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MEDICAL ETHICS AS AN APPLIED THEORY OF DEVELOPMENT

Moiseev VI ✉

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A new approach to medical ethics when it is interpreted as an applied theory of development has been investigated in this article. Relying on the ideas of German classical philosophy and Russian philosophy of unitotality, the development is defined based on the idea of any system as a set of basic polarities (thesis and antithesis). Their composition expresses deep polar definitions of the system and its polar portrait. A simulation model of this methodology is suggested using vector spaces with a scalar product. The development measure is introduced using the basis, the development law is defined, polar portraits of health and diseases are determined, the highest moral law is formulated as the law of development in the ethical sphere. To display medical ethics as an applied theory of development, three standards of classical medical ethics such as standards of mercy, 'no harm' and medical secrecy are analyzed, their polar interpretation is performed taking into account the suggested models. It is also displayed that all these standards express specific cases of the development law. Hypothesis of medical ethics as an applied section of development theory is supported, and a new research program of similar reinterpretation of other standards of medical ethics is suggested.

Keywords: ethics, integral ethics, medical ethics, theory of development, law of development, measure of development, deontologism, utilitarianism, polar portrait

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МЕДИЦИНСКАЯ ЭТИКА КАК ПРИКЛАДНАЯ ТЕОРИЯ РАЗВИТИЯ

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В статье исследуется новый подход к медицинской этике, предполагающий ее трактовку как прикладной теории развития. Опираясь на идеи немецкой классической философии и русской философии всеединства, развитие определяется на основе представления любой системы как совокупности базовых полярностей (тезисов и антитезисов), та или иная композиция которых выражает глубинные полярные определения системы, ее полярный портрет. Предлагается математическая модель данной методологии с использованием векторных пространств со скалярным произведением. На этой основе вводится мера развития, дается определение закона развития, определения полярных портретов здоровья и болезни, формулировка высшего нравственного закона как закона развития в нравственной сфере. Чтобы показать медицинскую этику как прикладную теорию развития, анализируются три нормы классической медицинской этики — нормы милосердия, «не навреди» и врачебной тайны, проводится их полярная интерпретация с точки зрения предложенных моделей и показывается, что все эти нормы так или иначе выражают частные случаи закона развития. На этой основе подкрепляется гипотеза медицинской этики как прикладного раздела теории развития и предлагается новая научно-исследовательская программа подобной переинтерпретации других норм медицинской этики.

Ключевые слова: этика, интегральная этика, медицинская этика, теория развития, закон развития, мера развития, деонтологизм, утилитаризм, полярный портрет

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Humanitarian knowledge is currently lagging behind the scientific knowledge. If the latter consists of fundamental theoretical systems, universal laws and generalization of an enormous number of factors, humanitarian sciences are still at the descriptive stage of development (collection of facts and their primary systematization). It relates to ethics and applied ethics. Ethics is still based on a multiple of particular rules, each of which regulates certain private forms of behavior. Immanuel Kant attempted to make ethics be more universal, when all private norms are brought under the unified ethical law, which is a categorical imperative [1]. This is how a deontological approach in theoretical ethics has emerged. However, it did not result in sufficient universality of ethical knowledge, as the approach was opposed to another ethical trend such as utilitarianism. As deontologism is too tough about the idea of ethical standards irrespective of certain circumstances (context), utilitarianism, on the contrary, ties its estimates to the current context and relies on a more pragmatic criterion of profit and benefit of an act.

In the end, ethics fails to integrate more private branches of deontologism and utilitarianism, and is again doomed to domination of the specific over the general. The unsatisfactory ethical knowledge produces a strong influence on applied ethical branches, and medical ethics, in particular. The point is that any particular rule is always conditional, it seems moral unless it comes across any other very similar rule, when accomplishment of one rule denies accomplishment of the other rule. For instance, should we tell the patient the truth about the fatal diagnosis (truth) or not (mercy)? Such situations occur all the time, and need to be solved primarily with ethical theory. But while ethics is built on a multiple of specific standards, it can't offer qualitative solutions when there is a conflict of rules. It is, however, necessary to follow Kant and move towards integral ethics based on the universal moral law.

But unlike moral rigidity of Kant and taking into account a more flexible methodology of utilitarianism, a more flexible and rather universal image of integration into the modern ethical knowledge is required. A possible project of building integral ethics and its applications in medical ethics will be presented below. According to our hypothesis, the *principal moral law is the law of development.* Good ultimately means something aimed at the development of a human being and society or support of the already achieved level of development. Evil is, on the contrary, something that prevents a human being and society to be developed or destructs the balance that has already been achieved. The law of development is universal, it acts both within the society and nature (prehuman and inorganic nature). But in the society the act of development goes through the freedom of intelligent beings and is ethically defined.

MATERIALS AND METHODS

Hypothesis of the highest moral law as the law of development requires first and foremost to determine the path of development. The global thought in this area has already done some work and provided a few solutions. In this direction, the outcomes were mainly obtained by the school of German classical philosophy [2]. Ideas expressed by these philosophers are very simple. Any event or system is based on certain basic contrasting qualities (*basic polarities* include thesis and antithesis), whereas any conditions represent certain compositions of basic polarities that ideally strive for synthesis. Transition from the polarities of thesis and antithesis to synthesis is the simplest case of development. Find the 'portrait of polarity' for every system, i.e., which basic polarities form its basis and what type of composition is typical of the system (*polar portrait is a composition type of basic polarities*). Subsequently, it becomes evident how the system can be synthesized or developed.

German philosophers repeatedly used this methodology in all spheres of existence such as nature, society, spirit, art, religion and ethics. Attempts were made to create polar portraits of any systems and restore some properly organized existence thereupon.

Subsequently, the methodology of building polar portraits was developed in some subsequent philosophical systems. In our opinion, the new stage of its development was achieved in the Russian philosophy of all-unity founded by Solovyov VS [3]. In particular, it shifts away from the rigid triadic methodology of development and pays more attention to facts and certain organization of private systems used to create portraits in a more seamless fashion. There is no need to have two basic polarities only. It is a special case of any set of these polarities, which can result both in multilayer and multidimensional synthesis. In 'Justification of good', Solovyov is coming close to formulation of the law of good as the law of development [4]. Development is the growth of unitotality whereas the good is the same unitotality, that has been duly achieved in the life of the society and human being.

In his work, the author [5] takes another step to develop this methodology. A new mathematical appliance that expresses basic polarities and their compositions has been suggested. The Euclidian structures of vector space (vector space with scalar product [6]) with basic polarities being interpreted as orthogonal (perpendicular) base vectors within some multidimensional space. In this case, the polar portrait of the system looks like the vector superposition of basic polarities:

$$P = \Sigma_{i=1}^{n} a_i P_i \quad (1)$$

where P is the current polar vector as the polar portrait of the system, P_i means basic polarities as basic polar vectors; numbers *ai*, where $0 \le a_i \le 1$ represent coefficients with which basic vectors are included into current polar vector P.

Here, vector of synthesis C is the vector sum of basic polarities

$$C = \Sigma_{i=1}^{n} P_i \quad (2)$$

In this case, it is suggested to use a simple *measure of development* as the value of the projection of current polar vector P on C synthesis vector:

$$M(P) = (P,\ \mathrm{e}_C) = |P|\cos(P \wedge C), \quad (3)$$

where $\mathrm{e}_C = C/|C|$ is vector C ort (vector with the same unit length and direction as vector C), $(P,\ \mathrm{e}_C)$ is the scalar product of vectors P and e_C, $|P|$ is the value of vector P, $\cos(P \wedge C)$ is angle cosine between vectors P and C.

The measure of development is simple enough: the polar vector is more developed when it is closer to the synthesis vector (the more synthesis it has).

Thus, intuition and qualitative methods of representatives of German and Russian philosophy acquire a stricter and qualitative expression.

On that basis, the *law of development* can be formulated as follows: S(t) system, t that changes over time and has $P(t)$ polar vector in the system of basic polarities (Pi) as its polar portrait, i = 1…n is being developed if the relation is fulfilled:

$$dM(\mathrm{P}(t))/dt \ge 0, \quad (4)$$

i.e. the system measure of development ($M(P(t))$) is growing ($dM(P(t))/dt > 0$) until it achieves its maximum value within the system of polarities ($dM(P(t))/dt = 0$).

The formulation reminds of the second well-known law of thermodynamics ($dH/dt \ge 0$, where H means entropy of the system), law of growth (non-decrease) of entropy within the isolated thermodynamic system with the law of development being formulated for another measure such as the polar measure of development (3).

The basics of integral ethics can be formulated with the mentioned structures and methods. In the first turn, the highest ethical law (*the law of good*) can be defined as follows: *the good is an act of an intelligent subject aimed to maximize the measure of development within this context of implementing this act and is committed by the subject in a free and conscious way.*

The formulation needs to be clarified to some extent.

First, an act means an action or inaction of a subject (human being or community).

Second, maximization of the development measure means to select the maximum measure of development among all possible alternatives, including, if it is not possible otherwise, selection of the alternative when the measure of development is decreasing though less than in case with all other alternatives (choosing 'the lesser of two evils'). In a stricter way, this can be represented as follows:

Let's admit that subject S faces the current situation A. Under these circumstances, only acts of subject $\mathrm{D}_1 \ldots \mathrm{D}_n$ are possible, that change the situation A into some situations $B_1 \ldots B_n$ respectively, i.e. $B_i = \mathrm{D}_i(A)$, where $i = 1 \ldots n$. Subsequently, polar portraits of situations A и B_i are suggested, i.e. $P(A)$ is a polar portrait (polar vector) of situation A, $P(B_i)$ is a polar portrait of situation B_i. Measures of situation development are determined such as $M(P(A)) = M(A)$ is a measure of development of situation A, $M(P(B_i)) = M(B_i)$ are measures of development of situations B_i. In this case, it is assumed that *within the described context*, the good for the subject will be act D^+ in relation to which the following condition is applied:

$$\mathrm{M}(\mathrm{D}^+) - \mathrm{M}(\mathrm{A}) = \max_i\{M(\mathrm{D}_i(A)) - M(A)\}, \quad (5)$$

i.e., gain of the development measure in act D^+ will constitute the maximum of all possible effects within the context of D_i acts. A D^+ act is an act of D_i.

Based on the maximization principle (5), it is offered to solve the conflict of rules, when every D_i act is followed by the respective standard. Then it is necessary to select the standard, which maximizes the measure of development within the context, i.e. the one being assumed by act D^+. The methodology is used to achieve integration of universality of the highest ethical law according to a deontological approach, and a possibility of a more flexible value calculation typical of utilitarism.

Third, it is assumed that subject S should be a reasonable subject, i.e. be free to commit acts. It should also select act D^+ deliberately, because the act maximizes a measure of development within the context. There is no need for a subject to calculate the measure and be aware of the math of vector spaces. The subject should have an intuitive sense of the development measure and combine intuition with rational measures used to interpret the good as methodology of maximization of the development measure.

Integral ethics as an applied theory of development is built on the formulated methodology. The theory of development is the most common knowledge in relation to which any ethics (even the most integral one) is only a supplement to the universal theory of development in relation to ethical and moral spheres of life of rational subjects and their communities.

Some basic standards of medical ethics have been analyzed using the methodology described. It has been shown that they are well correlated with the described methodology of maximization of the development measure in certain context. It is, thus, shown that medical ethics is also an applied section of integral ethics and theory of development.

RESEARCH OUTCOMES

The methodology described above is used to examine three basic rules of classical medical ethics such as the standard of mercy ('do good'), the 'no harm' standard and the 'medical privacy' (confidentiality) standard. Prior to their direct analysis, the polar portrait of sickness and health should be analyzed.

In general, an organism, a living being can be represented as a complex system with multiple basic polarities and current condition in the polar basis. In this case, *health constitutes such conditions of a living system, when the polar portrait is close to the synthesis vector, whereas any types of a disease can be expressed through the loss of system integrity represented as a polar vector deviating from the synthesis vector in a more or less significant way and reducing the measure of development within the system of basic polarities.*

In this case, a physician is facing the following tasks: first, to understand the current condition of a person (*empathy*), second, help the person avoid sufferings and acquire a more favorable condition (developing reflexion) by distancing from the dominant current condition. In terms of polarities, it can be expressed as follows: 1) understand the current polar portrait of system P, 2) make the polar portrait approaching synthesis C.

It is the same as rescuing of those drowning: first, we need to dive into the water and go down with the drowning person to determine his location and how to help. Then we catch a person and take him to the surface. Here, we deal with two basic acts such as 1) diving (immersion into a disease) and 2) taking to the surface (improved health). We need to be strong enough not just to dive, but also to be able coming up from the depth, taking the drowning person to the surface. A physician's activity should be of the same structure: first, dive into the disease to understand it and see it from the inside, feeling for the patients and his sufferings, understand the 'internal portrait of the disease', and then take the patient to the surface of health. Thus, a process of treatment is a unity of empathy and developing reflexion.

Taking into consideration the presented definitions and images, let us consider the standards of medical ethics mentioned below from the point of the theory of development.

1. The standard of mercy ('do good')

According to the standard, the profession of a physician is the good for a patient. Taking into account the polar portrait of health and disease described above, a physician first dives into a disease, determines a patient's condition as a current polar portrait of the disease, and then changes the polar portrait towards the synthesis vector. Let's express the process in a stricter way.

Let a patient have polar portrait P within some polar space with the basis of basic polarities $P_1 \dots P_n$. The disease availability means that the measure of development is insignificant in this case ($M(P) < |C|$). A doctor needs to determine the polar portrait P for the disease (a patient's condition) and do good for the patient. This can be expressed as a change in the current polar portrait P for the patient until a new condition of P' has been reached, where $M(P') > M(P)$, the integrity of a patient will be increased (measures of synthesis), i.e., transformation into a new condition with the polar portrait P' and a greater measure of development. Within the vector model, the polar vector P'will provide a projection of a greater value on the vector of synthesis C as compared with the initial vector P. In this case, a change in the polar portrait from P to P', which can be expressed through the increment vector $\Delta P = P' - P$, will be presented as a physician's act. Using the properties of the scalar product, we can determine the measure of development both of P and P', and ΔP:

$$M(\Delta P) = M(P' - P) = (P' - P, e_C) = (P', e_C) - (P, e_C) = M(P') - M(P) \quad (6).$$

If $M(P') > M(P)$, then $M(P') — M(P) > 0$, i.e. $M(\Delta P) > 0$. Thus, the standard of mercy urges a doctor to commit such acts towards a patient that will involve the growth of the development measure, i.e., strategy of maximization for the measure of development which is a selection of ΔP with a positive measure of development $M(\Delta P) > 0$. In the presence of several acts, a measure of development with a maximum increase is selected according to (5).

Thus, the standard of mercy will be interpreted as a special case of the development law.

2. The 'no harm' standard

This standard urges a doctor to help a patient and, at least, not to harm him. This can be interpreted as prohibition of such acts of a physician that will reduce the measure of a patient's development, i.e. prohibit ΔP acts, where $M(\Delta P) < 0$. The prohibition is the same as inequality $M(\Delta P) \geq 0$. As we have found out, the standard of mercy within the inequality of $M(\Delta P) \geq 0$ expresses the moment of strict inequality $M(\Delta P) > 0$. Then the 'no harm' standard is valid only in relation to $M(\Delta P) = 0$. If you fail to provide aid, i.e., to commit ΔP, where $M(\Delta P) > 0$, then you should use act ΔP only, where $M(\Delta P) = 0$, meaning that a patient's condition should remain the same.

Thus, if within the standard of mercy, a physician chooses among positive alternatives, where $M(\Delta P) > 0$, then within 'the no harm' standard a physician moves in the space of negative ($M(\Delta P) < 0$) and zero ($M(\Delta P) = 0$) alternatives, which is expressed through the principle of maximization of development measure (5) as selection of the zero alternative. Generally, the mercy and 'no harm' standards determine the activity of a physician as certain special maximization cases of the development measures. So, they are special cases of the development law and the law of good.

3. Privileged medical information

This standard preserves the space of trust between a physician and a patient, as the patient has to entrust the doctor with personal data, which should not become property of the third persons. The information can be delivered to a physician only if it remains confidential to others. In its turn, the personal information is essential to build a complete portrait of the disease, its symptoms and history of development, which is a necessary condition of proper diagnosis and treatment.

Thus, the privacy of personal information is a condition for creating an adequate portrait of disease P, the lack of which makes subsequent acts of physician ΔP impossible; if $M(\Delta P) > 0$, the patient will go through convalescence as an increased measure of development. Based on the principle of medical confidential information, the patient provides the physician with access to personal information, allowing for empathy, including immersion into the internal portrait of a disease, and coming across additional data, which are commonly required to restore a true portrait of the disease. Let's remember the example with the drowning person. The confidentiality standard means that the patient allowed the physicians to dive into deep waters to bring him back to the surface of health.

It should also be noted that personal data, which can be shared by a patient only if the standards of confidentiality are followed, constitute a part of complete data about a disease, some symptoms used to restore a complete portrait of a disease. Shifting from symptoms to nosology is also a special case of synthesis, i.e., law of development, when a physician integrates facts in his consciousness, including personal information, and turns them into a synthetic model of a disease, which can embrace all available facts. Here, we deal with some polar basis $P_1 \dots P_n$, which expresses the special factual knowledge of a disease, with the polar portrait of the diseases as a synthesis vector $C = \Sigma_{i=1}^{n} P_i$ of the facts. Establishing diagnosis is a case of moving from basis P_i, $i = 1 \dots n$, to the integral portrait of a disease as the vector of synthesis C for basic polarity symptoms.

Thus, the standard of confidentiality also expresses the ideas of synthesis and development in medical ethics and medical profession supporting the necessary (personal) part of the polar symptomatic basis. Without it, complete diagnostics as a private case of synthesis and uniting factors into the integral portrait of a disease is impossible. Creating a complete image of a disease, a physician is engaged in medical empathy, identifying himself as a patient, trying on signs of the patient and, owing to that, restoring an adequate portrait of a patient's abnormal condition.

During the unified process of diagnostics and treatment as a unity of medical empathy and developing reflexion, the standard of medical confidentiality means the first moment of empathy, whereas the standards of mercy and 'no harm' constitute the second moment of developing reflexion. The three standards are different parts of the expression and provision of a common process of medical activity as a special case of the development law.

DISCUSSION OF RESULTS

Three important standards of classical medical ethics (mercy (do good), no harm and medical confidential information) were taken as special cases of the development law. It has been shown that the fundamental foundations of these standards are based on the intuition of development and its various aspects. It is, thus, suggested that subsequently the same should be done in relation to other standards of medical ethics. It is an inductive generalization, which requires a subsequent extensive study and implementation of a new research project. We are now declaring that the project can be possible. At the same time, during the analysis of three standards some common methodology can be observed; we can assume a rather regular pattern in medical and ethical definitions. If ethics is based on the law of development as the principle of maximizing the development measure, it is logical to suggest that special ethical standards will constitute implementation of the universal strategy. It should, however, be repeated that the topic is new enough. It requires subsequent research. We encourage the scientific society to pay attention to the methodology presented within the work and discuss its possibilities and perspectives.

CONCLUSIONS

If the obtained findings are generalized, a fundamental conclusion should be made that medical ethics is not just an applied aspect of general ethics. First, common ethical theory can be redefined differently in many ways such as an applied direction of universal theory of development and as integral ethics. Second, medical ethics is an applied direction of integral ethics in this case. The latter should be taken as a variant of general ethics based on the principles of theory and law of development.

