

## Medical Thinking in the Light of Classical, Non-Classical and Post-Non-Classical Rationality

Inesa KHMELIAR <sup>1</sup>  
Lesia KUSHNIS <sup>2</sup>,  
Dmytro FYLYPIUK <sup>3</sup>,  
Dmytro LYSYTSIA <sup>4</sup>  
Ganna SHARAPA <sup>5</sup>  
Oleksii MARKOVYCH <sup>6</sup>

<sup>1</sup> Candidate of Pedagogical Sciences, Head of the Educational and Methodical Department, Professor of Chemical and Pharmaceutical Disciplines Department, Municipal Institution of Higher Education "Rivne Medical Academy" of Rivne Region Council, ORCID ID:

<https://orcid.org/0000-0002-5161-6716>,  
[hmeliar@ukr.net](mailto:hmeliar@ukr.net)

<sup>2</sup> Candidate of Pedagogical Sciences, Associate Professor of Chemical and Pharmaceutical Disciplines Department, Communal Institution of Higher Education "Rivna Medical Academy" of Rivne Regional Council, ORCID ID:

<https://orcid.org/0000-0003-0951-3024>,  
[lesjunaborisiuk@gmail.com](mailto:lesjunaborisiuk@gmail.com)

<sup>3</sup> Teacher of Obstetrics, Gynecology, Reproductive Health and Family Planning of Municipal Institution of Higher Education "Rivne Medical Academy" of Rivne Region Council, ORCID ID:

<https://orcid.org/0000-0002-2041-1961>,  
[vidilkadriv2019@gmail.com](mailto:vidilkadriv2019@gmail.com)

<sup>4</sup> Candidate of Pedagogical Sciences, Associate Professor at the Department of Fundamental Disciplines of Municipal Institution of Higher Education "Rivne medical academy" of Rivne Regional Council, ORCID ID:

<https://orcid.org/0000-0003-3416-5543>,  
[dimafox1@gmail.com](mailto:dimafox1@gmail.com)

<sup>5</sup> Candidate of Pedagogical Sciences, Senior Lecturer, Department of Medical Preventive Discipline and Laboratory Diagnostics, Rivne Medical Academy, ORCID ID:

<https://orcid.org/0000-0002-2769-2700>,  
[Charapa@i.ua](mailto:Charapa@i.ua)

<sup>6</sup> Candidate of Pedagogical Sciences, Associate Professor at the Department of Physical Therapy, Ergotherapy of Municipal Institution of Higher Education "Rivne medical academy" of Rivne Regional Council, ORCID ID:

<https://orcid.org/0000-0001-7917-3382>,  
[markovych00@gmail.com](mailto:markovych00@gmail.com)

**Abstract:** *In the modern theory and practice of medical sciences, one can observe the proximity of various types of rationality, which determine both the direction and quality of thinking. This is due both to the heterogeneity of the development of various areas of medical culture and clinical thinking. This determines the relevance and expediency of the study, associated with the need to distinguish between the prevailing methods of rationality of medical thinking; to determine its direction and, accordingly, the effectiveness in the activities of medical workers. The definition of the limitations inherent in a particular type of scientific rationality in relation to medical thinking. This approach makes it possible to overcome the limitations associated with foundations of thinking in one form or another of scientific rationality, thereby expanding the heuristic possibilities of medical thinking itself as such. To achieve the goal of the study, methodological practices of philosophical reflection and analysis of thought processes are used. Classical rationality is characterized by a mechanistic approach to a person; non-classical rationality is characterized by the penetration of researchers into the microcosm and a corresponding expansion of ideas about reality; post-nonclassical rationality is characterized by a search for integrity and interactions, as well as human-dimensional research practices. The main conclusion arising from the study was the statement that medical thinking is characterized by the use of various types of rationality, which determines both the deontological approach to the patient, based on appropriate medical anthropology, and the choice of strategies and methods of treatment.*

