genetic program.

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<sup>9</sup> <http://www.alternet.org/news-amp-politics/26-killed-connecticut-elementary-school-20-them-children-can-we-ever-talk-about>

<sup>10</sup> National Center for Health Statistics (USA) (1990), Wanted and Unwanted Childbearing in the United States: 1973 – 1988. Advance Date 189: 1 – 8, September 26.

<sup>11</sup> [http://www.alternet.org/story/65608/what\\_women\\_aren't\\_told\\_about\\_childbirth](http://www.alternet.org/story/65608/what_women_aren't_told_about_childbirth)

<sup>12</sup> <http://www.minzdrav-rf.ru/in.htm?rubr=100&doc=1283>

The researches in the field of prenatal and perinatal psychology have shown, that the mental trauma received before birth becomes a source various mental and psychosomatic disorders of the child after birth. The reason of his prenatal trauma is the emotional stress of prenatally experienced together with the mother. She is stressed because her way of responding on psycho-traumatic situation connected with her psychological features, by her attitude to pregnancy and to the unborn child, by her attitude to environmental circumstances and people. The disputed situations arise at participation nearest (nuclear family, extended family) and of remote (school, job, religion, state) social surrounding. One of the most often influence is violence (mental and/or physical) – domestic, street, terror, war. The war causing stress in the mother can put a serious mental trauma in the unborn child (DeMause 1996; Janus 2001, oth.).

Modern philosophy and technology of delivery, in fact, reflect the status of society with its accelerated rhythm of life, a pragmatic approach, psychological illiteracy and "emotional deafness." Today everything that surrounds the birth, even obstetricians called as "an obstetrical aggression" (Radzinsky 2011). The events during birth can also be saved in prenatally's memory, and, as researches showed - in genetic memory. But even described here consequences of prenatal trauma are enough for the asserting that quality of the new generation is bad: it is burdened with illnesses and mental traumas, which prevent them normally to develop and function. The part from the saved experience is passed to the following generation, forming "vicious circle". How to stop process of traumatizing of the following generation of people?

What possible ways non-admission, elimination or even if easing of the influencing factors breaking health of born generation? We do not assume to give the final recommendations. We bring in our offers, meaning, that the subsequent discussion will allow finding optimum ways and mechanisms to make healthier the future generation of the people.

At the first stage it would be necessary: a) wide informing of the population on mental life of the child before his birth, about his emotional perception, and actively functioning memory, б) about influence of the information received up to birth on thinking and style of behaviour of the individual in the subsequent life, в) about prenatal and perinatal roots of mental and psychosomatic disorders of individuals, and at last г) about opportunities of preventive maintenance of prenatal and perinatal traumas.

**Conclusion.** The demography studies the quantitative characteristic of a given population<sup>13</sup>. However it is necessary to develop other party of this science - qualitative characteristic of a population in order to receive more volumetric picture of the social world. Now there is an expansion of people quota with the genetic caused diseases at the expense of birth of generation, which received the gene mutations from parents. Besides it, social and ecological environments create a high risk of reception of a mental trauma of the child even before his birth. In subsequent, in process of maturing, this is transformed and is manifested as mental and psychosomatic disorders, from which suffer both they and society. Many from them from the moment of birth require the constant medical and social help that demands significant expenses from public fund.

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<sup>13</sup> <http://en.wikipedia.org/wiki/Demographics>

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