Such an approach to interpretation of medical ethics denotes its closer relation to purely medical aspects of medical activity. Both natural-science, and humanitarian parts of a medical profession act as a fundamental unity: somatic or mental and spiritual. The process of diagnostics and treatment is of a single nature as well, which shows that a medical profession is aimed at preservation and intensification of the development measure of a suffering person.

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WHY ARE PHYSICIANS LEAVING PRACTICES AND WHERE ARE THEY EMPLOYED?

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The shortage of healthcare personnel is a contemporary issue of national healthcare. At the same time, admission to medical colleges and universities is always highly competitive. However, having become a doctor, many specialists either seek private medical practice or retire from medicine. It is widely thought that low earnings of healthcare professionals are the reason for that. But this is not entirely true. The article summarizes the results of a sociological trial used to conclude about the hierarchy of reasons for the reduction in the number of physicians in state medicine of modern Russia. The trial was conducted in a typical region of the Russian Federation — the Volgograd region. An expert survey of the heads of state medical organizations was used. It turned out that ethical and legal insecurity of doctors promoted retiring from medicine and seeking private medical practice. It is the profession that healthcare professionals worry about the most; they have to shun medicine due to the decline of the value of the profession in the society and inattentiveness to healthcare professionals, which is most acutely felt by young physicians. Thus, care for medical personnel, especially young specialists, is the most pressing issue. That's why mentors of medical beginners play a specific role as they do not only educate but also raise devotion to the profession. At the same time, mentors need state support as well. The article suggests which forms of support can be provided.

Key words: commercial medicine, state medicine, doctors, profession, social insecurity, shortage of personnel

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ВРАЧИ УХОДЯТ…КУДА? ЗАЧЕМ? И ПОЧЕМУ?

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Актуальной проблемой отечественного здравоохранения является в настоящее время проблема дефицита медицинских кадров. При этом конкурсы на поступление в медицинские колледжи и вузы, как всегда, очень большие. Но, получив профессию, многие выпускники уходят — либо из государственной в коммерческую медицину, либо из медицины вообще. Бытует мнение, что причина этого — низкие заработки в сфере здравоохранения, но это не совсем так. В статье обобщены результаты социологического исследования, на основе которых сделаны выводы об иерархии причин сокращения числа врачей в государственной медицине современной России. Исследование проведено в типичном, среднестатистическом российском регионе — Волгоградской области. Был применен метод экспертного опроса — в нем участвовали руководители государственных медицинских организаций. Оказалось, что уходу из профессии или переходу в коммерческую медицину способствует этико-правовая неустроенность врачей. Больше всего профессионалы переживают как раз за свою профессию — причиной ухода из нее чаще всего называют падение престижа в обществе, невнимание к специалистам-медикам, что особенно остро переживается молодыми врачами. Следовательно, наиболее острой является проблема заботы о медицинских кадрах, особенно — о молодых специалистах. В связи с этим отмечается особая роль наставников начинающих врачей, которые выступают не только обучающими их специалистами, но и моральными агентами, формирующими преданность профессии. В то же время сами наставники нуждаются в государственной поддержке. В статье высказаны предложения по вопросу о том, в каких формах эта поддержка может осуществляться.

Ключевые слова: коммерческая медицина, государственная медицина, врачи, профессия, социальная незащищенность, дефицит кадров

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The issue of medical personnel acute shortage is constantly being discussed in the media and power structures [1, 2]. Certain activities taken to support state medicine do not make the situation less tense. In this regard, personnel changes are researched with a focus on economic problems [3]. The famous proverb saying that 'money can't buy happiness' is widely applied in medicine. Thus, we wondered which moral reasons urged medical personnel to leave state healthcare and shift to commercial structures or abandon the medical profession. To answer the raised question, a sociological survey was conducted by the Volgograd State Medical University and Healthcare Committee for the Volgograd region in May-June 2023.

Purpose: To determine the priorities of managers of medical organizations within a common Russian region while trying to deal with staffing of entrusted structural subdivisions and determine ethical and legal reasons why healthcare professionals leave state medicine shifting to commercial structures or other spheres of activities.

Objectives:

- To find out which problems of regional healthcare raise concern of managers of medical organizations.
- How to prioritize the resources for problem solving.
- Which activities used to eliminate the healthcare staffing issues are considered by those surveyed as the most effective ones?
- Which changes in the work of medical organizations can be supported by their managers?
- What exact changes in personnel policy are essential for regional healthcare?

Method of research. A special questionnaire intended for heads of regional state medical organizations was developed. The results were processed with Google-forms and SPSS system, generalized and interpreted. 94 regional medical organizations were included into the research with their heads being the participants. The sampling was continuous. 94 questionnaires were selected.

Interpretation of results. Heads of medical organizations are mainly represented by people of pre-retirement age (42% of those surveyed are 51 to 60 years old). This produces both a negative and positive effect. It is positive because these people have extensive working experience; most trained medical managers belong to this group (25 to 31 and over years of experience in 42% of those surveyed). But they will soon retire, and not everyone will be able to stay in their current position. And this is a negative effect. In the future, shortage of medical managers is possible. Over one third of the surveyed have occupied a superior position for over 15 years. Thus, the principal objective is to prepare a reserve of personnel. A second higher education or an academic degree give more opportunities to get a job at a private hospital.

Having assessed the staffing of doctors as unsatisfactory or satisfactory, it can be seen that it accounts for one-fifth or four-fifth of all points, respectively.

It can be mentioned that medical managers participating in the survey believe that a) the shortage of doctors is a pressing issue; b) the shortage accounts for 1/3 of the required part (evaluation of the scoring result). According to the survey held in October 2022 by hh.ru, the shortage of medical and social workers was 17% (in 2022, the Volgograd region was in need of these professionals — KP.RU). This differs from the shortage found during our survey by almost 2 times. Why so? The answer is simple. Head physicians and their deputy chief doctors understand well enough how many qualified professionals the hospitals need to function effectively. But their opinion doesn't affect the statistics because doctors are allowed to work at one and a half or one and twenty-five hundredths rate. In this case, we'd be getting the 17% of doctors who are lacking and make functioning of the entire industry incomplete. So, both our research data, and data of hh.ru are justified.

The surveyed estimate the staffing of paramedical personnel as unsatisfactory as well, though it is believed to be higher as compared with doctors. Special attention should be paid to the situation with paramedics. In the proposal of the Ministry of Health of the Russian Federation it has been said that some functions of physicians should be handed over to nurses [4]. A violent reaction in the medical society made it impossible to include the issue about the attitude to this initiative in our research as the proposal was assessed too emotionally. But let us compare the abovementioned fact and changes in secondary professional medical education.

Since September 1, 2023, medical students from secondary vocational educational institutions will spend less time studying [5]. This is stated in novel federal educational standards approved by the Ministry of Education. For some specialties, the training period will be reduced by one year. The period of training under such programs as General Medicine, Laboratory Diagnostics, Medical Optics, Medical and Preventative Care, Pharmacy, Nursing Care, Orthopedic Dentistry, and Preventive Dentistry is 1 year less. The period of training after the 9th class under these programs (except Preventive Dentistry) is 3 years and 10 months now and will be 2 years and 10 months next year. For preventive density, it is 2 years and 10 months now and 1 year and 10 months later.

Those who attend Medical Massage and Midwifery programs will study 4 months less. In the Ministry of Education, it is believed that the reduced period of training will improve the quality of education and ensure faster supply of the required personnel in medicine. But is it possible to develop the skills of compassion, mercy, kindness, and an ability to talk to a patient among future paramedics during such a short period of time? [6–8].

In our research, the issue of medical care quality has been raised. The surveyed highly appreciated the quality of medical personnel training on a 10-point scale; 43% of the surveyed scored it 7–8 points, which is good. Nobody gave a rating of 1, and 1 person scored it 2. The average scores of 5–6 points were awarded to one fourth of those surveyed, meaning that training of medical personnel is associated with unrealized opportunities. This is particularly relevant when it comes to the outflow of highly qualified professionals from state healthcare. Well prepared specialists are in high demand, their labor conditions should correspond to the qualification. So, it may happen that only those whose qualification was scored 5–6 points will continue working for state healthcare. That is, as the survey shows, probably a fourth part of personnel from state medical institutions.

Those respondents who assessed the outflow of personnel to commercial medical organizations were subdivided into three groups and had various views to the problem. Serious concerns are raised in 23.5% of them. 14% of them believe that the problem is either exaggerated or nonexistent. 59.2% (main group) admit there is a problem but do not make tragedies out of it. In this regard, it is necessary to take into account the long-lasting debates about the state and private medicine. A large group supports transition to state medicine, just as in Soviet times. According to the second group, private medicine is much better. And the third group states that an equal balance between state and private medicine is required. In our survey, all three approaches were presented. It is necessary to determine a position of the regional Healthcare Committee, because its policy forms the basis of an action plan for all medical organizations.

The same division in groups exists in relation to the attitude of those surveyed to migration within the medical society. Exploration of the question results in latent data about the attitude of medical managers to the regional healthcare system. Indeed, one of the reasons for personnel outflow is to admit that labor conditions and attitude to medical professionals is better in some other region of the country than at home. These respondents are scared of personnel departure to other regions (22% of those surveyed). They do not only admit there is such a possibility, but also have no doubts that it will be implemented because things go better at another region. Meanwhile, they refer to what their colleagues tell them or to Web-based materials.

At least 27% of the surveyed are not impressed with the departure of their colleagues to another region and take into account two complementary considerations: a) it is a personal choice; it does not matter whether the new location is better or worse, the person knows what he/she is doing; b) the situation is almost everywhere the same, being in the profession is the most important thing to do.

The third group, which is the largest (49%), admits that the problem exists. However, it is not known whether anything is done to solve it, as the question is investigated during another research.

The organizational interest obviously includes not the attitude of medical managers to the outflow of personnel (departure to another region or transition to the private hospital) but rather the reasons for it. It is commonly perceived that doctors change jobs searching for a higher salary. This fact was neither confirmed, nor denied by our research. Let us note for now that only 26.9 of the surveyed believe that the situation with remuneration is though not tragic but dramatic enough (1 to 5 points inclusively). At the same time, 72.1% of the surveyed provided rather positive assessment of the remuneration (6 to 10 points inclusively); only 1 person believed it was excellent.

What produces the strongest effect on the personnel outflow, in the opinion of medical managers? They believe that the main reason for the outflow is the low level of social security of medical personnel. The level was considered as unsatisfactory and satisfactory by 46.4% and 47.3%, respectively. The score of 6–7 points predominates among positive estimates. Very few assigned 8–10 points hereto. The data can be interpreted as a need of healthcare professionals in a higher rate of **social security**. It is obvious that special activities are required in this regard (to raise the value of the profession, expand the legal field regulating the labor of healthcare professionals, and improve the system of incentives, which nowadays consists of local acts, whereas the system of punishments operates on a permanent basis, reduce labor expenses on NON-medical types of work, etc.).

57.1% of the surveyed assessed the personnel-related situation in state medical organizations as positive (excellent, good, satisfactory). Meanwhile, the majority opted for the ‘satisfactory’ response. 43% of those responded gave a negative assessment (rather unsatisfactory, unsatisfactory, critical). Though positive estimates prevail, the distribution shows that medical managers are not sure about tomorrow. The personnel departure continues; and though the situation is typical for the Russian healthcare in general, every region has its specific features. In the Volgograd region, the paradox is obvious: due to good professional training, local healthcare professionals are in high demand both in private medicine, and in other regions. This makes the staff base of the region weaker. The surveyed were asked ‘Who is to blame?” and “What should be done?” (questions, which are traditional for Russia), though in a different form.

Not everyone could provide responses. But those who did admitted that they were most concerned about a decrease in the number of both doctors, and paramedical personnel. This is hardly news, as the research sponsor was concerned about the same issue. The stated reasons for the personnel shortage were unexpected. It is widely believed that migration within the medical community exists because of insufficient remuneration. But it was not among the reasons named by our respondents. In their opinion, the main reason for medical personnel shortage is the lack of the state-supported graduate distribution system. Devaluation of profession is in the 2nd place. Increased workload, high physical and mental loads are in the third place. Focus on the moral components of the profession (hoping to implement such principles of bioethics as justice and benefit) is clearly visible here [9, 10].

The first reason can be interpreted as a sign of social maturity of respondents (medical managers). They take a realistic view and focus on the future. The regional authorities, however, can’t decide on the introduction of any distribution form for the graduates, as the initiative lies at the federal level. But now the targeted admission, student’s agreement advocated by the Prime Minister of Russia, and some other forms can be regulated at the regional level. It is necessary to monitor the effectiveness of their application and adopt the best. Probably being aware of the difficulty in obligatory distribution, the respondents failed to note it in their recommendations for the authorities (the proposal came from 1 person only).

A **decreased value of profession** is another reason for personnel shortage, which requires special attention. First, it means that respondents are devoted to their profession. Second, the value of the profession can and should be raised at the local and regional levels. However, it is necessary to collect proposals of doctors and have a comparative analysis with opinions of patients about the status of a doctor. There is a great deal of such trials. So, it is advisable to find out the opinion of doctors using a focus group method. This is how the dynamics of physicians’ satisfaction with changes in medical professions can be traced.

The third mentioned reason for personnel shortage is rather the shortage consequence. But it is a vicious circle, as the personnel shortage increases the load on medical personnel, the increased load provokes the retirement, again resulting in the shortage of personnel. It is obvious that the circle needs to be broken. But at what point should it be done? Reply to the question ‘Which proposals concerning the supporting measures of medical workers from state medical institutions should be submitted for consideration by the regional authorities, in your opinion?’ will be the answer. Principal expectations of respondents here are associated with the measures of social support and social protection of medical workers. Thus, the first position is occupied by remuneration of medical professionals employed by state medical organizations to make the initial payment while obtaining a loan for the purchase (construction) of residential premises and health resort treatment at regional sanatorium establishments at the expense of the regional budget. Increased one-time financial assistance to young specialists with higher and secondary medical education employed by rural medical organizations holds the second position. Monthly financial assistance to the mentor who accompanies a beginner within a medical organization onsite or online as per the approved adaptation plan is in third place.

It should be noted that medical managers are concerned about the position and perspectives of young specialists. It supports the conclusion that the managers are set up for the prospect and suggest activities, which can be implemented by the regions. This is a consistent position, as respondents do not commonly consider the measures of social support of medical workers as sufficient enough (52.7%) though admitting that the measures are being implemented currently (59.1%).

Thus, the question “What should be done?” has a definite answer: it is necessary to take care not only of patients, but of medical workers as well [11]. In their replies, they mentioned what kind of care and protection they seek. This can be highlighted in brief conclusions.

CONCLUSIONS

1. Managers of medical organizations acknowledge that there is an outflow of health personnel, and, as a consequence, its deficit in entrusted organizations. They do not believe that the situation is critical. However, they are concerned about development of measures associated with reduction of this process.
2. Outflow of personnel from state medical organizations to private medicine or other regions occurs due to unsatisfactory social support and social protection of healthcare professionals. Some of these problems can be solved either at the federal or regional levels. Not only patients, but also medical professionals require protection, attention and comprehension; in our country, the system of ethical and legal support is lacking [12].
3. At the regional level, it is possible to enhance the value of a medical profession, develop the mentoring system, and implement the system of regional incentives and rewards. The system of intergenerational transfer of profession-related values with an extremely important role of a mentor, which is currently underestimated yet, needs to be supported desperately [13, 14]. A mentor is a moral agent engaged in the formation of a medical graduate both as a professional and a human being.

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SOCIOCULTURAL ASPECTS OF PRECONCEPTION GENETIC TESTING

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Preconception genetic testing for carrier diseases (PGT(C)) became a noticeable sociocultural phenomenon that raised various ethical issues with the individual and society. The issue of informing patients about the risks of giving birth to children with genetic abnormalities includes a range of questions about the probabilistic nature of genetic data, determinism, and cost and quality of medical and genetic counseling. Preventive tasks of genetics inevitably raise a question about the borders of a patient's autonomy and mutual responsibility of the individual and society. In this article, ethical and philosophical analysis of sociocultural aspects of PGT(C) has been presented, including neoeugenic prevention traits, hubris and genetic fatalism.

Key words: preconception genetic testing, medical and genetic counseling, ethics, ethical problems of genetics, sociocultural aspects of genetics

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СОЦИОКУЛЬТУРНЫЕ АСПЕКТЫ ПРЕКОНЦЕПЦИОННОГО ГЕНЕТИЧЕСКОГО ТЕСТИРОВАНИЯ

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Преконцепционное генетическое тестирование на носительство (ПГТ(Н)) стало заметным социокультурным явлением, поставив перед индивидом и обществом различные этические вопросы. Проблема информирования пациента касательно рисков рождения детей с генетическими патологиями включает в себя спектр вопросов, касающихся вероятностного характера генетических данных, проблемы детерминизма, а также стоимости и качества медико-генетического консультирования. Профилактические задачи генетики неизбежно ставят вопрос о границах автономии пациента и взаимной ответственности индивида и общества. В статье приведен этико-философский анализ социокультурных аспектов ПГТ(Н), включающих в себя неоевгенические черты профилактики, проблемы гибриса и генетического фатализма.

Ключевые слова: преконцепционное генетическое тестирование, медико-генетическое консультирование, этика, этические проблемы генетики, социокультурные аспекты генетики

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Different types of genetic testing became an essential part of modern life. They gave birth to a number of social phenomena built in the culture at various worldview levels.

The next-generation sequencing (NGS) methods, which appeared in 2008, enabled rapid sequencing of DNA, RNA nucleotide sequence and other biopolymeric molecules. NGS methods are not costly (the cost of DNA sequencing reduced 100 thousand times during 15 years) and highly accurate as compared with previously used technologies. Due to that, genetic testing is accessible to clinicians of different specialties and to a wide range of patients. To determine the risks of diseases and sports-related injuries, predisposition to obesity and other metabolic disorders, drug sensitivity and prediction of reproductive capabilities, new health protecting practices associated with genetic testing have emerged. Moreover, an economically stimulated desire to find out something new and interesting about oneself resulted in the development of consumer genetics. It is an area of research, which goals are far from applied tasks of medicine and are rather intended for entertainment. For instance, a test for ethnicity, search of relatives, selection of cosmetic and skincare products. Anyone now can use genetic testing without sticking to doctor's recommendations, as genetic laboratories come into direct contact with a consumer by providing new insights into genetic information. Customary hierarchical medical algorithms are broken [1], genetics goes beyond the healthcare frames and becomes part of the modern society and important sector of the economy.

Thus, new genomics has turned into a large-scale social phenomenon and a new challenge for the individual and society.

Preconception genetic testing for carrier diseases (PGT(C)) raised a very serious question about the ratio of prevention and patient's reproductive autonomy and also some ethical controversies. Successful experience of using the PGT(C) programs became popular and raised such ethical issues as the forced selection or moral obligation in relation to future children based on the cultural ideas of health, well-being and happiness.

These valuable constructs, on the one hand, and the individual's freedom along with the right to medical resources, on the other hand, make up a complex ethical choice. This choice is shifted toward the interests of an individual in some cases and society in other cases. For instance, in case of prevention, the interests of the society prevail.

In pursuit of good intentions to prevent severe diseases, medical genetics has expanded a specter of values well beyond the limits of biological comprehension of health. A wish to improve the population health threatened the individual freedom. With development of genetic technologies and consumer genomics, the patient's autonomy became more vulnerable and dependent.

Moral dilemmas of the 'proper choice' are built in the social tissue in the context of medicalization at the level of prognostic and therapeutic decisions. Every such decision grows on the sociocultural soil. In the context of PGT(C), the reproductive autonomy acquires specific traits, which are important to be analyzed from the point of view of modern bioethics.

