SCHOOL OF RESEARCH ETHICS. AXIOLOGY OF BIOETHICS AND CHALLENGES OF TECHNOLOGICAL DEVELOPMENT

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Intensive development of modern science expands the scope of bioethical issues. Debates on ethical aspects of bioinformatics, neurotechnology, genetics, bioeconomics, ethics of preclinical and clinical trials are actively developing. Axiology of bioethics is of particular relevance. It is the structure of valuable categories that determines the priorities of 'human science' development taking into account the historical experience of interaction between a person and community, and criteria of civilized changes in the actual and perspective (prognostic) sense. Development of bioethical axiology is influenced by the challenges of technological development of the current decade, the issues that objectively demand a reaction on the part of the state and society. One of the main tasks of modern bioethics is to develop bioethical thinking, and grounds for using bioethical axiology in the scientific process. Health axiology, which represents a fixed conscious attitude to the issues of health developed during the academic process to be subsequently used during a labor process, is practical expression of bioethical thinking. Bioethical dialogue is essential as it urges young perspective specialists to examine novel bioethical scientific issues and achieve technological country-specific goals. Focus on young scientist's potential totally corresponds to the cross-cutting goal of axiological, prognostic and educational tasks of bioethics. Bioethical thinking is developed based on the experience of the school of ethics of scientific research, which is an educational project intended for young Russian researchers.

Keywords: bioethics, axiology, health, bioethical thinking, research process

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ШКОЛА ЭТИКИ НАУЧНЫХ ИССЛЕДОВАНИЙ. АКСИОЛОГИЯ БИОЭТИКИ И ВЫЗОВЫ ТЕХНОЛОГИЧЕСКОГО РАЗВИТИЯ

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Интенсивное развитие современной науки расширяет диапазон биоэтических проблем. Активно развивается дискуссия по вопросам этических аспектов биоинформатики, нейротехнологии, генетики, биоэкономики, этики доклинических и клинических исследований. В связи с этим приобретает особую актуальность тема аксиологии биоэтики — структуры ценностных категорий, определяющих приоритеты развития «наук о человеке» с учетом исторического опыта взаимодействия личности и социума, критериев цивилизационных изменений в актуальном и перспективном (прогностическом) значении. На развитие биоэтической аксиологии оказывают влияние вызовы технологического развития текущего десятилетия, проблемы, объективно требующие реакции со стороны государства и общества. Одной из важнейших задач современной биоэтики является формирование биоэтического мышления, оснований применения биоэтической аксиологии в научно-исследовательском процессе. Практическим выражением биоэтического мышления является аксиология здоровья — закрепление осознанного отношения к проблемам здоровья, формируемого в учебном процессе с целью дальнейшего применения в трудовом процессе. Биоэтический диалог важен для решения задач привлечения молодых перспективных специалистов к изучению новых биоэтических вопросов науки, к достижению поставленных на уровне страны технологических целей. Нацеленность на потенциал молодых ученых полностью соответствует сквозной цели аксиологических, прогностических и образовательных задач биоэтики. Формированию биоэтического мышления способствует опыт Школы этики научных исследований — образовательного проекта для молодых российских исследователей.

Ключевые слова: биоэтика, аксиология, здоровье, биоэтическое мышление, исследовательский процесс

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Evolution of modern bioethical discourse that reflects the trajectory of scientific and humanitarian knowledge development rests with the axiological potential of major principles of ethical regulation of scientific and technological progress.

Axiology of bioethics is the structure of valuable categories, which determine the priorities of developing the 'human science' taking into account the historical experience of interaction between the personality and society, criteria of civilized changes in the actual and perspective (prognostic) sense.

Development of bioethical thinking and grounds for the practical use of bioethical axiology during the research process is one of the most important tasks of modern bioethics.

Axiological bioethical interval arranges both general-purpose issues including the issues of correlation between moral, ethical and legal imperatives of the ethical choice, 'health axiology', other categories and their value in the practical activity of the specialist, and applied and deontological issues.