**Keywords:** *Ontology of corporality, heuristic possibilities of thinking, types of scientific rationality, history of medical thought, medical anthropology.*

**How to cite:** Khmeliar, I., Kushnir, L., Fylypiuk, D., Lysytsia, D., Sharapa, G., Markovych, O. (2023). Medical Thinking in the Light of Classical, Non-Classical and Post-Non-Classical Rationality. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*, 14(3), 469-479. <https://doi.org/10.18662/brain/14.3/485>

## Introduction

In modern ideas, both about thinking in general and specifically in medical thinking, the dominance of classical scientific rationality, which is characterized by a utilitarian mechanistic approach to the cognition of reality, is largely dominated. In addition, it should be noted that this approach seems to be the only possible one and, accordingly, it is impossible to disidentify with it and realize its limitations. This fully applies to the sphere of medical thinking. Here the consequences of such an approach often have tragic ones. Moreover, this is typical both for specialists-researchers and doctors of practitioners, and for their patients.

In addition, this approach, in our opinion, significantly reduces heuristic possibilities of thinking, due to the limitations and affects that arise. Which, in turn, determine strategies and results of treatment.

It should also be stated that medical knowledge has largely departed from physical knowledge and, as a result, has lagged far behind it. A striking example of the above is the total dominance of pharmacological methods of treatment.

The cultural and intellectual space of medicine is grasped and comprehended by practitioners of medical thinking, which can be defined as thinking aimed at finding ways to heal a sick person. The movement of medical thought is carried out in the spaces of human bodies, the worlds of hospitals and diseases. The carrier of medical thinking can be both an educated doctor and a person who has an extremely indirect relationship to serious medical knowledge. They are united by the space of the disease: their own, loved ones, patients. There are many ways to think about diseases. It is possible to localize thinking within a particular diagnosis. You can think at the level of bodily integrity, at the level of social interactions. The quality of medical thinking is influenced by the ontology of medical knowledge, which is present in the background in the human mind. As well as medical anthropology and, in general, medical culture. And also, from the type of scientific rationality inherent in this person. In the practice of medical thinking, a situation is possible in which in the mind of the thinker there is a holistic image of the ideal end product of treatment - the image of a healthy person, which, according to WHO (World Health Organization), sounds like a state of spiritual, mental and bodily well-being. There are situations when medical thinking is focused on eliminating the symptoms of the disease, and not on its cure. In the process of medical thinking, a systematic multidimensional approach is possible, and an exclusively formalized protocol approach is also possible. Such different approaches in the practice

of medical thinking are directly related to peculiarities of the development of the tradition of medical science and practice.

The hypothesis of the study is that modern practices of medical thinking still gravitate towards the discourse born of classical rationality. This largely limits both the scientific research potential of medical thought and the practical medical one, reducing the possibilities of diagnosis and choice of treatment strategies.

The aim of the study is to analyze the possibilities and limitations of various historical types of scientific rationality in the practice of medical thinking. As a research method, logical and system analysis is used, as well as the practice of thinking reflection.

The theoretical and practical significance of the results obtained lies in the analysis of the limitations and substantiation of possibilities of using certain types of scientific rationality in the practice of medical thinking. And, thereby, increase its heuristic potential by using new approaches and practices.

**Objective of the article.** Achieving the goal of analyzing possibilities and limitations of using various types of historical rationality in order to expand the heuristic potential of medical thinking determines the solution of the following tasks:

- Based on a review of the literature, give a working definition of medical thinking, distinguish between its types and, to a certain extent, carry out cartography.
- To meaningfully reveal the principles of the practice of medical thinking within the various historical types of scientific rationality.
- Analyze the main factors that determine medical thinking.
- Show the possibilities of modern types of scientific rationality in expanding the heuristic potential of medical thinking.

The aim of the article is to study possibilities of increasing the heuristic potential of medical thinking, based on the disclosure of its features within various types of scientific rationality.