In this article, the cultural factors of shaping social ideas of health in the context of genetic testing are reviewed, and social phenomena generated by the PGT(C) technologies are analyzed.

1. PRECONCEPTION GENETIC TESTING AS A NEW CHALLENGE FACED BY THE SOCIETY

1.1. Social tendencies of genetic testing for carrier diseases in Russia

In spite of the relative novelty, the services of genetic diagnostics are gaining more popularity among the citizens of Russia. According to experts, the market of genetic testing is growing.

By using the method of content analysis of mass media in this article, we noticed that DNA testing gained popularity among population.

According to the data published in the report of Smart Consult marketing company, it has been revealed during the secondary data analysis that there was growing demand for manufacturer's services in 2021. While analyzing the data it has been found out that the Russian market of genetic testing has an annual average growth by 15% with DNA testing expenses reaching 5 billion RUB by 2025 [2].

In report of Genetico Center for Genetics and Reproductive Medicine for 2020, a 10% decline has been noticed for the profit as compared with 2019 [3]. The authors note that a decreased demand for genetic testing was associated with the COVID-19 pandemic. During the period, citizens were limited in movement and were less likely to turn to medical and diagnostic aid not related to prevention and treatment of coronavirus.

Manufacturers of genetic testing interviewed during the research by Forbes noted that in 2021, demand for their products significantly increased as compared with 2020. Russian Genotek has reported in the survey that the demand for their services has been increased 2.5 times annually [4].

The results of such studies and reviews enable to determine the economic role of genetic testing and its demand for the population, which in turn points to social significance as well.

The key contribution into the increased demand for genetic testing was made by the widespread propaganda and popularization of a healthy way of life. In spite of a higher cost of genetic testing in Russia as compared with the U.S. (2 or 3 times) [5], genetic testing is more frequently used by people with average income as well. However, the people of today are more interested not in the birth of healthy children, but in current personal problems associated with excessive weight, muscle mass, risk of severe cardiovascular diseases, diabetes mellitus, etc. [6].

Thus, based on the research at the Endocrinology National Medical Research Center, the demand for genetic testing in Russia was significantly increased in 2021. It was 16% more than in 2020. The authors referred to Mokrysheva NG and noted as follows: 'genetics is becoming increasingly popular in modern medicine based on four basic directions in science, including prenatal diagnostics, predictive medicine and various screenings' [7].

With reference to the expert's opinion, Logacheva MD and Pushkareva VS confirm [8] that the cost of genetic testing will be gradually reduced. The reduced cost can also produce a positive effect on the demand for testing among population and scaling of the service, including PGT(C), at the state level.

While analyzing the legal risks associated with genetic discrimination, Bogdanova EE states directly that the society request for DNA data has increased dramatically. The 'significance of genetic data contained in the human DNA' has increased as well [9].

Revazyan KZ analyzed foreign experience in psychosocial, ethical and other aspects of genetic testing and mentioned as follows: 'after obtaining information on the advantages of genetic carrier testing for monogenic recessive diseases, a positive attitude is formed in the majority of people even without an aggravated history' [10]. The authors mention the research that was held in the U.S. in 2019. Its participants obtained screening data. 'The majority of the patients reported a positive (45.2%) or neutral (48.2%) attitude. They also believed that screening should be offered to all pregnant women. However, among those who were asked about their wish to have a carrier screening, only 34.2% provided a positive response, 51% were not ready, whereas others had doubts. There were no statistically significant differences in the investigated groups of patients. Unwillingness of screening was explained by the lack of time, lack of readiness to change their reproduction-related plans when the carrier is detected, financial limitations, as participants did not consider it necessary to spend money on the 'hypothetical possibility of carrier'. This again displays the necessity in better educated population' [11].

Literacy of recipients (patients) and medical professionals contributes to the demand for the service among population.

1.2. Information sharing

Information sharing is one of the most complex ethical issues in genetics, as it is where the conflict of interests between an individual and society arises.

The particular character of the genetic data reported to the patient consists in its probabilistic nature and complexity of data interpretation.

The increasing complexity of informing a patient during genetic testing creates specific requirements to the forms of voluntary informed consent, which includes educational and explanatory tasks. 'The patients have to be explained a set of various aspects about the probabilistic, predictive and family-related specifics of genetic data, possibility to change the interpretation of results in the future, and attaching special importance to clarity and readability of VIC forms. <… > Presentation of general information is aimed to avoid useless and even potentially harmful information sharing effects, with simultaneous submission of the data, which are necessary to take decisions. The patient should be aware of genetic data specifics, understand its value for close relatives and dependence on continuously changing genome bases' [12].

During a consultation, a genetic scientist obtains a massive amount of data, the clinical significance of which can vary depending on DNA sequence variants.

Izhevskaya VL and Baranova EE subdivide them into three groups:

'– variants, which were related to the disease earlier, making it possible to confirm the diagnosis;
– variants, which can be related to human health, but not to the primary goal of testing (secondary or unexpected findings);
– variants of undetermined significance with an unconfirmed relation to the pathology until now.

It can be difficult to interpret the discovered genetic variants due to the lack of knowledge on their pathogenicity or purity (the so-called variants of undetermined significance). It can be changed over time with accumulation of scientific knowledge or clinical observations. Whenever some genetic variants are found, a disease can be predicted with a high probability in the context of medical or family anamnesis of the respective disease only' [13].

The preconception genetic testing submits data about the possible birth of a child with abnormalities. Though the percentage is low, the probability raises serious concern and gives birth to various behavior patterns including refusal from reproduction or intentional avoidance of genetic testing. For instance, preventive activities to fight thalassemia in Cyprus in 1970 led to enormous fears of giving birth to a sick child, decline in the birth rate and increased number of abortions. People who had one healthy baby did not want to try their fate and take a risk as they were satisfied with what they had; people with a sick child were not eager to go through the same traumatic experience, avoiding childbearing as well. P. Rabinow, an American anthropologist, calls the self-limitation 'the genetic nocebo' [14].

The information obtained by patients during a consultation helps them to take decisions about their future, on the one hand, and is often in conflict with their cultural and educational background. This results in a false image of a disease, which can sometimes be superficial and too optimistic, or negative and depressing. The information can be predominant for representatives of traditional cultures (conservative jews) due to their responsibility before the future generation and danger of accidental disclosure of confidential information within a small community, where people know one another.

Comprehension of genetic information during consultation is superimposed on a patient's available expectations. The preliminary ideas can vary from complete uncertainty to a rather clear and well explained model. According to Macleod R [15], patients were still looking for the hereditary causality, even if it was lacking based on research results. The attempts to analyze the reason for the disease were slightly biased.

It is not understood what the genetic counseling will imply. Though many patients had some experience in genetics at the preclinical stage, the information obtained during the consultation did not seem unexpected to them. The main question for a genetic scientist was the one, which provided the maximum certainty (yes/no questions). It was mainly about heredity, patient- and family-related risks, and an ability to influence those. The possibilities are more frequently delegated over a doctor making a patient feel safe [15].

The genetic counselling research that occurred in Canada in 2013 has shown that the basic problem included the low level of awareness about genetic diseases within the entire society. Patients hope to obtain more information with their psychoemotional condition depending on the counseling [16].

Protection of personal data during genetic counseling for carrier diseases is also pressing. Though the program of Tay-Sachs prevention within Dor Yeshorim is confidential, a small group of followers who underwent PGT(C) was vulnerable. The so-called 'community genetics' enables to build the mechanisms of prevention due to traditions, but is, according to A. Ratz, at the same time associated with the risk of accidental information disclosure. Within a small community people can be aware of the reasons of disengagement due to indirect reasons and discriminate the carrier and the family.

Thus, the prognostic pattern requires to change the mode of 'doctor-patient' relations by deeply understanding both the risks and benefits for the patient, the cultural belonging and psychoemotional condition.

Provision of information is not just about obtaining the VIC, but also about obtaining information [17], and consultation on the issues of disposition to hereditary disorders [18].

Due to poor family awareness of the methods of diagnostics and medical technologies, Sultanaeva ZM et al. conducted sociological research of women's attitude to methods of genetic counseling and genetic education among 698 women of reproductive age.

The results showed that the majority of participants (70.5%) stressed the importance of knowledge and information related to hereditary diseases. The respondents were asked whether the medical and genetic counseling was required. Thus, 38.4%, 47.9% and 24.2% of those interviewed believed the testing was necessary while 'getting married, in case of pregnancy and only among people with hereditary diseases', respectively.

It should be noted that some interviewed respondents (25.7%) said that the decision about the prenatal diagnostics should be taken by a physician.

Within the abovementioned interview the participants were offered to provide an answer about the consent form for DNA testing. 32.2% of them believe that oral agreement is enough for the procedure, '28.5% opt for a written agreement with the signature of the person being examined, 38.5% need obligatory written informed consent signed both by the doctor, and the patient' [19].

1.3. Prevention and reproductive autonomy

The basic goals of PGT(C) include the reduced risk of giving birth to children with pathologies and obtaining health-related data.

According to western preventive programs, the focus needs to be shifted from the individual's interests to the interest of the society. It raises the question about the patient's autonomy borders. The idea of prevention consists of certain decisions, which do not always coincide with the patient's expectations or life values.

Honesty is the ethical basis for 'doctor-patient' relations. It represents the 'right to know', or getting complete and true information, which can be used to take a decision. The decision should be taken independently and with no external influence. Then the principle of autonomy can be followed.

The autonomous decisions are interpreted in different ways. On the one hand, they are part of practical health care. On the other hand, they represent a responsible attitude to parenthood, and a wish to give children a better future. Nevertheless, the rhetoric of 'ethical obligation' to the society is built on the sense of responsibility and duty. 'Why give birth to a disabled person? Why should the child be put through sufferings?' — this is what friends, relatives, citizens keep asking. Social expectations created as dreams about the ideal healthy society are not somewhat utopian in nature. They make the reproductive human choice dependent on the surroundings and values of the society. Genetic data turn into the tool of control and power, giving birth to the so-called ‘genetic discrimination’. During the pandemic of coronavirus, hospitals of Washington and Alabama were accused of discrimination and sorting of patients who were deprived of ventilators based on genetic pathology such as chronic diseases or mental abnormalities [20].

In the society where families with disabled children are condemned and consumer genomics acquires an increasing effect, fear becomes the tool of promotional speculations, whereas a patient’s decisions are taken in stressful situations.

Statement by I. Lebedev, deputy of the State Duma, about a disabled girl (‘why are the children allowed to be born?! It is torture, not a life. Modern medicine can discover a pathology beforehand’) led to a stormy discussion in mass media and social networks in 2017 [21].

According to the research, stigmatization results in social isolation of parents from the family and society, burnout, and suicidal thoughts.

Genetic counseling is a solution. Thus, M. Watanabe offers two solutions of dealing with interpersonal relations within a family [22].

Possible treatment of a diagnosed disease is another aspect of the autonomous decision. However, 95% of genetic pathologies can’t be treated today.

Thus, being informed of the carrier, the patient faces superimposition, when there is a choice, but at the same time there is not.

The patient’s autonomy and preventive tasks of healthcare are interwoven into a complex picture of biosociality, which can be described as a set of human ideas about themselves as life forms based on sociocultural ideas of health and possibilities to influence it.

Speculating about the relations between the mechanisms of the modern society, P. Rabinow describes the paradigm of social reality, which strives to construct and alter the nature in accordance with the cultural ideas. He traces the historical shift from construction of the society based on the models of nature to construction of nature based on the models of culture. This is a system of social practices developed on the basis of novel genomics.

With reference to R. Castel (Risk Management, 1981), Rabinow describes the change in social technologies, which ‘… reduces the direct therapeutic intervention and replaces it with stronger preventive administration management using the groups of population within the risky area’.

Attempts to overcome the discrepancies between the nature and culture result in the projection of values both from nature to culture, and from culture to nature.

Bruno Latour, a French philosopher and sociologist, assigns properties of agency not only to the individuals, but also to objects, ideas, and technologies. In actor-network theory of his, technologies acquire the status of a privileged object. Following the ideas of the Paris school of semiotics, Latour states that ‘the scientific fact is set up between the society and nature when heterogenous subjects/objects interact’ [23]. Interpreting the sociocultural effects of PGT(C) using Latour’s theory it can be asserted that the competencies of the society are delegated to genetics. Following the same logics, a person is treated not as a passive social subject, but as a complex ensemble of natural and social aspects, which is a hybrid actor system within itself.

Moreover, even genetic pathologies manifested through the phenotype can be perceived not as a total failure and pathetic cheerless existence, but as a specific way of life. These examples are given by Assael BM in his ‘The Devil’s Gene’: ‘I recollect the fate of Michel Petrucciani, the genius of music, who had imperfect osteogenesis and died prematurely due to the complicated pathology. Who can say that his life was not worth living for? Michel decided to continue the line, though he was aware of the high possibility of giving birth to a sick baby. He, however, perceived his condition as a phenomenon, not as a disease’ [24].

Numerous patient organizations only confirm the opinion and tend to prove that anyone can live with dignity and realize his potential within a civilized community irrespective of the congenital pathology.

Thus, the patient’s autonomy can be implemented within the system of social ideas of health where conventional values are fused with hopes and concerns in relation to modern biomedical technologies. Meanwhile, dreamy focus on the ideal life, which can be predicted and constructed, is pragmatically balanced with social reality and its individual mental perception.

2. CULTURAL LANDSCAPES AS VIEWED BY ETHICS

2.1 Neoeugenic traits of PGT(C)

Until the 1980s of the XX century, genetic counseling was preventive. However, numerous questions about social justice and neoeugenic trends in genomics changed the vector of information sharing in favor of non-directive provision of health information. If the healthcare system informs couples of the carrier without reducing a number of sick children, the focus shifts to distribution of social and economic state resources.

Creation of ‘an ideal healthy child’ may have faded into the mosaic of collective hopes and expectations based on the Human Genome Project discoveries. In new genomics, we see numerous eugenic traits, which, though not associated with physical annihilation of autonomous live organisms, still raise many questions about the ethical part of genetic technologies.

Neoeugenic traits in genetics are manifested through various scenarios. First, prenatal diagnostics (NIPT and invasive methods). Though it can’t be called selective, the possibility of abortion due to medical indications creates moral tension. It is suggested that during the examination a pathology should be prevented with the help of an abortion. The scenario is stressful for a family expecting a wanted child or not accepting abortions because of personal reasons. Perinatal palliative aid can be an alternative when a patient’s autonomy is respected. The system supports the natural course of events and having the experience of parenthood even in case of the most unfavorable prognosis. The practice of such foreign countries as the Netherlands, U.S. and Canada shows that the programs of palliative care allow to have less stress when a child with severe pathology is born and died.

Another ethical aspect of prenatal genetic diagnostics is the non-medical nature of prediction. While dealing with such non-life-threatening abnormalities as Down syndrome, the prognosis is based not on the threat for a maternal life or severe disability of a child, but on the ideas of life quality. The prediction is not deprived of stigmatization both on the part of the society, and medical professionals.

The second scenario of genetic testing is preimplantation diagnostics and selection of healthy embryos during in vitro fertilization (IVF). Looking at the legal and moral status of an embryo as a subject of moral attitude, selection of healthy volunteers and annihilation of abnormal ones raises a question regarding a greater value of some people as compared with others.

Neoeugenic traits are built in the idea of population prevention, giving birth to bioethical discussion about justice within the society under the conditions of geneticization. The urgency of this discussion is decreased when the main tasks of genetic counseling shift from prevention to information sharing, when prevention is free, but not urged selection of a patient. Thus, information sharing is the basis for the reproductive selection.

At the same time, if taking a patient's decision is treated as a completely autonomous and free from the external pressure of the state prevention policy, it is not clear what the society should do if parents will use the possibilities of consumer genomics and choose the hereditary signs not just by exclusion of severe diseases, but also by subjective presentations, for instance, tendency to corpulence or eye color. Should the society assess these phenomena or leave the decisions as they are?

From the point of view of bioethics, it can be assumed that healthy balance of patient pragmatism should be determined based not only on 'desirable' and 'undesirable' signs, but also on the moral values of the individual or a couple together with the measures of social and medical support.

2.2. Genomics as Pygmalion. Hubris as an essential feature of preventive prognoses

The image of Pygmalion, who was in love with his own creation, became a vivid metaphor of humanitarian genetic research (Lucas J. Matthews, Ruth Ottman, Paul S. Appelbaum, Cleaver JE, Vuksanovic L.) [25]. It is true that prognostic hopes and utopianism are implicitly related to the high level of emotional involvement of discourse participants. A wish to reach the ideal is totally sincere, whereas preventive purposes are ethically and economically justified.

Risk management makes masters of fate out of actors of medical and genetic interaction (genetic researchers, clinician doctors and patients) who wish to reduce the risks with the best of intentions. Prediction of happy future becomes a meta-task of a responsible medical professional and reasonable patient. This is about an autonomous decision about birth/no birth. Heuristic value of preconception genetic testing for carrier diseases and formulated high goals have an increased value. But what are the goals?

They are certainly global. According to P. Rabinow, care for the country and humanity in general is built 'in the social tissue at the microlevel due to numerous biopolitical practices and discourses' [26]. They constitute a powerful force in relation to the change within the society, which is even more powerful than revolution in physics.

These purposes rest upon overconfidence and arrogance or, in other words, hubris, or a trait of people who have great power or believe to have it. The concept of hubris can be applied to the issues of bioethics.

Hubris is a combination of such traits as overconfidence, harsh criticism of another opinion and disassociation from reality. It should be noted that these properties are typical of some cultural attitudes to PGT(C). Desire not of prediction only, but also of prevention of problematic issues at the personal and population levels turns the healthcare system into the master of destiny, whereas an individual (patient) acts like Creator who constructs reality in accordance with the intention.

The sociocultural motives of taking decisions by representatives of various cultures can go their separate ways. For some, it is commitment to the clan, community and God; for others, it is a rational way that prevents risks following the idea of patient pragmatism.

The axiological basis is formed by the management of own destiny based on irrationality. It is the illusory sense of being able to control the fate that turns the novel genomics into the mythical creator of the future generations similar to mythical Galathea, which becomes alive in the hands of a master.

According to the authors, the issue of hubris in the ethical aspect of PGT(C) can be solved in case of the proper 'doctor-patient' relation based on the competent non-directive information sharing, patient feedback, taking into account the patient's cultural level and values.

2.3. Genetic fatalism and values of the modern society

Influencing the reproductive choice is still a pressing issue in the context of comprehension of personal freedom and responsibility. Fighting a disease of the population using genetic literacy was effective: in 1950s, a large-scale program of fighting thalassemia in Italy covered about 20% of the population. A complex approach and state support were extremely successful in elimination of the disease. Prevention consisted in provision of information to the juvenile carrier who could influence the future reproductive solutions.

Under which conditions the solutions are taken? Is freedom of choice being implemented? Or does a man become an information hostage?

Speculations about the freedom and responsibility for the reproductive destiny (and destiny in general) are closely interrelated with the issue of genetic determinism. Such a philosophical issue as 'fate' is interpreted not as inevitability, destiny, ontological givenness, but as a complex of scientific determinants resting on cultural values.

An attempt to make freedom look rational acquires new meanings, reducing the notion of freedom to such conditional oppositions as 'health/disease', 'well-being/ill-being', 'accident/choice', 'benefit/risk'.

Bryzgalyna EV, a Russian researcher, takes the formation of genetic determinism and resulting fatalism as processes involving various social transformations. 'References to genetics as a science in the public consciousness make value judgements in relation to destiny dependance essential. On the one hand, it is an effect of genetic judgements produced on the ideas about the human life dependence; on the other hand, interpretations of genetic data adjust to the cultural ideas of the accidental/necessary and hereditary/environmental ratio. This occurs within the context of medicalization and geneticization that transform different spheres of social relations and have various manifestations' [27].