The problems, which are solved by modern bioethics, are based on 'eternal dilemmas', which are inevitably faced by a person during every stage of science and technology evolution. The issues of freedom and responsibility of a person, 'sense of existence', meanings of 'justice', 'due' and 'benefit' categories formed a subject area of ethics as 'ethos' philosophy, which is a detailed reflection of social reality.

Development of social relations required codification and classification of universal values, including the collective reception of historical experience of moral and legal regulations of the professional activity involving the area of medical knowledge and science as a whole.

Since the days of Aristotle (Nicomachean Ethics), there existed a tradition, in accordance with which 'wisdom' was defined as 'scientific knowledge and comprehension of things, which are the most valuable by nature'. Thesis of Potter VR, who was a founder of the bioethical concept (Bioethics: Bridge to the Future, 1971), continued this thought that reflected sociocultural realities of the XX century as follows: ''Mankind is urgently in need of a new wisdom that will provide <knowledge of how to use knowledge> for man' s survival and for improvement in the quality of life… that would combine two most essential and extremely necessary elements such as the science of biology and human values. I coined a new term "bioethics" to denote it' [1]. The methods of the 'science of biology' suggested by Potter VR formed the basis of the modern bioethical discussion and experience of implementing the ethical principles in practice.

By the middle of the XX century, the global community went through several self-determination landmarks regarding establishment of fundamental principles of global ethics. The Nuremberg Code, the provisions of which were formulated while assessing the consequences of World War II and that still remain relevant in the XXIth century, belonged to one of the first and most fundamental steps in this direction [2]. Another essential step of establishing parameters of research ethics and human experiments is represented by the Declaration of Helsinki (1964) developed by the World Medical Association as a code for ethical principles for a medical community. The relevance of this international instrument, the sixtieth anniversary of the adoption of which will be celebrated in 2024, is supported by modern practice.

Unlike the codes that generalize the previous experience of science development, Potter VR concludes that a global strategy and 'scientific and philosophical concept' of social progress built on 'comprehension of long-term wisdom' are required.

The starting point of bioethics asserts that it is necessary to develop the technologies taking into account the factor of 'dangerous knowledge', which is 'accumulated more rapidly than the wisdom required to control it'. Developing the idea of Aristotle, Potter VR asserts that 'science implies moral knowledge, but it is not wisdom yet. Wisdom means to know how to use the achievements of science and how to balance the science with other areas of human knowledge to achieve collective wisdom'. 'Until part of social attempts is not devoted to the search of wisdom, scientific research won't add value to the society' [1].

According to Potter VR, 'bioethics should strive to reproduce wisdom, recognizing existence of the biological world and human nature and comprehending how the obtained knowledge can be used to reach the social value'. The realistic view of human possibilities 'could not be wisdom at all if not supported by the humanistic and ecological world view'.

Thus, the bioethical strategy of Potter VR is postulated as a scientific concept and revealed both as the worldview, and as the axiological paradigm, which is a pattern of target setting and searching solutions.

Criteria of human life and health determined in the WHO Constitution and reflected in the definition of article 2 of Federal Law as of 21.11.2011 No. 323-ФЗ (as amended on 25.12.2023) 'On fundamental healthcare principles in the Russian Federation (with amendments and additions entering into force since 05.01.2024): 'Health is physical, mental and social human well-being, when diseases and disorders of the functions of organs and systems of the body are lacking' constitute the basis of the axiological interval of bioethics.

Thus, basic values of life quality include a set of physical health parameters, criteria of mental and social well-being, factors of spirituality, mobility and environment that constitute an integrative value of life quality ranging from the maximum satisfaction to the lower boundary of the optimum denoting the minimal permissible level of the functional correlation of life quality indices for a certain individual.

A ratio of additional factors that influence the value of human quality of life and health criteria, definition of the optimum (morality and law) lower border, and requirements to implementation of human rights set by the educational and professional standards should be taken as a separate issue.

Challenges of technological development of the current decade set in the Order of the Government of the Russian Federation s of May 20, 2023 No. 1315-p, influence bioethical axiology [3]. Challenges of technological development is a set of problems, threats and possibilities in the area of development and implementation of technologies, that calls for a reaction from the state and society. The complexity and scope of the problems make it impossible to solve, eliminate or implement without structural changes due to an increase in resources only. The concept of technological development of Russia until 2030 includes ten 'end-to-end technologies' and eight directions of industrial development, including artificial intelligence and manufacture of medicinal agents.