It can be concluded that the correlation of personal and public benefit is seen through the tendency of genetic determinism, which gives birth to rational and irrational motivations when the patient is taking decisions.

CONCLUSION

Preconception genetic testing for carrier diseases became a new challenge for the society that build its own culture-based ideas of health and well-being.

Ethical and sociocultural aspects of actively developed medical and consumer genomics were of particular relevance. The internal logics of a patient's decision has been formed under the influence of various factors. On one hand, it is based on concerns and fears; on the other hand, it rests with the confidence in biomedicine achievements and wish to control and predict the life. In particular, the fate and well-being of future children are consistent with the patient's personal plans and depend on culture-based values and education.

A great effect of genetic determinism and hope to control the health of future generations becomes a specific feature of PGT(C), bringing ethical matters of concern before the state and society.

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ENROLLING PREGNANT WOMEN: PROBLEMS AND SOLUTIONS OF CLINICAL RESEARCH

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The article deals with the need of compulsory participation of pregnant women in clinical research of drugs. By the beginning of the 90-s of the last century, the majority of drugs prescribed to women was characterized by unsubstantial evidence of effectiveness and safety for women. Moreover, pregnant women almost did not participate in clinical research. Though pregnancy is a dynamic condition that can be compared with itself only. Then supervisory bodies created some documents regulating compulsory participation of the population in the research of drugs. However, until now, women are not sufficiently involved in the research of new original drugs, and pregnant women do the same very rarely. Possible scenarios of participation of pregnant women in clinical research have been reviewed. In particular, research of drugs used in therapy of abnormal conditions associated with pregnancy; drugs to treat chronic and acute pathological processes not related to pregnancy, and when a woman gets pregnant during the research have been distinguished. The importance of inclusion of pregnant women into the trials of effectiveness and safety of drugs in the presence of socially significant diseases, including the ones found during COVID-19 pandemics, is postulated.

Keywords: pregnant women, clinical trials, drug

Author contribution: Lutsevich KA — literature selection, writing an article; Ryzhenkova IG — literature selection and analysis; Reshetko OV — literature selection, data generalization, writing an article.

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КЛИНИЧЕСКИЕ ИССЛЕДОВАНИЯ У БЕРЕМЕННЫХ: ПРОБЛЕМЫ И РЕШЕНИЯ

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В статье рассматривается необходимость обязательного участия беременных в клинических исследованиях лекарственных препаратов. К началу 90-х годов прошлого столетия значительная часть лекарственных препаратов, назначаемых женщинам, имело недостаточную доказательную базу эффективности и безопасности их применения у женской популяции. Более того, беременные в клинических исследованиях практически не принимали участия. Хотя беременность — это динамичное состояние, которое может сравниваться только само с собой. Указанное послужило основанием для появления ряда документов контролирующих органов, регламентирующих обязательное участие данной популяции в исследованиях лекарственных препаратов. Тем не менее, до настоящего времени женская популяция включается в исследования новых оригинальных лекарственных препаратов недостаточно, а беременные крайне редко. Рассмотрены возможные сценарии участия беременных в клинических исследованиях. В частности, выделяются исследования лекарственных препаратов, применяемых для терапии патологических состояний, связанных с беременностью; лекарственных препаратов хронических и острых патологических процессов, несвязанных с беременностью; а также ситуации, когда женщина беременеет в процессе исследования. Постулирована важность включения беременных в исследования по эффективности и безопасности применения лекарственных препаратов при социально значимых заболеваниях, в том числе во время пандемии COVID-19.

Ключевые слова: беременные, клинические исследования, лекарственный препарат

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Approaches to the inclusion of women into clinical trials (CT) have undergone significant changes within the last thirty years. Until 1993, less active participation of women in CTs was actively supported by the Food and Drug Administration (FDA). It was associated with the tragedies of 1960-s and 1970-s, namely, the use of thalidomide and diethylstilbestrol in pregnant women. In 1977, FDA issued the ‘General considerations for the clinical evaluation of drugs’. In accordance to it, women of reproductive age were suspended from early phase clinical trials (phase I and early phase II) and participated in late phase trials only, if the drugs were not intended to treat serious diseases. The limitations were possible because during the menstruation the endocrine profile undergoes significant changes. Then a significant effect can be produced on pharmacokinetics and pharmacodynamics of drugs. Moreover, any woman can get pregnant during research.

In 1992, all manufacturers of drugs with FDA approvals of new chemical entities from January 1988 to June 1991 were interviewed by the Government Accountability Office (GAO). Women were included into phase 2 or phase 3 CTs of 53 drugs. However, based on the GAO estimate, almost in 60% of cases it was not enough. Meanwhile, trials with 36 of 53 drugs (68%) included the minimum percentage of women in accordance with FDA recommendations. 25 of 53 entities (47%) were estimated for similarities and differences in reactions to drugs depending on sex [1].

Thus, by the beginning of the 1990s of the last century, many drugs administered to women had insignificant evidence of effectiveness and safety. The medical community couldn’t help being worried because of that. That’s why in 1993 ‘Recommendation to study and assess gender differences in the clinical research of drugs' replaced the abovementioned FDA guidance [2]. It regulated participation of women in the early phase of CTs of drugs, biological products and medical devices. Medical researchers and ethics committees were significantly responsible for accomplishment of the acting standards and rules, and assessment of the possible risk for the participants.

However, insufficient research of drugs among women was still pressing. Analysis of 10 prescriptions medicines withdrawn from the market of the USA in 1997–2001 has shown that eight of them were related to 'an increased risk for female health' according to post-marketing trials (three drugs and five drugs were registered in 1993 and later, respectively). The drug was removed from the market due to unfavorable adverse drug reactions caused by pharmacodynamic differences (for instance, three drugs were withdrawn due to the risk of torsades de pointes, which is more frequently seen among women) or higher susceptibility of women to these drugs (four drugs were administered to a higher percentage of women as compared to men). There was no evidence of higher risk of adverse drug reactions for two drugs depending on the sex. Both were registered after 1993 [3].

The issue with CTs is more complicated when it concerns pregnant women. For decades, pregnant women were excluded from CTs because of potential teratogenicity of the studied drugs. Thus, data about effectiveness and safety of drugs used by pregnant women are very limited though they are widely applied [4]. When analyzing 172 drugs approved by the FDA from 2000 to 2010 it has been found out that 98% of them have an 'uncertain' teratogenic risk; and 73% lack safety-related data in pregnancy [5]. Thus, decisions to start or continue taking drugs are taken by the most pregnant women and their treating physicians without knowing much about the drug safety and effectiveness. At the same time, the risk of taking drugs can be exaggerated. In particular, while examining the cases of maternal mortality in the Great Britain it has been found out that some women died due to the drug withdrawal and non-administration [6].

There are two solid reasons to study drugs during pregnancy. The first reason is associated with the change in the reproductive health. Some time ago only healthy and young women could risk their health for that. Today, women aged 10 to approximately 50 are in reproductive age. That's why even elderly women can get pregnant with in vitro fertilization and donor cells. In developed countries, the age of women during the first pregnancy is steadily on the rise. A number of first pregnancies is increased for women elder than 30 years. Wider borders of the reproductive age and later pregnancy result in an increased percentage of women who may require drug therapy prior to pregnancy and its continuation during the pregnancy. To provide pregnant women who have concomitant diseases with an optimal treatment, it is necessary to know the peculiarities of drug-induced therapy of pregnant women with various abnormal conditions.

The second reason is associated with physiological changes while being pregnant: an increasing total body weight and structure of adipose deposits; the volume of plasma and cardiac output are increased; the rate of glomerular filtration is intensified; hypoalbuminemia is developed; gastrointestinal motility, regional blood flow and activity of hepatic metabolic enzymes are developed. As a result, pharmacokinetics and pharmacodynamics of drugs, their effectiveness and safety among non-pregnant and pregnant women can differ significantly [7].

A physician requires additional information while administering drugs to potentially pregnant women. If the woman suffers from diseases and takes medicines, data on how well the disease can be controlled with the current pharmacotherapy, reproductive/teratogenic risk of the administered drugs and how it was estimated should be available. In case of a danger, the drug can be replaced. The physician should find out whether the patient knows about the reproductive risk of the drug and discuss the risk and benefit ratio in every single case.

Some ethical principles should be followed when drugs are administered to pregnant women. Women, especially those with chronic diseases or pregnancy-associated conditions (nausea, vomiting, etc.), require effective treatment. To provide a compromise between a treated mother and safety of a child, therapy should be accompanied with data about drug fetal safety. Silencing of the need in pharmacotherapy is not permitted, as there are risks both for a mother, and a child, when treatment is not provided or not sufficient.

To obtain qualitative data about the drug, it is necessary to assess the risk/benefit of their use and an ability of pregnant women to take part in clinical trials [8].

Collecting drug-related evidence in strict adherence to scientific conditions is the main reason for inclusion and retention of pregnant women in a large number of biomedical trials. In this case, less women and their fetuses are subject to risk as compared with those after drugs have reached the pharmaceutical market [9]. Drug effectiveness/safety data are easier to assess if they are obtained from CT. However, in order to find some effects, drugs should be taken by a very large cohort of patients.

A pregnant woman should be suitable for a biomedical trial having a proper maternal/fetus/general state of health.

Though animal trial outcomes can't warrant the lack of risk for a human being, evidence of lacking teratogenicity and mutagenicity should be obtained during experiments with animals prior to the trial [10]. It should be remembered that except androgens, antiblastic drugs, valproate sodium and derivatives of vitamin A, all teratogenic substances in humans were discovered earlier than in animals; the majority of data were reported by physicians [11]. The protocol of a CT should necessarily include the plan of monitoring the pregnancy outcomes, including maternal health, short-term and long-term health of a child.

Two scenarios of participation of pregnant women in CTs are possible: a woman gets pregnant during a trial or a pregnant woman requires treatment but she can get it during a CT only. CT planning raises some questions that require answers. It is affordability of effective alternative therapy with the known less toxicity. The risk/benefit maternal/fetal ratio regarding a drug and abnormal condition, which is planned to be treated; possibility to use placebo-control or active control; whether pharmacokinetic assessment is suggested with the warrantied adequate systemic exposure and achieved effectiveness (for instance, pharmacokinetic trials included into third phase CTs).

If a CT participant gets pregnant during a trial, it should be taken into account whether she can continue the trial. In this case, an informed consent is taken from a nonpregnant woman; birth control methods and data regarding possible embryo- and fetotoxicity of drugs should be clearly stated herein. There are certain clinical situations when it is not efficient to make women who got pregnant during the CT continue the trial.

In this case, potential benefit of continued treatment should outweigh potential risks of continuing fetal exposure of the studied drug. It occurs when there are risks to terminate pharmacotherapy for a mother and/or risks of fetal exposure using additional drugs, if a mother is shifted to another

Table. Guidelines on participation of pregnant women in clinical trials and administration of drugs

Country	Legislative body	Guidelines on participation of pregnant women in clinical trials and administration of drugs
USA	Food and Drug Administration (FDA)	https://www.fda.gov/media/92565/download
Canada	Health Canada	canada.ca/en/health-canada/services/drugs-health-products/drug-products/applications-submissions/guidance-documents/clinical-trials/considerations-inclusion-women-clinical-trials-analysis-data-sex-differences.html
European Union	European Medicine Agency (EMA)	http://www.ema.europa.eu/docs/en_GB/document_library/Scientific_guideline/2010/01/WC500059887.pdf
Japan	Ministry of Health Labour and Welfare	http://www.nihs.go.jp/mhlw/yakuji/yakuji-e_20110502–02.pdf
Australia	Australian Drug Evaluation Committee (ADEC)	http://www.huidziekten.nl/richtlijnen/medpreg.pdf

therapy (in malaria, tuberculosis, oncological diseases). When a pregnancy occurs during a CT, the pregnant woman should sign a new informed consent, indicate the possibilities of an alternative therapy and compare therapeutic risks and benefits, namely, risk of continuing exposure of the studied drug on the fetus vs the risk of the alternative therapy, and danger of a non-treated disease. Meanwhile, consultation of the participant by an investigating physician, obstetrician and other medical specialists should be provided as needed on a constant basis.

Pregnant women with medical conditions that require treatment can be included into CTs if administration of the studied drug is accompanied with direct benefit for the pregnant woman and can't be achieved otherwise: the woman does not respond to the affordable therapy; alternative therapy is neither effective nor possible (allergy, increased sensitivity, stability). Meanwhile, the fetal risk does not exceed the minimal one. The CTs result in essential data, which can't be obtained otherwise. Thus, during CTs, drugs are administered with a therapeutic purpose mainly.

Trial endpoints and data about outcomes in a mother, fetus and newborn include as follows: gestational data, gestational time and duration of drug exposure; collection of ultrasound data and outcomes of other prenatal examinations; and registration of maternal complications. Gestational age in deliveries, complications in deliveries, condition of a newborn and conditions observed during the neonatal period should be taken into account separately.

In this century, regulatory authorities of many countries created guidelines to include pregnant women into CTs (table) [12].

In Russia, inclusion of pregnant women into CTs is regulated by Federal Law No. 61-FZ dated April 21, 2010 'On circulation of medicinal products' (edited as of April 28, 2023), where it is stated in par. 6, art. 43 that it is prohibited to conduct CTs of MP for human use involving 'pregnant and nursing women, except for cases, when a CT of drugs is intended for the abovementioned women, and when it is necessary to obtain data during respective clinical trials only and take all necessary measures to exclude the risk of harming a pregnant woman, a nursing woman, a fetus or a child' [13].

Five years ago, the FDA issued a Guideline regarding scientific and ethical approaches to the inclusion of pregnant women into CTs [14]. Inclusion of pregnant women into CTs of drug effectiveness and safety in case of socially significant diseases is of particular importance. The PHASES (Pregnancy and HIV/AIDS: Seeking Equitable Study) working group proposed three main points, in which conducting CTs within the cohort is compulsory. First, pregnant women and their children should be protected from narcotics-related risks just like all the others; second, their access to drugs during a CT should be similar to that of others; third, their own health and fetal outcomes should be equally respected [15]. While planning and launching CTs, the priority is given to the safety of infants due to a possible drug exposure but not to easier access of pregnant women to the trial.

However, the FDA explained recently that in the lack of safety precaution measures of using drugs among pregnant women, the drugs approved for use in adults are also approved for use during pregnancy. The open acknowledgement stating that drug safety data are incomplete was made to ensure that the HIV-infected pregnant women have access to antiretroviral drugs [16].

Exclusion of this cohort from CTs is associated with an unwillingness of pharmaceutical companies to take into account theoretical fetal risks (for instance, development of abnormalities). So, similar trials abroad are conducted mainly by clinical researchers using state funding received through competition. The regulating authorities in the sphere of circulation of drugs commonly display the same approach to avoid a possible risk. During all CTs, participants are insured against the risk of therapy adverse effects with the studied drug.

At the same time, sponsors of CTs can come across difficulties of getting insurance for CTs with pregnant women. Besides, this cohort requires additional communication (especially if the CT is conducted outside the maternity house) due to possible maternal and fetal risks. As a result, researchers suffer from an additional temporary and emotional load. In some cases, researchers can doubt their ability to discuss the assumed risks in an adequate way. There is a widespread and not supported view that pregnant women do not want to participate in CTs. In a wider medical community, there is no understanding of the fundamental role of the pregnant women included into the trials to ensure subsequent safe access to drugs.

During COVID-19 pandemics in 2020–2023, the problem of drug-related data, access of the pregnant women to CTs and progressive methods of therapy worsened. Besides, the infection was severe among these patients.

The RECOVERY (Researching COVID to enhance recovery) trial was a CT of drugs used in COVID-19 with involvement of pregnant women. Over 100 of pregnant or just delivered women participated in the trial. Effectiveness/safety of steroids, tocilizumab and casirivimab/imdevimab were assessed. Similar proportions of pregnant and non-pregnant women who decided to participate in CTs show that barriers for participation are mainly systemic, but not individual, with the role of governing authorities being critically important. Inclusion of pregnant women into the RECOVERY trial made it possible to transfer the trial results to clinical recommendations and practice [17]. Thus, if sponsor, regulatory and insurance barriers are overcome, pregnant women participate in CTs if they are offered to do so even under the conditions of a global pandemics.

In Britain and USA, target groups insisted that researchers and sponsors of CTs should explain why they exclude pregnant and nursing women from trials that can be good for a woman and her fetus. Regulatory authorities are offered to request a plan of research and assessment related to pregnancy and nursing from drug manufacturers [18, 19].

Thus, pregnant and non-pregnant women can suffer from numerous diseases that demand short-term and long-term treatment. According to the available data, at least three-quarters of women take minimum one drug during their pregnancy. Pregnancy is a dynamic condition, which can be compared to itself only. Unfortunately, data about the use of drugs in obstetrics are based on deep scientific evidence. Thus, every woman is a study object. If no pregnant women participate in trials, safe and effective use of drugs during the critical period of a female life can hardly be real.

Clinical practice shows that women and treating physicians face a difficult dilemma due to the lack of evidence about the effects of pharmaceutical and biological products during pregnancy. Thus, administration of drugs that have not been tried during CTs does not enable their proper dosing or considering potential effects on an unborn child. But refusal to use the drugs during pregnancy will result in harming the health of both the mother, and unborn or newly born child. The risk/benefit of drug-induced therapy is not always clear both for a mother, and a future child. It should depend on circumstances and be individual for every woman [20].

Trials of drug consumption in this vulnerable group of patients confirm high rate of drug administration and enable characterization of their category.

Determining most frequently taken drugs (OTC and Rx drugs) during the first gestational trimester and more extensive knowledge about their embryofetal risks allow to optimize pharmacotherapy during pregnancy. Frequent administration of drugs by pregnant women indicates that post-approval (post-marketing) assessment of their benefit/risk profile during pregnancy [21].

The main obstacle, however, to successful decrease of morbidity and mortality within the essential group of patients is the discrepancy between the burden of diseases of pregnant women and their future infants, on the one hand, and investment in development and testing of pharmacological methods of treatment, on the other hand. A consequence of inability to develop drugs, which could be used during pregnancy, is that many drugs are not tested for use in obstetrical practice. Thus, prescribing information with extensive data about fetal safety includes no data about the dosage, respective treatment, maternal effectiveness and safety.

The distancing of pregnant women from the development of drugs and therapeutic knowledge creates a range of clinical problems for practicing physicians. In spite of numerous factors within the context of maternal and intrauterine environment, the available experience is simply evidence of a small number of prenatal effects with quantitative estimates of related risk of congenital defects. Subsequently, the global burden of congenital defects can be decreased with integrated trials in epidemiology, genetics and epigenetics through personalized and population oriented preventive strategies.

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TRANSPLANT TOURISM AS A PRESSING HUMANITARIAN ISSUE IN MODERN MEDICAL EDUCATION

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Bioethics, which addresses the pressing humanitarian issues, is an essential element of modern medical education. Transplant tourism is definitely one of these issues. Going abroad to resolve health problems, receive organs and have surgeries might be a growing trend for some Russians. The objective preconditions include deficiency of donor organs and inability of the healthcare system to satisfy the requirements of all those in need. Asia (India and China) has been the major destination of transplant tourism lately. However, things are changing, as Asian authorities attempt to eliminate the unwelcome trend. Russian citizens who go abroad as transplant tourists come across various risks including medical and ethical aspects.

Keywords: bioethics, medical education, humanitarian issues, transplant tourism

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ТРАНСПЛАНТАЦИОННЫЙ ТУРИЗМ КАК АКТУАЛЬНАЯ ГУМАНИТАРНАЯ ПРОБЛЕМА В СОВРЕМЕННОМ МЕДИЦИНСКОМ ОБРАЗОВАНИИ

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Важным компонентом современного медицинского образования является биоэтика, которая позволяет дискутировать об актуальных гуманитарных проблемах. Одной из них, несомненно, является трансплантационный туризм. Имеющиеся сведения о попытках некоторых россиян решать свои проблемы со здоровьем посредством выезда заграницу, получения там донорского органа и проведения операций позволяют судить о растущей значимости данного явления. Его объективными предпосылками являются дефицит донорских органов и неспособность системы здравоохранения единовременно удовлетворить потребности всех нуждающихся пациентов. Основным направлением для трансплантационного туризма в последнее время являются страны Азии: Индия и Китай, но ситуация там меняется, поскольку власти предпринимают усилия, направленные на устранение данного неприглядного явления. Риски, сопровождающие выезд российских граждан в качестве трансплантационных туристов, разнообразны. Они включают в себя как медицинские, так и этические аспекты.

Ключевые слова: биоэтика, медицинское образование, гуманитарные проблемы, трансплантационный туризм

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The role of humanitarian education within the educational system of future doctors and healthcare professionals can't be overestimated. At the same time, teachers of clinical specialties are short of time to discuss humanitarian issues, whereas for those who teach humanitarian specialties it is difficult to find time for discussion of medical issues. So, when offering courses of humanitarian education at medical schools, it is necessary to use the existing capacity of thematic structuring of the education in the field of medical humanities in a more fruitful way. Bioethics — a humanitarian discipline integrating clinical, humanitarian and even scientific knowledge — is a highly successful time-tested educational tool [1, 2].

Sustainable models and trends evolved while teaching bioethics at Russian medical universities. Thus, a large amount of pressing humanitarian issues typical of modern healthcare is left beyond the educational scope of the discipline and outside the attention of future doctors. According to a recent study, medical tourism is one of these issues. It occurred due to the growing involvement of our fellow citizens into the global healthcare and industry of medical tourism [3].

Transplant tourism is an integral part of the problems associated with the development of medical tourism. Owing to the related negative connotation, the issue almost left the courses in bioethics or joined the marginal issues. The phenomenon itself has not gone anywhere. On the contrary, it can turn into a serious challenge of Russian healthcare that a new generation of medical graduates can't be ready for both in professional, ethical and mental terms.

The issue of transplant tourism is given little attention in terms of scientific discussion held by Russian specialists in medical humanitaristics. In the available publications, the focus is primarily on the foreign experience of withstanding transplant tourism, whereas the suggested recommendations concerning the existing problem are still rather preliminary and not convincing enough [4, 5]. In particular, a trial offered to concentrate on two aspects of work such as better control over the transnational mechanisms of transplantation of organs (by using the Unified registry of transplanted organs) and carrying out information and explanatory work among population displaying gratuitousness of organ donation in our country and a lack of channels donating organs of Russian citizens to other countries [4]. Insufficiency of the suggested recommendations can be admitted due to the circumstances described below.

Rapidly developed medical technologies has turned transplantation of all vital organs such as kidneys, liver, heart and lungs into a routine procedure since the XX century. This resulted in a shortage of donor organs in any country where transplant medicine was developed. National healthcare systems make enormous efforts to deal with the problem. The efforts are carefully analyzed by the scientific community [6]. Moreover, there have been significant advances in Europe concerning the overcoming a shortage of organs at the transnational level due to high integration of medical services [7, 8]. Nevertheless, in spite of significant progress in the elimination of a shortage of organs at the national and transnational (European) level, the shortage of donor organs is still an unfixable issue. The problem can be seen in Russia as well, as here the level of satisfaction of people's needs in transplantation surgeries is 10%. Meanwhile, in Russia, the level of donor activity used to describe the scope of organs suggested for transplantation is one of the lowest in Europe (4.5 per million of people in 2018 and 2021, according to annual reports of the Russian transplantology society and Newletter transplant published under the authority of the Council of Europe [9, 10].

Poor provision of Russian transplantation centers with donor organs is a real problem for our healthcare, which can't be solved yet in spite of all efforts of Russian professionals. In Russia, the highest donor activity has been noticed in Moscow only (23.7 per million people according to the results of 2021). 12 transplantation centers are found in Moscow and the Moscow region; the majority of transplantations is performed here [9]. Such a medical and organizational disproportion creates objective prerequisites to encourage the practice of transplant tourism among our citizens who can refer to foreign hospitals to deal with their health-related issues.

The Istanbul Declaration adopted in 2008 and signed by Russia calls on all countries to withstand such phenomena as trading organs and transplant tourism, concentrate on being self-sufficient regarding donor organs and overcome distrust and barriers that prevent from effective cadaveric donation being developed [11]. Implementation of ethical principles established herein is not possible without a developed infrastructure of transplantation medicine under national jurisdiction. Russia is a very big country, and creating such an infrastructure in the nearest future is a serious challenge.

The studies performed in 2010 have shown that the Russian society has seen a rather high level of 'mortal fears' because citizens and opinion leaders were poorly familiar with the issues associated with the practice of donation and transplantation of organs [12, 13]. The reason for that was the idea that donor organs from Russia go abroad and are used in the interests of foreigners. Meanwhile, such a situation — limited even then — could arise in the 1990-s only in the conditions of administrative and bureaucratic chaos. On the contrary, another trend was noticed in 2010. Russians increasingly went abroad for the purpose of transplant tourism. Academician Gautier SV, the principal transplantologist of the Ministry of Health of the Russian Federation, brought this into view in due time. In his opinion, when some our citizens come across long waiting lists at Russian transplantology centers, they risk to undergo organ transplantation abroad (for instance, in Pakistan) [14].

Pakistan and other countries of Southern Asia have earned the reputation of 'the international bazaar of organs' in the 2000s. They are known for an excessive amount of donor organs, unlike the Anglo-Saxons, Europe and Latin America that faced a shortage of these. The excess is due to chronic poverty of the locals and developed transplantology centers that provide service in the field of medical tourism and are located nearby.

In India, Apollo hospitals offer transplantology services with information on their website used to be translated in Russian as well [15]. The role of India as one of the principal global centers of transplantation tourism is changing gradually. The Indian government tries to free their country from the embarrassing image of 'organ bazaar' and market of surrogate maternity [16]. However, according to some trials, highly corrupted healthcare and remaining loopholes in the legislation hamper the attempts seriously [17, 18].

China is another global center for transplant tourism. According to western experts, organs are taken from the bodies of executed criminals there [19, 20]. Unlike India that started providing official statistics on donorship and transplantology for European observers since 2019 [10], the government of China traditionally avoids the practice and demands to respect its healthcare approaches. Though western authors provide extensive data about systematic human right violation in the field of organ donation in China, a large part of these publications should be interpreted with caution. The reason is the ridiculous accusation of cannibalism in China published in the Western media some time ago in the context of blood and organ donation [21].

Recognizing the general remaining uncertainty of provision of services in the field of transplant tourism in India, China and some other Asian countries, it should be admitted that possibilities of rendering the services to our citizens remain significant. This is precisely what is meant by Academician Gautier SV when it comes to these cases.

In medical aspect, the danger is that having received a donor organ abroad, Russian patients return to our country and create an excessive load for the healthcare system as no quotas have been allocated to them by the state and no costly immunosuppressive agents have been purchased for their subsequent treatment. When the patients come back, they have serious complications. Emergency measures have to be taken to save the patients, and doctors fail to give attention to planned patients [14]. However, some other aspects are identified. Travelling abroad to receive an organ makes our citizens to contact with unscrupulous intermediaries. Ignorance of local laws results in the risk to spend time and money without solving the basic issue. Besides, attempts to pay for everything do not allow to value someone's health and life leading to exaggerated claims to others at home.

Such a significant humanitarian issue as transplant tourism is still beyond public attention and is not the subject of intense discussions among our specialists. However, new evidence requiring careful scrutiny have been accumulating. It appears that this topic should be provided proper attention in the course of bioethics taught to those obtaining modern medical education and as part of discussion of ethical issues that accompany the development of transplantology.

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THE ECOLOGICAL NETWORK APPROACH APPLIED TO BIOETHICAL ORGANIZATIONAL STRUCTURES

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The term 'bioethics' (in the narrow sense) or 'biomedical ethics' denotes medical ethics at the modern stage of development. Bioethics is currently institutionalized and falls under the responsibility of specialized organizational structures (bioethics commissions, 'divine committees', etc.). The article expounds the prospects of applying network structures to institutions and organizations dealing with bioethical issues and tasks (ethical aspects of reproductive technologies, biomedical experiments, organ transplantation, and bioethical education). With the principles of decentralization ('multiple authority') and ecology (an integrative approach to issues under study and integrity of a bioethical expert team), network structures promote creative and effective functioning of bioethical organizations. Nonetheless, the centralized hierarchies of traditional educational and research institutions are also expected to perform essential functions. A reasonable combination of network structures and hierarchies provides the latter with a new role: the hierarchies assess the activity of emergent network structures using competent experts and provide selective support (including financing) to the most effective among them.

Key words: bioethics, network structures, hierarchies, decentralization, ecological approach, hirama, biological paradigms of network organization, neuronal networks

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ЭКОЛОГИЧЕСКИЙ СЕТЕВОЙ ПОДХОД В ПРИЛОЖЕНИИ К БИОЭТИЧЕСКИМ ОРГАНИЗАЦИОННЫМ СТРУКТУРАМ

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Термин «биоэтика» (в узком смысле), или биомедицинская этика, обозначает медицинскую (или врачебную) этику на современном уровне ее развития. Биоэтика в настоящее время институционализирована и находится в ведении специальных организационных структур (биоэтические комиссии, «божественные комитеты» и др.). В работе демонстрируются перспективы приложения сетевых структур к институтам и организациям, посвящающим себя биоэтическим проблемам и задачам (этические аспекты репродуктивных технологий, биомедицинских экспериментов, трансплантологии, а также в применении к биоэтическому образованию). Сочетая в себе принципы децентрализации («многоначалия») и экологии (целостный характер подхода к исследуемым проблемам, целостность самого коллектива участников как единой сущности), сетевые структуры способствуют креативной эффективной работе биоэтических организаций. В то же время централизованные иерархии традиционных образовательных учреждений и исследовательских институтов не теряют своих важных функций. Разумное комбинирование сетевых структур и иерархий наделяет последние новой ролью: речь идет об экспертной оценке деятельности возникающих сетевых структур с селективной поддержкой (включая финансирование) наиболее эффективных из них.

Ключевые слова: биоэтика, сетевые структуры, иерархии, децентрализация, экологический подход, хирама, биологические парадигмы сетевой организации, нейронные сети

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The term *'bioethics'* (in the narrow sense) or *'biomedical ethics'* denotes medical ethics at the modern stage of its development [1–3]. Bioethics is distinct from traditional corporate ethics of the professional community and also differs from conventional medical ethics. In the wide sense, bioethics is viewed in terms of ethical naturalism that underscores the importance of life preservation on the earth as the supreme moral principle. Van Rensseler Potter was the first to coin the term in 1969 [4]. Per its most inclusive meaning, bioethics also includes the ethics of experiments with animals and ecological ethics [5]. Bioethics is a philosophically and also practically relevant area of knowledge encompassing long-standing moral issues such as the attitude of humankind to wild and domestic animals as well as issues that are associated with the rapid progress of biotechnology and biomedical research' [5].

In the modern-day world, bioethics is an 'extensive global movement and a social institution, which brings together scientists and scholars (philosophers, doctors, lawyers, biologists, etc.) and consists of numerous national and international structures (centers, ethical committees, and institutes) that hold plenty of conferences and publish scientific articles and monographs' [6]. Due to its interdisciplinary nature, bioethics attracts the 'attention of medical professionals, biologists, philosophers, lawyers, theologists, culturologists, sociologists, etc. It has some practical relevance because institutional structures and mechanisms of moral and ethical biomedical control with proven effectiveness — ethical committees — have been established and tested' [7]. These *(bio)ethical committees* (starting from the 'Divine Committee' created in the beginning of 1960s in Seattle with regard to a waiting list for kidney transplantation) play an important role in terms of modern biomedical techniques of transplantation of organs and tissues, reproductive technologies, life support under critical conditions, and experiments with animals.

This article concentrates on the *organizational* aspects of ethical committees and similar structures concerned with bioethical issues. Two organizational approaches will be reviewed:

- *ecological approach*. It is widely accepted in the global scientific community that ecology is based on biological knowledge but reaches far beyond the scope of the life sciences. According to Reimers [8], generalized and philosophically funded ecology (megaecology) that aims to 'preserve the functional and structural integrity of the central subject singled out by researchers' is currently under development. These 'central subjects' can be diverse. The application of the ecological approach to bioethics deals with two kinds of central subjects. First, any ethical issue should be viewed in the unity of all its aspects. For instance, the issue on whether abortion is justifiable should be resolved analyzing in parallel the physiological, psychological, and ethical consequences of this intervention. Second, any ethical committee or other similar expert team should be more than the sum of its members: it should represent an integrated ecosystem with its own decision-making rules, behavioral norms, rituals, and basic values (which can be mystically interpreted as the non-material basis (egregor) of the committee);
- *decentralized approach*. Interdisciplinarity and multidimensionality of ethical committees promote the involvement of many partial leaders who deal with various aspects of a bioethical issue exemplified by the (bio)ethical dimensions of abortion. A strictly centralized hierarchy will inevitably narrow down the focus of the committee, overemphasizing the importance of the personal views of the boss, director or other dominant member(s).

DECENTRALIZED NETWORK STRUCTURES: APPLICABILITY IN BIOETHICS

Network organizational structures are created using both aforementioned approaches. It should be stressed here that network structures (or just networks) are in the spotlight of rapidly developing *network science* [9, 10]. Network structures are defined as a set of interconnected elements (nodes or vertices of a network) [11]. In recent decades, global literature has paid much attention to decentralized network structures, which are capable of coordinated functioning in spite of a lack of the central managerial agency typical of hierarchical structures [12–15].

In various social spheres, decentralized network structures commonly form spontaneously provided that their prospective members have common concerns, interests, objectives, behavior rules, and values. This promotes consolidation of network structures despite the lack of a single leader; these objectives, values, etc. can be regarded as the *matrix* of a network structure [9, 14, 15]. Within the modern society, virtual channels of knowledge transfer undoubtedly promote the collective interests of network members exemplified by food enthusiasts (the online Great Cooks Community), or scientists who focus on certain research subject (for instance, a house mouse or a serotonin molecule in neurochemistry), etc.

In this article, the application of decentralized network structures to bioethics is to be considered in detail. An introductory note: decentralized network structures within a human society are frequently outperformed by centralized hierarchies in terms of decision-making tempo; however, networks facilitate a creative approach to issues under study, especially if they deal with multi-faceted, fuzzy, transdisciplinary, and transrational [6] subjects that raise important bioethical questions.

HIRAMA

The following deals with an organizational model of network structures known as the HIRAMA (High-Intensity Research and Management Association). It has significant potential in terms of a collective expert assessment of issues related to biomedical ethics. An imaginable (hopefully feasible in the future) decentralized creative team of experts in the field of '*Medical and Ethical Consultation on In Vitro Fertilization*' provides an example to the point. In vitro fertilization (IVF) implies that 'ova are combined with sperms outside of a female body; a zygote develops in vitro for the first 4–5 days; subsequently, the fertilized eggs are placed in the uterus' [16]. Prior to the complex procedure, which is problematic from the ethical point of view, potential clients are to be filled in, in objective and impartial fashion, on issues regarding IVF acceptability and accessibility. Consultation services occur at every stage of IVF as well. Although a married couple or a single mother who wish to have a child prefer to contact a single expert (who is the external leader voicing decisions made by the whole hirama team), IVF-related consultation actually involves several different specialists (gynecologists, urologists, andrologists, therapists, psychiatrists, lawyers, etc.). Importantly, all the specialists set up a single coherent team with overlapping competencies of its members (e.g., they are assumed to be familiar with the IVF protocol as well as with relevant Russian laws).

The overarching interdisciplinary project carried out by the hirama team includes several interacting subprojects such as:

1. *Medical and physiological aspects* of IVF (e.g, indications and contraindications; IVF protocol choice, etc.; this subproject, if necessary, can be broken up into gynecological, urological, therapeutic, and mental "subsubprojects").
2. *Economic and legal aspects* of IVF: financial and contractual procedural conditions, compliance with the legislative framework in accordance with the law of the Ministry of the Russian Federation dated July 31, 2020 No. 803 'On using assisted reproductive technologies: contraindications and limitations'.
3. *Ethical aspects* of IVF including the fate of 'extra embryos' at the stages of their selective implantation into the uterus of the client or surrogate mother and subsequent 'embryo reduction'. This is the case when vitrified 'snowflakes' with an unclear ethical status are obtained. Ethical collisions occurring in this and other situations have mental, spiritual and even religious aspects (if the clients are believers). These more specific aspects can separately be considered by the network structure (recruiting an increased number of partial hirama leaders).

Every subproject has a *partial creative leader* with a possible assisting expert. The leader has no subordinates. His function is to record creative ideas of all members within the network

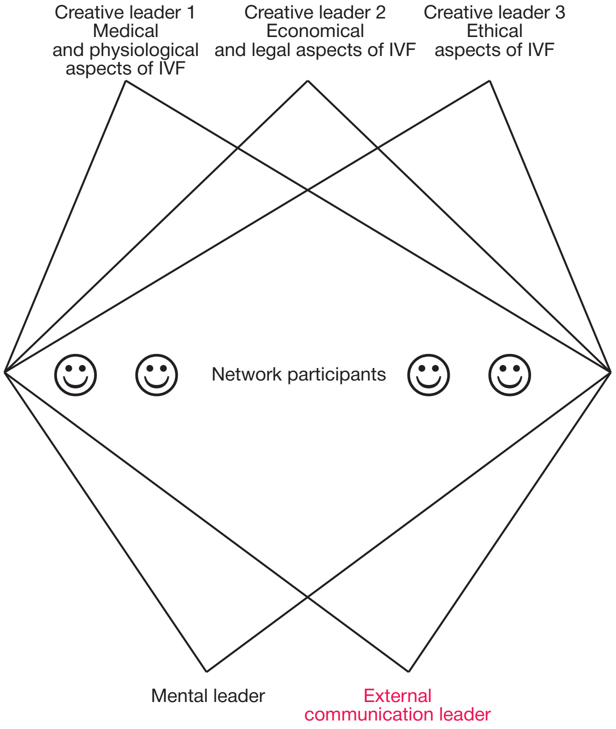

Fig. 1. Network hirama-like structure used to consult clients regarding IVF technology

structure for the respective subproject, encouraging them to develop valuable ideas and suggestions. The decentralized consultation network hirama-type structure represents a single team, and all experts have broad overlapping competencies. This allows them to interact with several creative leaders. *A psychological (internal) leader* is necessary to prevent other leaders to hog the covers, disintegrating the entire group. This leader is not responsible for a separate subproject. However, he tends to improve the psychological atmosphere within the group, ensure proper effectiveness of the group creative process, and allow all creative leaders to build cooperative (and not only competitive) relations.

The *external leader* who deals with the external audience is essential for the hirama structure. This leader acts as an authorized representative of the network structure when it interacts with other organizations (sponsors, clients, scientific institutions, representatives of the administrative bodies, etc.). This leader is used by the creative group for publicizing the results of its collective work. The entire model of the network structure is presented in fig. 1 [9, 10].