Use of systemic processes of science and manufacturing system development is a way to develop the Russian manufacture. The functions of state institutions include establishing and ensuring transparent and stable regulatory rules of behavior and interaction of subjects of technological development, strategic planning and target setting. Improvement of scientific directions and implementation of results into practice means that 'there is a need in a systemic change of approaches to scientific and technological development of the country'. These processes expect optimization of the bioethical paradigm that reflects a real progress achievement.

Creation of technological conditions for the social and economic development of the country in accordance with the national purpose of development of the Russian Federation until 2030 and national interests provides for the creation of own scientific, personnel and technological base of critical and cross-cutting technologies, including the ones that provide for manufacture of high-technology products, including medicines and medical equipment, technology of new materials and substances, their modeling and development.

New trends of scientific research alter the expanding horizon of the bioethical regulation sphere, constitute the subject of bioethical discourse and determine the vector of bioethical axiology.

Modern ethics embraces a wide range of issues which are pressing for the technological civilization level in the XXI century. They include ethical issues of productive health and regenerative medicine, ethics of donorship, bio- and nanotechnologies, accessibility to medical aid, environmental ethics and diversity issues. Ethical aspects of bioinformatics, neurotechnology, biomedical law and bioeconomics have been of a great importance during the last decades. The role of bioethical issues of genetics increases significantly. During the General Conference of the 42nd session of UNESCO (Paris, 2023), there was a need in normalization of ethical aspects of neurotechnology and associated health threats.

The common basis for bioethical discussions consists of ethical aspects of preclinical and clinical trials, including the issues of confidential personal data, objective trial-related information, compliance with the principle of informed voluntary consent, trial risks and associated compensation of health harm.

The vector of bioethical research in Russia includes general target setting of science and technology development within the Strategy of science and technology development of the Russian Federation approved by the Presidential Decree of the Russian Federation as of December 1, 2016 No. 642 'On the strategy of science and technology development in the Russian Federation' in conjunction with the national development purposes.

It is necessary to mention the value of bioethical dialogue regarding involvement of science to deal with new bioethical science issues, and achievement of country-specific technological targets of young perspective specialists. On November 28–30, 2023, the 3rd Congress of Young Scientists was held on Sirius federal platform where a session entitled 'Scientific search and ethical and legal issues of research activity' was organized as a working group meeting on regulatory legal environment and bioethics in the sphere of genetic technologies.

Focus of young scientists on the potential totally corresponds to the cross-cutting goal of axiological, prognostic and educational bioethical ethics.

Potter VR noticed that 'a new generation of scientists should be formed on the basis of broad complex education in the area of fundamental human trials, humanitarian and social sciences', which are combined to 'generate wisdom' and solve 'remote and long-term human issues'. 'The study purpose… will be to create the concept of order using the categories of morality, traditions, customs and law'. 'The obtained results should be used in the educational system as soon as possible'.

The main task of bioethical research is to develop bioethical thinking. Bioethical thinking means conscious use of bioethical axiology in the scientific process. Bioethical thinking means successive and continuous conceptual correlation of professional knowledge and its such axiological periphery as 'knowledge about knowledge'. The correlation is determined using a strict bioethical argumentation.

During formation of bioethical ideas, it is important to repudiate the conceptual correlation between bioethical 'knowledge (wisdom) about knowledge' and scientific knowledge. To implement this, it is necessary to take into account the influence of psycho-cultural perception factors.

For this, it is necessary to prevent the reduction of bioethical knowledge into the optional information, overcome the artificial gnoseological barrier, that virtually separates biology from bioethics using the scientific status, and conceptual integration of bioethical model into gnoseological the pattern of scientific ideas [4].

Health axiology — consolidation of conscious attitude to health issues developed during the academic process for the purpose of subsequent use during the labor process — is practical implementation of bioethical thinking.

Formation of a complex idea about ethical and deontological basis of medical and research ethics is basic when a reasonable attitude to health issues is being fixed. Complex analysis of professional demands, which a medical professional and researcher comes across during a daily life, is an aspect of the educational function of modern bioethics as an academic discipline.