It is obvious that a similar multi-leader network can be used whenever a multidimensional bioethical problem is to be solved.

A brief discussion of biomedical experiments on human subjects will be the second example. '… A biomedical experiment is an unsafe, dangerous way of obtaining new knowledge in terms of biology and medicine. … Ethical regulation of the conditions of biomedical experiments is required' [16].

The obviously multidimensional and transdisciplinary nature of biomedical experiments impedes the hierarchical organization of a group of experts that are tasked with assessing the affordability and degree of risk for any project within the area. A decentralized network hirama-like structure could include partial creative leaders concerned with the following subprojects: (1) assessment of the scientific significance of the biomedical experiment project and quest for alternative strategies to achieve the project goal (e.g., testing a drug or developing a surgical technique); (2) direct evaluation of health-related risk factors endangering the life of test subjects and potential strategies to overcome/mitigate the risks and to provide compensation for the subjects; 3) ethical and legal assessment of the project acceptability (will the subjects be stigmatized in the society because of their involvement in an experiment fraught with long-term psychiatric aftereffects? Will they have reasons for suing the experimenter?'). The hirama has a pool of nonspecialized assistants helping prepare the final communiqué; it also includes a psychological leader and an external communication leader.

In the author's opinion, the hirama-type network structure can also be utilized in the bioethical committees of research institutions that conduct animal experiments. Evaluating their work is a multifaceted task. It can be subdivided into several subprojects (which entails assigning respective creative leaders to the hirama team).

ALTERNATIVE SCENARIOS: QUASI-NATURAL PARADIGMS

The spectrum of organizational models of networks structures includes not only the hirama option. The author earlier suggested other models of decentralized network structures that are based on typical patterns used by living nature. They can be referred to as *quasi-natural paradigms*. Although some fish shoals have a centralized hierarchical structure (like gourami aquarium fish [17]), many of them prefer decentralized structures (in accord with the *equipotential* network paradigm), and they lack a constant leader. A chance individual temporarily leads the way in such a shoal. However, the shoal is capable of efficient behavior coordination. It can perform complex maneuvers to escape from predators or to hunt the prey. It was demonstrated in earlier publications [9, 10, 18] that various quasi-natural paradigms including the equipotential paradigm can be used to deal with complicated tasks (such creative teams can also used such techniques as role-playing games and brainstorming sessions).

The cellular *(microbial) paradigm* is implemented by microorganisms and cellular cultures; its organizational analogues in human society represent creative teams whose members collectively constitute a single 'supermind'. This collective 'supermind' has much better creative capabilities than each of the individual participants. The 'supermind' is analogous to the microbial matrix, i.e., the biopolymer substance cementing all cells within the microbial colony or biofilm. The *modular paradigm* exemplified by cnidarian, bryozoan, or ascidian colonies generates a creative stress (tension) because interindividual competition inside a creative team coexists with cooperation aimed at successfully carrying out the team's collective project (e.g., *effective prenatal diagnostics of chromosomal anomalies*). In the case of the *rhizome paradigm* (vegetable rootstock or fungal mycelium), units (nodes) of the network form strong interindividual connections (social analogues of the filamentous structures (hyphae) of fungal mycelium) enabling their merging into a single think tank.

If the human decentralized network relies upon the *eusocial (formic) paradigm*, the group is divided into small subteams (analogous to a group of ants collecting honeydew or constructing anthills) with working leaders. These leaders form a flat network and have no superordinate ants ('bosses') above them. Issues are resolved by way of conducting negotiations and reaching consensus. The *egalitarian ('monkey') paradigm* is based upon some degree of rank differentiation within a group composed of individuals enjoying much personal freedom (typified by apes) that include high-ranking individuals, e.g., high-status gorilla males.

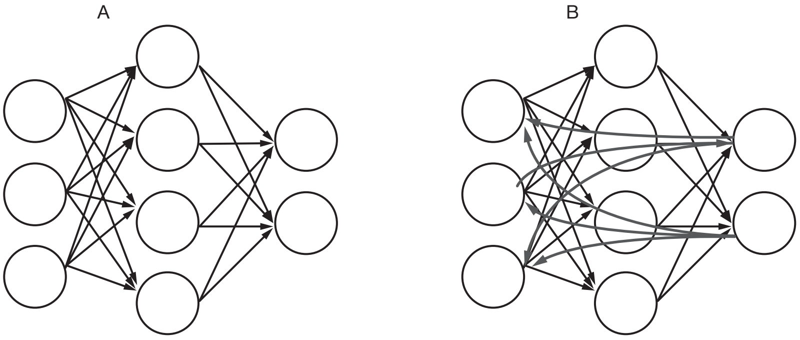

Fig. 2. Simple neural network (A); network with feedbacks from the output to hidden and input layers (Hopfield network) (B)

NEURONAL (NEURAL) PARADIGM OF NETWORK ORGANIZATION AS APPLIED TO BIOETGICAL ISSUES

The scope of the present work does not allow us to consider all quasi-natural paradigms in relation to their application to bioethical problems. This section specifically deals with applying the *neuronal* paradigm to bioethical issues.

Neural network structures rely upon models developed in research on the nervous system and especially on the brain [19]. A neural network can process external data and create untrivial problem solutions (at the level of the entire network). Such a network can solve a complex problem even though the data seem insufficient, by way of creating the problem solution image utilizing the few available fragments (e.g., making a correct medical diagnosis despite the scarcity of available data). In many cases, neuronal networks conform to the ecological approach: the issues they deal with are perceived as integral structures. The neuronal network has a variable configuration enabling it to adjust to a new task. If some network elements are faulty, the rest are sufficient to carry out the whole task. The fact is well-known to heatlcare specialists dealing with the rehabilitation of patients with local brain problems.

McCulloch and Pitts [20] singled out three main types of elements in their classical model: (1) input elements perceiving the incoming data; (2) hidden-layer elements that process the data obtained from input elements; (3) output elements that generate the final results of the entire neuronal network's activities. The subsequent development of the theory of neuronal networks and research on the human brain added much complexity to McCulloch's and Pitts' model. It incorporated multiple input elements (Frank Rosenblatt's perceptron, 1962), several internal processing (hidden) layers (multi-layer perceptrons), and was suplemented with feedback loops that enable output elements to influence the processing and input elements (Hopfield and Hemming networks) (see fig. 2A and B).

The author believes that analogs of neuronal networks can be fruitfully used in terms of *bioethical education*, which is of paramount importance to healthcare professionals. The neurons' work can be imitated by teams of students during interactive lessons that deal with basic bioethics. The network composed of students can meet difficult challenges using limited data sets. Their classwork will result in increasing the creative potential of the entire neuronal network as well as that of each student involved (that represents an analog of brain neuron).

The following part of this work demonstrates how the neuronal scenario can be utilized by students dealing with *euthanasia*. Euthanasia is defined as 'providing aid to a critically ill patient with an incurable disease whose suffering cannot be mitigated' [16].

- The student team is divided into three basic *levels* (subteams):
- *the input layer* that collects the data on related topics that are provided by the teacher or acquired by the students themselves, exemplified by case studies contained in the literature including the Internet);
- *the processing (hidden) layer*: these students generalize the data obtained by the input layer and lay the foundations for the strategy used to carry out the creative project (e.g., they form their opinion about the ethical justification of euthanasia or create a review paper on such topics as 'The attitude of the church towards euthanasia' or 'Ethical assessment of assisted suicide');
- *the output layer*: the students voice the final comunique regarding the results of the work of the entire creative network quasineuronal team.

COMBINATION OF SEVERAL NETWORK PARADIGMS IN BIOETHICAL PRACTICE

The hirama, neuronal networks, and other network structure types can be applied in combination, enabling the creation of multi-order complex structures that conform to ecological principles and espouse a holistic approach to the issues under scrutiny. The network paradigms considered heretofore are comparable to colors in the palettes used by "artists" painting novel structures based on complex combinations of several organizational scenarios.

Combined use of various paradigms of network organization is exemplified by a creative team of experts concerned with *organ and tissue transplantation*. Organ/tissue transplantation is currently making spectacular progress; and, in many cases, it already represents a routine procedure [16].

Even though network decentralized organization can promote the development of techniques related to the transplantation of any organ or tissue, the utilization of multi-level (multi-order) network structures will be discussed here below in relation to a specific futuristic project envisaging *the technology of successful transplantation of a functioning eyeball*'. This fascinating project has not been carried out yet. Undoubtedly, eye transplantation could raise new hopes and prevent the suicidal attempts of millions of blind people including those with damaged optic nerves (like admiral Nelson) or lacking both eyeballs (like the Czech hero Jan Zizka who lost them on the battlefield). Technically reliable eye transplantation would fullfill the dream of those whose eyeballs are just cosmetic organs. The extreme complexity of this intervention that has not become feasible yet clearly demonstrates that all human organs are interdependent *holomerons*. This implies that they constantly interacts with the 'living matter' of the

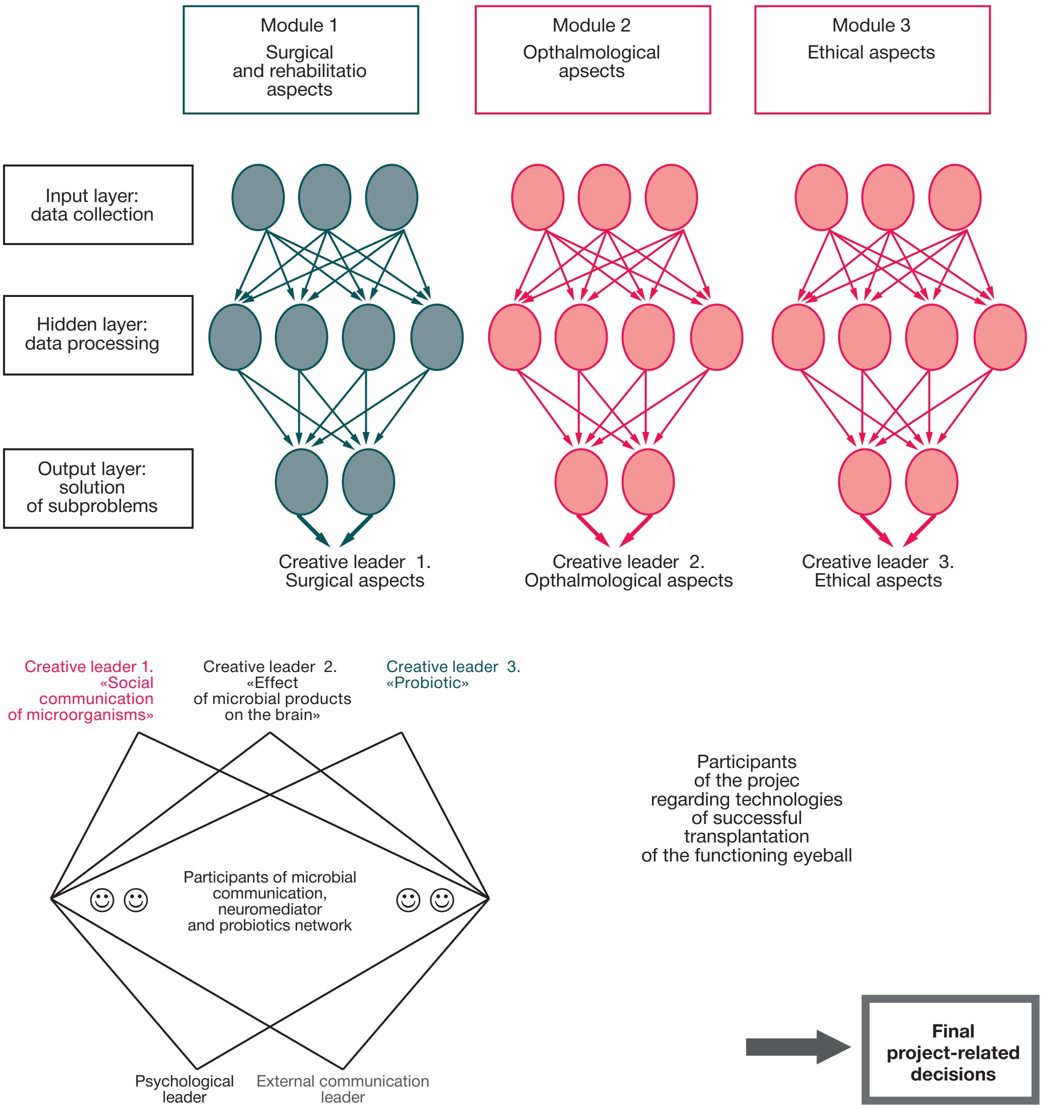

Fig. 3. Multiordinal combined network structure for a creative group dealing with the task of *developing the method of successful transplantation of the functioning eyeball*

entire human body. An eye is connected to all systems of our body. This makes irridodiagnostics (estimation of the state of various organs by examining the iris) possible.

This noble interdisciplinary project with surgical, ophthalmological, neurophysiological, immunological, psychological, ethical, legal, and philosophical aspects is still awaiting an adequate creative transdisciplinary network structure for its implementation.

A pilot network structure can have three subprojects that should correspond to the following modules.

Module 1. *Surgical and rehabilitation aspects* embracing all stages of eyeball transplantation from preoperative preparation of a patient and anesthesia to the last suture on the conjunctiva and postoperative rehabilitation with the training of the transplanted eye.

Module 2. *Ophthalmological aspects* envisaging the eye as a holomeron interacting with the nervous system, especially the brain ('the eye as a part of the brain'), the immune and endocrine system, the ENT organs, etc.

Module 3. *Ethical and legal aspects* (who may legally be considered an eye donor? Who is entitled to know that the young man they are dealing with has a transplanted eye? Can a loving mother donate an eye to her child?) with complex psychological, spiritual and religious overtones.

A creative team of experts combines the neuronal and the multi-level hirama pattern (fig. 3). Thus, module 2 ('*Ophthalmological aspects*') includes

- the input layer: acquiring the initial data (medical history, relevant literature data, etc.);
- the hidden layer: processing these data and drafting relevant medical documents (recommendations, indications and contraindications, etc.);
- the output layer: preparing the communique for the target audience (clients).

The representatives of the neuronal network's final output layer are also the creative leaders of the hirama:

- leader A deals with ophthalmological issues in relation to the transplantation procedure;
- leader B envisions the eye as a holomeron and takes into account its interaction with the nervous, immune, endocrine system and other parts of the organism;
- leader C uses the contributions made by leaders A and B to compile the final document, e.g., a set of rules and instructions for an eye transplantation specialist.

Module 2 also includes a psychological and external leader. The latter generalizes the data supplied by leaders A, B and C. Subsequently, the document is submitted to the external leaders of all three modules.

The combined principle (neuronal network + hirama) is also utilized in the other modules (1 and 3). The three external leaders cooperate to set up a higher-order network where they are the creative leaders of subprojects within a single overarching project titled, to re-iteterate, 'Development of the technology of successful transplantation of the functioning eyeball'.

The external leader of the entire higher-order hirama makes the results of the collective project available for the target audience ranging from the government of the Russian Federation to medical (e.g., ophthalmological) and scientific institutions. It is imperative that the project result should be communicated to all potential clients round the globe. This would imply that the creative network involved is supplemented with new participants (that are capable of making innovative suggestions) including healthcare specialists, business people, educators, public administrators and regulators, etc.

This discussion of the multilevel combined network organization of a future eyeball transplantation team is based on published original work in which similar network structures are suggested to cope with complex transdisciplinary tasks [10, 18].

CONCLUSIONS

Hence, decentralized network organization is in conformity with the integrated ecological approach to problems/tasks faced by a creative task force. A team organized in accord with network scenarios (e.g., dealing with bioethical issues) should act as a single entity, which 'is larger than the sum of its parts'. Network structures of various types are potentially applicable to diverse areas of bioethics from reproductive technologies and biomedical experiments to organ transplantation to bioethics classes in medical educational institutions.

This does not imply that centralized hierarchies typical of traditional educational and research institutions are to be considered irrelevant. Hierarchies in research and educational institutions should fulfill important supervising functions in terms of educational or R & D activities. Moreover, with the development of network structures, the hierarchies and their leaders (deans, directors, etc.) acquire a new important role. They make decisions regarding the promotion (and financial backing) of selected useful network structures or, alternatively, the elimination of networks that are inefficient or completely useless in terms of healthcare.

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THE ‘SOVEREIGN DECISION’ IN THE DISCOURSE OF MEDICAL ETHICS

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Recently, there has been tension is our society because of health-associated problems resulting from at least two factors. First, we are facing collision of neoliberal economics with the traditional ethics of our society. Simplistic understandings of social tendencies typical of our society and processes within the global community provoke a reaction in the form of various conspiracy theories supported by a dualistic ethical approach within our society. In one case, it is based on neoliberal trends and is increasingly manifested through the views of non-governmental organizations. In the other case, it is extremely conservative and tied to the traditional morality. The politics that tends to act within the bounds of the possible goes through both options, creating even more confusion. Another factor, which is no less important, includes blurred connotation and denotation of such notions as ‘freedom’, ‘sovereign’, ‘sovereign decision’, ‘human life sacredness’, resulting in various misinterpretations. The purpose of this article is to review the occurring dilemmas by disclosing the terms in the historical context. The possible conclusion is that the common global tendency of law harmonization under the influence of neoliberal economics is far from the dream about the Perpetual Peace as seen by Kant two hundred years ago. Regular standards that form the basis of the social ethics occupy less space in the legislation just like the ethics itself, even if used as a corrective measure, with economic logics taking up a larger place. There will be a ‘market price’ for everything (Kant). In the light of the above, we tried to review vaccination and euthanasia as two very specific and pressing issues.

Key words: medical ethics, sovereign, sovereign decision, ‘sacredness of life’, vaccination, euthanasia

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«СУВЕРЕННОЕ РЕШЕНИЕ» В ДИСКУРСЕ МЕДИЦИНСКОЙ ЭТИКИ

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В последнее время характерна напряженность в нашем обществе по поводу связанных со здоровьем людей проблем, являющихся следствием как минимум двух факторов. Во-первых, это столкновение неолиберальной экономики с традиционной моралью нашего общества. Упрощенные трактовки социальных тенденций, характерных для нашего общества и процессов внутри мирового сообщества, вызывают реакцию в виде различных конспирологических теорий, которые подкрепляются двойственным моральным подходом внутри нашего общества. В одном случае он полностью основан на неолиберальных течениях и все чаще проявляется через взгляды неправительственных организаций, в другом до крайности консервативен и привязан к традиционной морали. Политика, стремящаяся действовать в пределах возможного, поочередно предпочитает то один вариант, то другой, что создает еще большую путаницу. Другим фактором, не менее важным, является размытость коннотации и денотации таких понятий, как «свобода», «суверен», «суверенное решение», «священность человеческой жизни», из-за чего возникают различные неверные толкования. Цель этой работы — рассмотреть возникающие дилеммы через раскрытие значения этих терминов в историческом контексте. Возможный вывод состоит в том, что общая мировая тенденция гармонизации законодательства под влиянием неолиберальной экономики далека от мечты о Вечном мире, каким его видел Кант двести лет назад. Обычные нормы, составлявшие основу общественной морали, как и сама мораль, занимают все меньше места в законодательстве, даже в качестве корректива, и все больше места занимает экономическая логика. Все будет иметь «рыночную цену» (Кант). В свете вышеизложенного мы попытались рассмотреть вакцинацию и эвтаназию как две очень характерные и актуальные проблемы.

Ключевые слова: медицинская этика, суверен, суверенное решение, «священность жизни», вакцинация, эвтаназия

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According to ‘Liberty and Medical Ethics’ [1], liberty in medicine is manifested through the struggle with the already existing disease (negative liberty) and struggle for disease prevention (positive liberty). For these liberties to be implemented, a high level of daily consolidated medical knowledge and knowledge from other related fields of science are required. New hypotheses are generated, confirmed or denied, resulting in a deeper level of expertise. The ‘Truth in Medicine’ [2] states that truth can be achieved by analyzing the problems associated with (a) space-time continuum, (b) defining the terms ’health’ and ’disease’. (c) Linguistic issues related to the definition and connonation of terms in medicine and, therefore, the use of the International Classification of Diseases, and (d) use of achievements from other fields of science with equipment and other diagnostic tools also belong to the factors that influence gaining of truth in medicine significantly.

Physicians sometimes call the complex way to the truth doubtful, whereas intellectual integrity (ethics) requires to determine the subsequent direction of the search via dilemmas. At such moments, a patient can think that medicine lacks clear decisions that correspond to absolute truth. There is no doubt that not only medicine but also all the biological sciences lack absolute truth. But this does not mean that finding solutions outside professional knowledge can be simple because of that.

So, while discussing truth, we often ignore its possible manifestations on various levels, being both absolute, and probable, informative and polemic. If truth in medicine relates to comprehension of natural processes by humans, then freedom is associated with humans and entire society.

No matter how hard humans and society try to fight the disease, there is no doubt that truth is found in the historical, scientific, political and legal aspects, which constitute the frames of this struggle. In accordance with Greek culture, the context of natural law should be taken into account to make the struggle justifiable (as Aristotle stressed, it is important for humans to always act in the right way [3]).

If laws that determine the rights are a set of standards regulating relations within the society, then natural law should be the closest to human nature. Hobbes defines lex naturalis as follows: ‘law of Nature, *lex naturalis,* is a precept or general rule found out by reason by which a man is forbidden to do that which is destructive of his life or taketh away the means of preserving the same…’ [4]. The law was necessary to prevent a war of all against all. Hobbes states that all people are born equal having ’jus naturale’, which is ’the liberty each man hath to use his own power as he will himself for the preservation of his own nature, that is to say, of his own life; and consequently of doing anything which in his own judgment and reason he shall conceive to be the aptest means thereunto’. No authority is above the sovereign. A sovereign is only one with natural rights (jus naturale), whereas others renounce it for lex naturalis (contract) [5]. Thus, law is a mixture of an attitude to politics, on the one hand, and attitude to freedom as a specific human attribute, on the other hand.

Ancient Greek philosophy views a human being as zoe (biological creature) and bios (social creature) [6,7]. The life of the biological creature should be subordinate to the social creature. Because of the laws that protect the society, Socrates betrays his biological creature of death (Crito) [8]. Plague patients know that destiny is an isolated island or any other isolated space and that they have no right to use the freedom of staying among other people. The political relations within the society clearly suggest that a human is an essential part of the whole, the essence of which — just like the essence of law within the same communities — consists in not violating the social whole and natural processes. Philosophy of Plato both in general and reflected in ’The Republic’ and ’The Laws’ add to that. In Ancient Rome, which is the cradle of modern law, they followed the ideas as well.

Every modern legal dispute is derived mainly from the Roman law. In the context of this article, three terms and two legal precepts associated with the legal profession in the Roman era are essential. These are the terms ‘*sovereign*’, ‘*sovereign decision*’, and ‘*sacred*’; the rights of the father over children; and, finally, a rule (law), which is preserved until now almost in every legislation. It says that judging someone should be solely based on their physical appearance.

While defining the term ’souvereign’, it is necessary to understand that human society functions within a complex social system that can’t be disrupted. Relations between the system and its destructing elements ensure harmonious functioning of the society. In rare cases, when severe destruction threatens with complete collapse of the system, someone called the ‘sovereign’ uses emergency measures, which are not an integral part of the law, to restore the legal system. The sovereign has a specific position. It is not part of the legal system; it restores the system without being in it. Its action begins with a sovereign decision, which is an essential part hereof. It is necessary to distinguish between a sovereign decision and free will. The decision belongs to someone above the law as compared to an individual, who is subordinate to the law. Free will is an ability of individuals within the society who obey the law and are not above it.

In the mythological context, it is difficult to differentiate between good and evil as far as the term ‘sacred’ goes [9]. Evolving from the realities of Pagan Rome to the present day, the term has acquired a new meaning.

Since the establishment of secular states, church legislation that deals with the term ‘sacred’ has been completely separated from civil legislation. In church legislation, the term *‘sacred’* is used to denote the highest moral values that should be respected until the end and can’t be ignored. It is doubtful that life is announced sacred today even if it is never mentioned in civil legislation determining the destiny of human communities. The term ‘indefeasible right’ is obviously utilized, but the difference between the indefeasible right for life and life sacredness is huge if the idea of sacredness is taken from today’s point of view. Attempts to make it equal result in a naturalistic error, as sacredness is associated with ethical criteria, whereas indefeasibility of life is just a pure fact.

A child’s freedom lies in the hands of parents. A father can take decisions for his child, but can’t kill the child. The father is solely responsible for the child until adulthood, and this is how parenthood is institutionalized.

The rule stating that judging someone should be solely based on their physical appearance is slightly changed today. The rule admits the possibility of judgement in default, but strict criteria are set in relation to those who can be judged in absentia.

The sovereign decision is historically based on the existence of a person (king, governor) in the society that has the natural right (zoe), whereas all the others are an essential part hereof (bios). A *sovereign* didn’t have to comply with the established legislation; others could not afford the same.

In the era of modernism, a person is perceived as a personality. Since the XV century, spiritual enthusiasm prioritizes a person and human freedom as compared with the natural order of things. The politics, painted in colors of freedom, leads to a series of revolutions (French Revolution, October Revolution). Liberation of a person (as a symbol of both) ultimately ends with totalitarianism and negative experience. Sovereign neoliberal economical option comes on the stage today. Where legislation is adapted to the neoliberal market, the neoliberal economical choice is the driving force of the processes and relations in the society. Something that is of concern is easily removed with manipulation by power, but the authority will neither act, nor operate beyond the law. We are given absolute power, which acts as sovereign, untouchable and, in the majority of cases, virtual power.

In the countries with no or weak neoliberal tendencies, neoliberal economics imposes its will and regulates relations with the acting laws just like a **sovereign** until the desired order is established. Prof. Miroslav Milovich states in the 'Metaphysics and Politics' [10] that ancient economics of secondary value associated with personal family issues transformed into economics of specific value which is strong enough to determine the politics and, as a consequence, the entire life. In 'Homo Sacre' by Giorgio Agamben [11], two political subjects such as natural life and sovereign (unlimited) power arise from these relations.

These conditions resulted in ethical decline, including global distribution of death camps. **Zoe** is integrated in **Bios**; laws do not punish the natural life any more, but discipline it.

Neither independent medieval cities, nor national states of the 18th and 19th centuries are present. A single economic space exists instead. According to the scientist, the natural life and its sacredness denote integration of a personality into the political life. It is opposed by politics and manipulation with sovereign power. The dream of Kant — and many other reasonable, well-intentioned people — about the shared world legislation is shattered via quiet or rough imposition of interests of the most powerful. Being a global phenomenon, economy affects politics in all spheres. The 'natural' life is squeezed between the pincer movements of the legislation, on the one hand, and human loneliness, on the other hand, with a form of social protection (or an essential part of unlimited power) behind it.

Can such a person exercise sovereign power? No. Neoliberal legislation creates an impression that private ownership constitutes its indefeasible right. According to it, its 'sacred' life is the most valuable thing at its disposal. The right is not taken away but is restricted in a different way: it is a subject of the common economic game, where stronger parties win. The stronger interests are interests of unlimited power behind the mask of interests of a wider community (countries and other organized structures). In the world as it is they say that 'free will exists', but the rules of sovereign powers make you follow them with the threat of ostracism or loneliness. Relations can be restored if the rules set by the sovereign power are followed. The laws applied to a human being as a social creature (bios) do not take the human as a sovereign, and, as a consequence, do not accept its sovereign power within the context of taking social decisions. The person is not capable of taking the decisions, because he can't regulate the relations within the society and impose decisions. The person can't be an independent biological creature today (Zoe). Thus, sacredness of life or sovereignty of a personality used by the generations of today to build their idea of freedom is an illusion. That's why Agamben is right accepting that there are two subjects on the political arena only. The first one is the ever-present architect of all relations (absolute power) out of social processes, the second one is a natural life with all relations around it, though the second subject can't influence something inside the social life [12]. The natural life (sacrality) is plainly manipulated because it is 'sacred' not due to real holiness, but because economic interests ensure its existence. Connection with pagan Rome should probably be sought here. Your life is sacred for you, but unlimited power can discipline it to the level of labor camps and until the last atom of your strength without any responsibility.

As ethical decisions in medicine are directly associated with the freedom of decision or, as many people believe, with the independent power of taking decisions, only two aspects can be reviewed in this case: decision to refuse from vaccination, and euthanasia from the point of view of the sovereign decision and in the context of the sovereign power and natural life.

THE SOVEREIGN DECISION AND VACCINATION

Vaccination is a form of struggling with diseases related to our active protection. Essentially, it is the act of positive freedom. For it to be implemented, an extensive social activity is required — from the legislation and provision of funds through the multi-level organization of this activity to the immediate existence. Health education that makes the freedom of decision real and active, without a patient's passive consent (treatment with negative freedom), should be added to that. Refusal from health education in this area causes great damage to vaccination and, as a consequence, to those vaccinated. Being unaware of the precondition, a reason that makes no sense is obtained. This gap is used by various anti-vaccination lobbies that create confusion and less extent of protection, whether we like it or no. What about freedom and sovereign decisions in the context of immunization?

Society (organized community, country, province, or **bios**) shapes behavior in that area. Legitimacy and legality of this procedure are based on conclusions of expert bodies until the law is adopted (legitimacy) and by adoption of the law (legality). Healthy people are welcomed by the society. According to the neoliberal community (the largest population for today), the more working and healthy people we have, the more possibilities of their acquisitions there are. Thus, vaccination is justifiable in this case.

Neoliberals have the same interests as individuals. The interests are expressed through the rational medical measures implemented by the society. How did the anti-vaccination lobby appear then? The sovereign decision to refuse from vaccination results in 'exclusion', i.e. subsequent effect of the community while attempting to participate in further life processes (school, college enrollment, etc.). But how is it possible to recruit supporters who do not vaccinate and significantly reduce the coverage of vaccinated children? It happens due to poor sanitary and educational work, on the one hand, and sense of insecurity of some people, on the other hand. Being aware that many spheres of the social life are manipulated using unlimited power, the people try to trade the natural life reaching the political arena without perspectives. But in the presence of conditions for health communication, the idea of the course of nature, international conspiracy, bad quality of vaccines, toxicity of some components or adverse effects (autism) is losing the battle against the only one ethically correct and rational idea of being vaccinated to become free from diseases.

The true motives of those financing and arranging the movements are not clear. They use personal freedoms as a large training area for interpretation, as it concerns subjective value judgements, trying to make our decision look externalist.

Previously granted parental right to take decisions concerning their children's lives captured in all the legislation, starting from the Roman times, is lost as an argument due to at least two reasons. The first reason concerns real possible death of an ill and unvaccinated child. As sickness and death of the unvaccinated child are statistically more probable than development of adverse effects of the vaccine, fear of adverse effects after vaccination can't be a strong argument for such a decision. The second reason concerns freedom, because decision of parents is a paternalistic act, i.e., the highest degree of the lack of freedom. It is assigned to the parents until the age of the child's majority to implement it in a socially responsible manner based on the laws of the society and in the child's interests. The interest is estimated by the community and institutionally determined in a number of laws. In Scandinavian countries, parenthood is under constant social supervision. Many parents are deprived of their rights for the smallest misdemeanors or violations of the law.

Finally, let us conclude that it is a free parental will to vaccinate children upon agreement with those who exercise sovereign power. Refusal from a child's vaccination is also a free will with all resulting consequences, implying social ostracism. That is how the decision becomes sovereign. On the other hand, the decision only seems free, actually depriving the child from the freedom in relation to the disease the child should be protected from.

THE SOVEREIGN DECISION AND EUTHANASIA

Unlike vaccination, euthanasia is hardly treatment. It is a specific situation to stop agonies at the end of life. We do not treat patients because death is the outcome of this procedure. No preventive procedures are applied as well. In the technical sense, it can be classified as homicide or — using euphemistic terms — 'mercy killing' or 'assisted suicide'. Homicide is the most serious offence according to any legislation.

Even if qualified as 'assisted suicide', it is necessary to remember that people who assist in suicide are also subject to criminal prosecution. Some countries included procedures — whatever they choose to call them — that welcome homicide of seriously ill patients into their legislation.

Why has the problem of euthanasia become pressing in developed countries lately?

Modern medicine enables effective support of patients' vital functions in the most difficult situations. However, assistance is sometimes provided slow enough resulting in the brain death in some patients, but not physical death. These people do not hope for convalescence, and will soon experience tortures and discomfort they are aware of and want to avoid. The biggest problem is that life is unpredictable and creates numerous situations with candidates for euthanasia becoming available. Thus, for any legislation regulating the area it is difficult to determine the circumstances when the measure can be implemented. Following a well-known scenario, in the lack of a real decision, a commission is convened to solve the issue freely (in consensus, by the vote of a majority…?!). In this case, any meaningful and legally binding action is powerless. Some countries (Netherlands) that permit euthanasia are famous for the high extent of abuse [12]. It is a profitable business in some countries (Swiss). We addressed the issue from different perspectives. Let's discuss the possibility of taking a sovereign euthanasia-related decision here.

To be able to decide on euthanasia, one should be aware of the existing circumstances. If this is not possible (as many severely ill patients have a low level of consciousness), such a decision is taken for that person. It is not about a sovereign decision. But why do we use the term 'sovereign' instead of 'free' then? Because a patient who has taken such a decision is not subject to any law. He will be dead at the time of the act, and the absentee (dead in this case) is not subject to the law, as he is above the law when the decision is taken. For those who assist in euthanasia the story is different. They can render assistance on a voluntary basis in the lack of law that permits euthanasia and are subject to legal sanctions or fulfilling their professional obligations in the presence of the law that permits euthanasia.

Euthanasia is still illegal in many countries. It should be admitted that during debates about such a law many people will find themselves in an unenviable position. It is the legislation that abolished death penalty in many countries following neoliberal economy known for the euphemistical fight for human rights within the last few decades. By having declared that those whom they are going to exploit have an indefeasible right for life (even killers), they will authorize murder of the innocent and weakest. Having no doubts about political manipulations of unlimited authority, which are based on the principle that recognizes legality of measures, we can witness these laws adopted in the nearest future.

We only need to follow the logics of neoliberal economy and consider two aspects: first, it is expensive to treat these people, and prospect of success is lacking (return of invested funds due to exploitation of natural life); second, a number of expecting donors of organs is increased, meaning that in terms of neo-liberal economic logics, one lost physical life results in one, two or more physical lives;

Some churches display organized opposition to adoption of similar legislation irrespective of the legislation secularity. This can be handled by slow adoption of the law when a number of adopting countries is insignificantly increased. It should be noted that Serbian legislation is about to adopt the law that permits euthanasia with no active encouragement, necessity (euthanasia is not among the pressing issues of our healthcare) or extensive discussion of the problem by the entire society.

The so-called Serbian 'elite' stands for anything that has the slightest air of neoliberalism in the hope of building a modern society. It destructs traditional values deliberately and almost obsequiously. The disputable law with unknowable consequences is going to be adopted in the country with a high level of corruption due to wars, economic crisis and moral crisis in all spheres of the social life, with a shortage of organ donors. Many elements of euthanasia issue that violate ethical norms are not under discussion; the one who commits euthanasia is not held criminally responsible for homicide but is exempted from the legal liability instead. It means that the legislator acts as a sovereign. It is not independent. It is influenced by political manipulations of unlimited power. This is not about unlawful conduct, but about manipulated democratic procedure and participants, who, by eliminating the morality in such cases, raise us to the rank of dependents, people with no past and future, and who will fear for their existence while interacting with medicine.

It can be concluded that the most of those euthanized will undergo the procedure not of their own free will, but by the decision of their relatives. Even some of those who are aware of what they are doing and take decisions on their own do not exercise free will but are subjected to economic or social pressure (sale of organs, saving the family from more medical expenses, etc.). By introducing the legislation that allows euthanasia, the legislator replaces the 'sovereign decision' by decision which is 'based on free will'.

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'THE COMPLEX WAY TO THE TRUTH': RESPONSIBLE CHOICES, GOALS AND VALUES. COMMENTARY ON ARTICLE 'SOVEREIGN DECISION' IN THE DISCOURSE OF MEDICAL ETHICS (MIHAILO LUKOVICH, KATARINA MEISTOROVICH, DUNJA KNEZHEVICH)

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In this article, 'Sovereign Decision' has been analyzed in the discourse of medical ethics (authors: Mihailo Lukovich, Katarina Meistorovich, Dunja Knezhevich). The interdisciplinary approach to the issue of axiological dissonance has been justified. It arises at the demarcation line of scientific private interests and society expectations and concerns implementation of research outcomes into the social practice. According to the authors, the 'sovereign decision', the key notion of the research, is a social phenomenon. In it, the legal sense of exclusive authorities becomes the imperative of an informed (ethical) choice in boundary situations of the subject's legal elimination in relation to whom the 'nominal' or 'exclusive' medical decision is taken. By analyzing the issue of the 'sovereign decision' using the examples of vaccine prevention and euthanasia, the authors reveal the dialectic nature of the responsible choice. The issues that go beyond the subject of research seem perspective as well.

Key words: axiological dissonance, medical ethics, responsible choice

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«СЛОЖНЫЙ ПУТЬ К ИСТИНЕ»: ОТВЕТСТВЕННЫЙ ВЫБОР, ЦЕЛИ И ЦЕННОСТИ. КОММЕНТАРИЙ К СТАТЬЕ «СУВЕРЕННОЕ РЕШЕНИЕ» В ДИСКУРСЕ МЕДИЦИНСКОЙ ЭТИКИ (МИХАИЛО ЛУКОВИЧ, КАТАРИНА МАЙСТОРОВИЧ, ДУНЯ КНЕЖЕВИЧ)

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В тексте анализируется работа «"Суверенное решение" в дискурсе медицинской этики» (авторы: Михаило Лукович, Катарина Майсторович, Дуня Кнежевич). Обосновывается междисциплинарный подход к проблеме аксиологического диссонанса, возникающего на линии демаркации частных интересов науки и ожиданий общества относительно внедрения результатов научного исследования в социальную практику. Ключевое понятие исследования М. Лукович, К. Майсторович и Д. Кнежевич «суверенное решение» интерпретируется как социальный феномен, в котором правовой смысл исключительных полномочий приобретает значение императива осознанного (этического) выбора в пограничных ситуациях юридической элиминации субъекта, относительно которого принимается «номинальное» или «эксклюзивное» медицинское решение. Отмечается, что рассматривая проблему «суверенного решения» на примерах вакцинопрофилактики и эвтаназии авторы выявляют по сути диалектический характер ответственного выбора. Выявляется перспективность актуализированных в работе проблем, выходящих за рамки предмета исследования.

Ключевые слова: аксиологический диссонанс, медицинская этика, ответственный выбор

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In professional ethics, 'Kamen spoticanja' is a shift of common key axiological terms to the sphere of professional competencies. The effect produced by the psychocultural factor of perception of the predetermined value paradigm of collective (professional, corporate) dogmatic attitudes should be taken into account when specialists are prepared [1]. For this reason, prevented entry of bioethical knowledge to the peripheral biological expertise is one of the most complex tasks faced while teaching bioethics to medical students [2, 3].