Moral health and capacity for active mercy are essential in comprehension of health within the tradition of the national medical school. Uglov FG wrote: 'be rational about the health you were given at birth, and appreciate this beautiful and precious gift'. According to St Luke (Voyno-Yasenetsky), 'the purpose of life is perfect love and impeccability. To achieve this, we need to purify our heart continuously'. Relevance of this approach is confirmed with the initiative on consolidation of efforts from representatives of medical education and practical healthcare, secular society and confessional alliances solving general pressing ethical tasks [5].

Correlation of bioethical theory and practice is seen through the processual bioethical model with a phased sequence of responsibility disclosure [6]. In particular, the objective assessment of the need in planning the research is associated with the issues of biobanking and bioanalytics development [7].

The cross-cutting nature of ethical principles is seen in the context of ethics of goals and ethics of means. Axiological succession of the research process and following the priorities prevent the incongruity of conceptual ideas and instrumental tasks of the research.

Ethics is a regulator of research activity in close interrelation with law. In historical aspect, ethical systems (moral norms) with potential axiological extrapolation based on objectivity, applicability and specificity were used as the basis of legal regulations. Modern international agreements and national legislation regulate both general issues of ethical regulation, and separate aspects of rendering medical aid and research practice. Legislation of the Russian Federation provides for legal support of development and improvement of ethical regulations in all directions of research activities. Collections of materials are published to systematize and update the data [8, 9].

Search of answers to ethical questions that arise during the research process is not limited to the formal sphere only and constitutes the essential foundation of the moral self-determination of the scientist. In the XXI century, the following words of Lomonosov MV are still valid: 'Explore all the time what is great and mighty!'

CONCLUSIONS

Modern bioethics rests upon the pressing achievements in the area of naturalistic and sociocultural knowledge providing human life and society values and well-being.

The 'interdisciplinary status' reflects the axiological and prognostic potential of bioethics as a developing perspective scientific direction.

The bioethical concept in Russia sums up the world-view value priorities of the scientific community as per the legislation and taking into account the historical experience of Russian healthcare, general target setting of science and technology development, criteria of progress in the actual and perspective (prognostic) sense.

Bioethical thinking is a conscious use of bioethical axiology in scientific research, healthcare and social practice based on the successive and continuous sense correlation between professional knowledge and its axiological periphery ('knowledge about knowledge').

Bioethical discourse of scientific knowledge helps to overcome cognitive rigidity and improves formation of reasonable grounds of specialists' proactivity.

Consolidated moral efforts of everyone interested in progressive science and introducing achievements of science into practice are essential for subsequent development of bioethics. Experience of the School of Research Ethics — educational project for young Russian scientists — contributes to that to a large extent [10].