Analysis of the axiological dissonance arising on the line of demarcation of private interests related to science and expectations of the society about how to apply the scientific research results to the social practice requires to review any issues evolved in the extensive subject field of historical, political, legal, and economic factors of interaction between an individual and society. In 'The sovereign decision in the discourse of medical ethics', M. Lukovich, K. Meistorovich, and D. Knezhevich review this issue in the context of a responsible choice. Compliance with the requirements of vaccine prevention and conditions of euthanasia serves as an example.

According to the authors, the 'sovereign decision', the key notion of the research, is a social phenomenon. In it, the legal sense of exclusive authorities becomes the imperative of an informed (ethical) choice in boundary situations of the subject's legal elimination in relation to whom the 'nominal' or 'exclusive' medical decision is taken. Meanwhile, the authors stress that from a historical perspective, 'a sovereign decision belongs to someone who is above the law unlike the individual, who is in the state of natural law and is law subordinate. The freedom of will concerns separate individuals within the society who are subordinate to the laws and are not above them'.

As authors state, the 'complex way to the truth' in these issues is determined by the 'intellectual honesty (ethics)'. The truth is discovered in the 'historical, scientific, political and legal aspects'.

By analyzing the issue of the 'sovereign decision' using the examples of vaccine prevention and euthanasia, the authors reveal the dialectic nature of the responsible choice. It happens because 'vaccination of children upon agreement with those who exercise the sovereign power is a free parental will', but 'the decision is only seems to be free, actually depriving the child from the freedom in relation to the disease the child should be protected from'. As far as euthanasia goes, 'a patient who has taken such a decision is not subject to any law. He will be dead at the time of the act, and the absentee (dead in this case) is not subject to the law, as he is above the law when the decision is taken'. 'By introducing the legislation that allows euthanasia, the legislator replaces the 'sovereign decision' by decision which is 'based on free will'.

Apart from the problem viewed by the authors of the article, the issues that go beyond the subject of research seem challenging as well. In particular, these are 'linguistic issues related to the definition and connonation of terms in medicine'. It should be admitted that in a number of cases, the structures of professional 'dictionaries' optimized for the needs of a certain area of research can display not just a wish to differentiate between the 'competent' and the 'profane', but also confer on them a meaning of something 'sacral and brutal'. This is how the mythologized status of competent knowledge is supported, which, in its turn, can result in a reverse expected social effect — misunderstanding and resulting distrust of a patient. Besides, the disposing logical demarcation can be the basis not just of legitimization of known faults within knowledge itself and in its social interpretation, but also of the axiological substitution similar to 'sovereignization' in a separate field of science noted by the authors.

According to the authors, the 'common global tendency of law harmonization under the influence of neoliberal economics is far from the dream about the Perpetual Peace as seen by Kant two hundred years ago. Regular standards that form the basis of the social ethics occupy less space in the legislation just like the ethics itself, even if used as a corrective measure, with economic logics taking up a larger place. There will be a 'market price' for everything (Kant)'.

It can be assumed, however, that the efforts of the professional society made on the 'complex way to the truth' (which importance is stressed by the article authors) will be rewarded as cognition of truth being an objective of the professional specialist-patient interaction can be intentionally focused on truth as a value. In this case, correlation of highest theoretical objectives and objectively (or at least in a competent way) assessed capabilities of practical science will be the manifestation of truth in specific knowledge that influences the direction and goals of social processes. The actions of the individual and society concerning manifestations of any forms of care (about the children who need vaccination, patients with end-stage disease, etc.) can be defined within the frames of free conscious choice of the maximum practical mercy.

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PROBLEM ZONES OF MODERN DISCOURSE ABOUT EUTHANASIA. ETHICAL ASPECT

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The article analyzes the ethical problems that arise in the process of discourse on voluntary departure from life, examines the ethical aspects of existing views on euthanasia. It is noted that adherence to the principles and rules of biomedical ethics is of particular importance when making decisions regarding the end of life. The paper presents the relationship between the characteristics of modern society and hedonistic tendencies, determined when choosing the value orientations of young people who have chosen medicine as their future profession. In this regard, it is necessary to discuss issues related to the ethical aspects of euthanasia at interdisciplinary platforms in the professional community of representatives of medicine, philosophy, law and religious organizations. The author comes to the conclusion that following the norms of morality in the activities of a doctor, determined by the centuries-old achievements of philosophical thought, predetermines the trajectory of his professional activity in terms of the duty he performs.

Key words: bioethics, new technologies, euthanasia, moral principles, improvement, dying, ethical standards

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ПРОБЛЕМНЫЕ ЗОНЫ СОВРЕМЕННОГО ДИСКУРСА ОБ ЭВТАНАЗИИ. ЭТИЧЕСКИЙ АСПЕКТ

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В статье проведен анализ этических проблем, возникающих в процессе дискурса о добровольном уходе из жизни, рассматриваются этические аспекты существующих взглядов на эвтаназию. Отмечается, что соблюдение принципов и правил биомедицинской этики имеет особую важность при принятии решений относительно конца жизни. В работе приводится взаимосвязь характеристик современного общества с гедонистическими тенденциями, определяемыми при выборе ценностных ориентаций молодых людей, выбравших медицину в качестве будущей профессии. В связи с этим необходимо обсуждать вопросы, связанные с этическими аспектами эвтаназии на междисциплинарных площадках в профессиональном сообществе представителей медицины, философии, права и религиозных организаций. Автор приходит к заключению, что следование нормам морали в деятельности врача, определенное многовековыми достижениями философской мысли, предопределяет траекторию его профессиональной деятельности с точки зрения выполняемого долга.

Ключевые слова: биоэтика, новые технологии, эвтаназия, моральные принципы, улучшение, умирание, этические нормы

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Modern bioethics provides a systemic response to ‘problematic issues’ of ethical and legal nature, which objectively arise under the influence of scientific and technological progress in medicine and in modern clinical practice in particular. Change in the social and economic situation within the countries, globalization, mix of cultural and religious traditions, latest achievements of science and medicine play a major role in awareness of the processes occurring in modern medicine. In our opinion, the most essential distinctive features of the modern society are as follows:

1. Post-modernism. The modern society is often characterized as postmodern. It discards common truth or takes truth as a subjective notion. It is also characterized by a variety and fragmented nature, lack of the single metanarrative.
2. Mass culture. The modern society is strongly influenced by mass culture. Mass communication is essential in establishing values, standards and the way people think. The effect of this is standardization of thinking and loss of individuality.
3. Individualism. Great importance is attached to the individuality and expression of one’s own personality. The individuals strive for self-expression and self-realization, seeking their place in the society and giving importance to own needs and desires.
4. Technological progress. The current technological progress is essential. Development of information and communication technologies influences all spheres of life including healthcare, education, personal life and social communication.
5. Variety and multiculturalism. The Russian society has a specific variety and cultural pluralization. Multiculturalism and globalization resulted in mixing and interaction of various cultures, languages, religions and traditions in Russia and globally. It should be stressed that these are only some possible features of the modern society from the philosophical point of view.

All of the aforesaid demands that a specialist should be well-informed of the processes currently occurring in the modern world. For this, a young man who has taken the path of medicine should be able to properly estimate and comprehend the challenges associated with new technologies and latest medical knowledge including cloning, gene sequencing, prenatal diagnostics, new reproductive technologies, and euthanasia. Within the modern society, where an individual comes across such problems as the right to take an independent decision about the end of life and right to end-of-life assistance, philosophical science deals with anthropological risks of undermining the human nature itself. It becomes obvious that as a subject of clinical medicine and bioethics a modern human needs answers to the following questions:

- What does it mean to be a human?
- What system of values does the human adhere to today?
- How can the limits of what is permitted be determined in modern medicine?

THE CURRENT VIEWS ON EUTHANASIA

It is known that euthanasia is a process, which is closely interrelated with a variety of ethical aspects that produce different opinions and disputes among professionals. The issue of voluntary withdrawal from life is complex due to closely interwoven interests of the personality and society, as the society will never be indifferent to a human life or death. Attitude to euthanasia is determined not just through the consciousness of what death is but also through the fact that life is interpreted as the highest human value. It is what the meaning of life is.

According to the critics of euthanasia, a doctor's activity should focus on the preservation of life and treatment, but not on life termination. The embodiment of 'no harm' principle contradicts the possible consent of a patient and assistance provided by medical personnel. The chance for a terminally ill patient raises objections from those who believe that refusal from the fundamental moral principle of biomedical ethics can have serious complications and lead to the degradation of morality. Is not it a 'slippery slope' in this case? [1]

The phenomenon means that a procedure can be misused or applied in an unnecessary way to an ever-increasing group of people for selfish purposes. According to the specialists who describe manifestations of this phenomenon, it is enough to legalize any disputable medical practice once, and it will be applied more and more frequently, even in case of strict regulation, resulting in extensive application. Another euthanasia-related ethical issue consists in determining when a patient's suffering is unbearable and irreversible. The followers of this opinion are usually afraid that practicing euthanasia can open the way to abuse and violence, as it is complicated to establish a clear line between the way of how to relieve sufferings and the act of violence.

Being guided by the idea of 'common good' and taking into account that modern society is hedonistic, with no evident signs of altruism but with strong nihilistic features both in common culture and civilization culture, followers of euthanasia believe that every person has a right to death with dignity and autonomous right to dispose own body after death and decide when to die. In their opinion, if a patient who suffers a lot due to an incurable disease is aware of his wish to die, he is entitled to such a possibility. Euthanasia supporters emphasize that it is necessary to respect a patient's autonomy and reduce sufferings. Following the euthanasia discourse and reaching beyond conservative traditions in bioethics with human dignity and life value being the focus, liberal bioethics with an emphasis on personal freedoms and achievements of scientific and technical progress is aimed at permissive trends in medicine relating to euthanasia. But if it is believed that the life provided to us is absolute because it is given not as a service or product the person can use the way he desires, but as a gift of a supreme power, the assumption is disputable. Thinking about euthanasia from the perspective of the interrelation between the subjects of clinical medicine, the right to choose the way of departure from life, resulting from the principle of autonomy respect, imposes a function to perform actions aimed to implement this right on another subject. This right is actually granted by a patient/patient's relatives to medical workers and allows to terminate the patient's life intentionally. This approach to euthanasia-related discourse makes the problem public. The society starts perceiving euthanasia as public assistance in passing, and as authorized homicide where euthanasia is legalized.

Kant uttered statement that forms the basis of almost any international and national ethical codes, declarations and other instruments, which regulate the ethical and legal part of medical interventions within the physical and mental human existence: 'Humanity must always be treated as an end, not merely a means to accomplish any tasks, even if they were for the general good' [2]. By formulating the categorical imperative, Kant asserts distinctiveness of every human being through acceptance of an unconditional rule, which can't be violated. He believes that we should always treat reasonable beings as an ultimate goal, but not as an intermediate step or means for something else. 'I can't end your life only because it is difficult for you' [2]. In other words, a human being can't interrupt his life only because it became unbearable. The act (voluntary departure from life) uses the will to terminate it. According to Kant, this contradicts our reasonable nature. Those who apply the principle of sanctity to euthanasia believe that life termination is ethically incorrect under any circumstances. This is an extremely strong requirement of biomedical ethics. It means that the benefit of a person is not just comparable to that of humanity, but is even more significant.

Owing to modern technologies, it is now possible to support life though it was impossible to do so in the recent past. It also prolongs the sufferings of hopelessly sick patients in many cases. Patients do not always take the actions as justifiable.

Euthanasia-related discussion inspires to another ethical issue regarding human 'improvement' and using the latest achievements of science and technologies. If it is impossible to achieve the desired result striving for perfectionism and using the latest science achievements, is not it better to resort to the voluntary departure from life in case of a severe and inevitable disease? Discussing now sentencing for Nazi doctors and researchers who performed inhumane experiments for the benefit of science following formal logics, we can state that followers of liberal bioethics reject moral achievements of the Nuremberg trial. Development of any system, even the most progressive one, which aims at improvement and perfection of human possibilities with no ethical part, is doomed to degradation. A person of today does not only own the body but can also use it at own discretion. It means the person is free to select objectives and means of influencing the body, modify and improve faults or get rid of the bodily form. But it is the person now who is responsible for the outcomes as the unified interpreting traditional community and common metanarrative gave way to the pluralism of instances with different degrees of rationality and scientific validity [3].

So, if failed to consider the ethical factor and feel responsible for the acquired improvements, the society can come across groups of people with certain unique possibilities, including the possibility to take an independent decision about departure from life, which has been embedded in the legislation of various countries. Then they will be put one or even several levels above 'common' and 'not improved' people who were born and have been living on other traditional and cultural territories and have no such a choice.

A human being is dual in nature. Morality is revealed on the other side of the duality through the struggle of immanent and transcendent origins (common and spiritual, empirical and ideal, diabolic and divine, vain and eternal). Commenting on the problem, Augustinus, Kant or Berdyaev, tried to solve it as the key ethical issue. They saw the basic moral issue in the matter of internal contradiction of human existence, how the matter is related to the possible implementation of freedom and how a human being can implement a common and ideal moral principle, which would introduce the individual to the absolute, through certain acts related to private circumstances of life and death [4]. Thus, euthanasia is not permitted within the world view, which treats the life as the highest good.

Moreover, the ethical aspect of euthanasia-related discussion is embodiment of 'no kill' religious rule. Euthanasia definitely contradicts the principle. Modern ethical problems with the main request of doing good to a patient are closely related to such a personal trait of a doctor as mercy. The global healthcare paternalistic positions have been predominant and undoubtful until the middle of the XX century. Today, the doctor's values and ideas of what is good for patients can be counter to what the patients think about the same. By following the 'no harm' principle, biomedical ethics warns future physicians against harming their patients and calls to follow ethical principles and current legislation. We, however, believe that by implementing the 'do good' bioethical principle, which is currently closely connected with comprehension of our society as hedonistic one aimed at the improvement of a human being and constantly exchanging the 'good', a doctor is not able to harm the patient being 'merciful' by nature and following his mission as a physician. Ethical culture of a physician is a constituent of medical professionalism. It should be and is applied to all specialties having specific features in every case [5].

MATERIALS AND METHODS

In this article, we do not set the task of determining the views of various groups of individuals 'for' and 'against' the voluntary departure from life. There has been enough research, which reflects opinions of doctors, medical students, and paramedical personnel; it always leads to a great interest of researchers. But as the modern society is hedonistic, not inclined to self-sacrifice and patience, but is more oriented on improvement and search of the good, we'd like to cite the interview held among the first-year students from the Orel State University in 2021. The students were asked about their values. In our opinion, the research outcomes display how representatives of the modern society perceive their selected profession and entire life and give a sense of values among young people. 300 first-year students admitted to the University in 2021 were interviewed.

RESEARCH OUTCOMES

By analyzing the diagnostics of the real structure of a personality's values, the following kinds and types of values enumerated by medical students from Orel State University have been analyzed and grouped (fig.).

It is illustrative that pleasant pastime and rest (selected by 98% of those interviewed), assistance and mercy to others (97%), searching for and enjoying the beautiful (76%) and being respected by people and having influence (75%) are in the same line. They are followed by high social status (49%) and understanding new things in the world and nature (48%). For first-year students, cognition and high social status are more important, whereas health and love go to the background. Philosophical knowledge allows to review the outcomes via the prism of moral and ethical knowledge and draw analogies between the features of the hedonistic society and other outcomes. In the modern society, hedonistic tendencies can be observed in various aspects.

1. Consumer culture: the society of today is consumer-oriented, where satisfaction through consumption of goods and services is essential. People try to enjoy their life to the fullest extent by acquiring material goods and luxury to be satisfied.

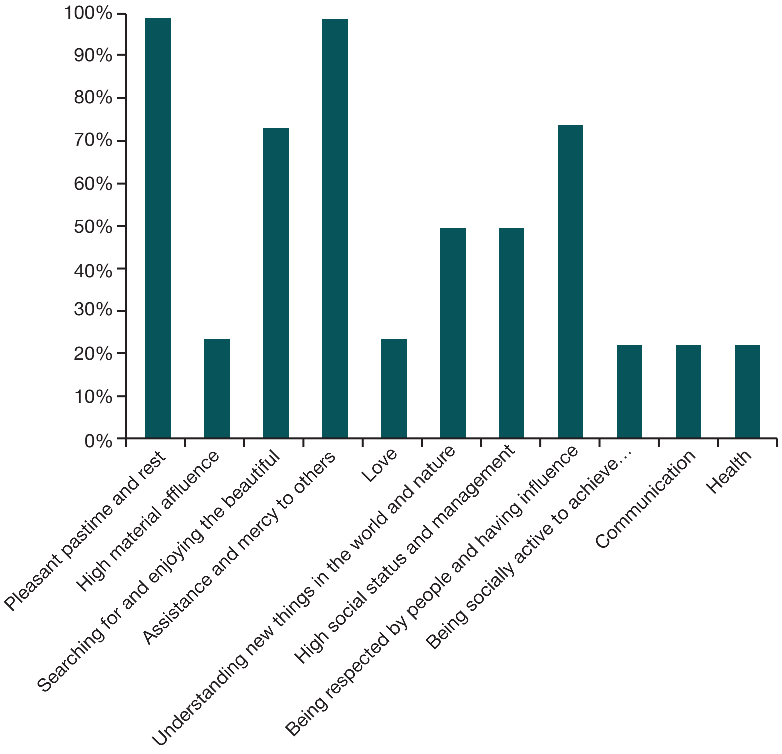

Fig. Diagnostics of the real structure of a personality's values

2. Entertainment and entertaining industry: modern technologies and entertaining possibilities enable people to enjoy various forms of entertainment such as games, movies, music, social networks, fun and rest. They satisfy our need in pleasure and rest.
3. The individualistic approach to life: within the hedonistic society, every individual tries to satisfy own needs and be happy. Separate personal interests and individual well-being occupy the central position.
4. High degree of freedom and autonomy: the modern society is freer and more autonomous in taking decisions about the life and gaining satisfaction. People can choose and be flexible creating conditions for their hobbies.

It should, however, be noted that hedonism as the life style has disadvantages and limitations. Hedonism is mainly criticized due to potential negligence of moral and ethical aspects, and possible occurrence of emptiness and lack of meaning in life.

CONCLUSIONS

To make proper decisions and determine own positions and ethical reference points under the changing biomedical conditions, in the view of latest achievements of scientific and technological progress, where the legal area often lags behind the ethics, bioethics is turned into the dialogue field both for specialists, and medical students. It is used by philosophers, religious leaders, doctors, lawyers, state and political leaders to discuss the issues of voluntary departure from life and end-of-life issues. All aspects of euthanasia discourse result in complex ethical dilemmas. Various positions on this issue can be available within the society. It is essential to have in-depth debates and consider the opinions of different parties to find the optimal solution that takes into account both human sufferings, and ethical standards of the society. However, comparing the arguments ‘for’ and ‘against’ the legalization of euthanasia of scientists and specialists, we find the counterarguments as more fundamental and ethical. When ‘Grounding for the metaphysics of morals’ was published for the first time, Kant was accused of no new ethical principles created; he stressed the arrogance of philosophers who wished to establish the new ethical principles, as if no prior scientific thought was aware of the concept of duty. Kant was proud to find not a new moral principle, but a new formula of human existence. According to it, moral was embedded into the human mind, but not in the environment.

The idea of responsible existence of a person in the world is the ethical emphasis of Kant’s philosophy. A person who decides to be a doctor can’t step over ethical standards and rules while carrying out the professional activity. Fulfillment of duty became the foundation for the selected way many centuries ago.

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