References

1. Potter VR. Bioetika: most v budushcheye. 2002; 216 s. Russian.
2. Chuchalin AG, Sayamov Yu N. K 75-letiyu nachala Nyurnbergskikh protsessov i sozdaniya Nyurnbergskogo kodeksa: global'noye znacheniye i neprekhodyashchiye uroki. Meditsinskaya etika. 2021; (1): 6–11. Russian.
3. Rasporyazheniye Pravitel'stva Rossiyskoy Federatsii ot 20.05.2023 № 1315-r. Ofitsial'noye opublikovaniye pravovykh aktov. Available from URL: http://publication.pravo.gov.ru/document/0001202305250050 (accessed 26.01.2024) Russian.
4. Firsov DYe, Aybabina Ye V. Psikhokul'turnyye faktory formirovaniya bioeticheskoy kompetentsii u studentov meditsinskogo vuza. V sbornike: Voprosy otechestvennoy i zarubezhnoy istorii, politologii, sotsiologii, filosofii, obrazovaniya. Materialy konferentsii. Yaroslavl': Yaroslavskiy gosudarstvennyy pedagogicheskiy universitet im. K. D. Ushinskogo, 2022; 219–224. Russian.
5. Khokhlov AL, Zhbannikov PS, Zarov AYu, Firsov DYe, Shkurankov AV, Makarov SV. Obrazovaniye, zdorov'ye, miloserdiye. Podgotovka sester miloserdiya v Yaroslavskom meditsinskom universitete. Meditsinskaya etika. 2023; (4): 4–6. Russian.
6. Tomashov VV, Firsov DYe. Protsessual'naya bioeticheskaya model' realizatsii professional'noy otvetstvennosti. V sbornike: Aktual'nyye problemy sovershenstvovaniya vysshego obrazovaniya: materialy konferentsii. YarGU, 2018; 392–394. Russian.
7. Orlova NV, Suvorov GN, Gorbunov KS. Etika i pravovoye regulirovaniye ispol'zovaniya bol'shikh baz dannykh v meditsine. Meditsinskaya etika. 2022; (3): 4–9. Russian.
8. Pantuyev PA, Gumarova AN. «Biblioteka bioetiki»: vklad v razvitiye obrazovaniya (Retsenziya na mnogotomnoye izdaniye) M.: Veche, 2019–2022. T. 1–10. Meditsinskaya etika. 2023; (2): 9–13. Russian.
9. Firsov DYe, Miroshnikov AYe, Pozdnyakov NO. Obzor rukovodstva dlya komitetov po etike «Eticheskaya ekspertiza biomeditsinskikh issledovaniy: prakticheskiye rekomendatsii» (tret'ye izdaniye, ispravlennoye i dopolnennoye). Pod obshchey redaktsiyey A. L. Khokhlova. Meditsinskaya etika. 2022; (1): 10–13. Russian.
10. Shkola etiki nauchnykh issledovaniy. Available from URL: https://ethic.nriph.ru. (accessed 03.02.2024). Russian.

Литература

1. Поттер В. Р. Биоэтика: мост в будущее. 2002; 216 с.
2. Чучалин А. Г., Саямов Ю. Н. К 75-летию начала Нюрнбергских процессов и создания Нюрнбергского кодекса: глобальное значение и непреходящие уроки. Медицинская этика. 2021; (1): 6–11.
3. Распоряжение Правительства Российской Федерации от 20.05.2023 № 1315-р. Официальное опубликование правовых актов. Режим доступа: [Электронный ресурс]. URL: http://publication.pravo.gov.ru/document/0001202305250050 (дата обращения 26.01.2024).
4. Фирсов Д. Е., Айбабина Е. Potter Психокультурные факторы формирования биоэтической компетенции у студентов медицинского вуза. В сборнике: Вопросы отечественной и зарубежной истории, политологии, социологии, философии, образования. Материалы конференции. Ярославль: Ярославский государственный педагогический университет им. К. Д. Ушинского, 2022; 219–224.
5. Хохлов А. Л., Жбанников П. С., Заров А. Ю., Фирсов Д. Е., Шкуранков А. В., Макаров С. В. Образование, здоровье, милосердие. Подготовка сестер милосердия в Ярославском медицинском университете. Медицинская этика. 2023; (4): 4–6.
6. Томашов В. В., Фирсов Д. Е. Процессуальная биоэтическая модель реализации профессиональной ответственности. В сборнике: Актуальные проблемы совершенствования высшего образования: материалы конференции. ЯрГУ, 2018; 392–394.
7. Орлова Н. В., Суворов Г. Н., Горбунов К. С. Этика и правовое регулирование использования больших баз данных в медицине. Медицинская этика. 2022; (3): 4–9.
8. Пантуев П. А., Гумарова А. Н. «Библиотека биоэтики»: вклад в развитие образования (Рецензия на многотомное издание) М.: Вече, 2019–2022. Т. 1–10. Медицинская этика. 2023; (2): 9–13.
9. Фирсов, Д. Е., Мирошников, А. Е., Поздняков, Н. О. Обзор руководства для комитетов по этике «Этическая экспертиза биомедицинских исследований: практические рекомендации» (третье издание, исправленное и дополненное). Под общей редакцией А. Л. Хохлова. Медицинская этика. 2022; (1): 10–13.
10. Школа этики научных исследований. Режим доступа: [Электронный ресурс]. URL: https://ethic.nriph.ru. (дата обращения 03.02.2024).