**Medical thinking as a specific mental activity of a doctor.** A sufficiently complete definition of medical thinking is given by Naumov (1983), understanding medical thinking as a specific mental activity of a doctor, providing an integral effective use of scientific research data and personal experience. At the same time, the author emphasizes the focus of this integral assembly of knowledge and experience on the situation of specific circumstances in which the patient is located and characteristics of the course of his disease. Of particular importance is the definition by Naumov

as the core of medical thinking - the construction of both a static and dynamic picture of the disease, which has a holistic and synthetic character. Such an approach includes the integration of thinking and cognitive abilities of the doctor, allowing, at the level of interactions between the integrity of the patient and doctor, to make the correct diagnosis and outline a treatment strategy.

Kuhn in his work "The Structure of Scientific Revolutions" essentially initiated the study of the study of science and technology in the context of specific thinking practices. In the context of this study, the historical vector of the development of medical thought and its critical analysis in the context of determining historical types of scientific rationality are of particular importance (Vasiliev, 2005; Kundiev, 2013; Saienko, 2010).

Modern works by Foucault, Mol, Thompson, Cambrosio and Keating show the possibilities of post-non-classical rationality in grasping the integrity of a person, the integrity of his corporeality and a multidimensional view of his diseases and their causes.

Such practices in modern medical thinking, in our opinion, reveal the serious heuristic potential of medical thinking, taking it beyond the determinism characteristic of the modern era. The most important element of post-non-classical nationality is the mental containment of the fact of life in an underdetermined world. Without replacing the underdetermination of various levels with schematic constructions and conceptualizations. This fact also increases the heuristic potential of thinking, returning a person to the state of "beginner's consciousness", "beginners are lucky" and the ancient "I know that I know nothing."

Cassirer (1944) in the history of human research identifies the following periods:

- metaphysical in antiquity;
- theological in the Middle Ages;
- mathematical and mechanical in the New Age;
- biological.

Foucault (1963) reflected the interaction of clinical interactions in unity with clinical thinking, revealing the approach of relationship and integrity of the practices of medical thinking in modern conditions. Mol revealed the integrity, multidimensionality and internal coherence of the processes occurring in the course of the treatment of the disease, based on a detailed understanding of ethnographic and praxiographic material.

Consideration of creative thinking practices in the context of post-non-classical understanding of a person creates a theoretical basis for

expanding the heuristic potential of medical thinking practices (Nerubasska, 2020a; Spassky, 2021).

Reflection of medical thinking in the context of deconstruction of its foundations is carried out on the basis of research in the field of reflection of thinking, analysis of historical types of scientific rationality and medical anthropology, which essentially integrates ideas about a person in terms of his diseases and their treatment. Modern approaches to the definition and analysis of the ontology of corporeality are also used, which allow showing directions of ontologization of the results of medical thinking practices.

Of particular importance is the critical analysis of the so-called "fading" of medical thinking at its various levels in discourses of classical scientific rationality, associated both with the traditional conservatism of the medical sphere and with other socio-political and even economic factors.

At the most general level, it is possible to map medical thinking, with a certain degree of conventionality, by delimiting it into directly clinical, research, and household thinking. Different types of thinking may well coexist simultaneously with different types of thinking. For example, the so-called pre-scientific approach can coexist at the same time with both classical rationality and non-classical rationality. Such intersections can occur at levels of both clinical and scientific research and everyday types of medical thinking.

### **Dependence of Medical Thinking on Different Types of Scientific Rationality**

Let us consider the dependence of medical thinking on the influence of various historical types of scientific nationality. It can be argued that in the vast majority of cases, medical thinking of a person is limited by the boundaries of classical nationality. This is due to historical conditions for the development of medical knowledge and medical culture. In this state of affairs, a mechanistic approach to man and the world around him dominates. Thus, the disease is perceived as a mechanical breakdown of the body, isolated from other diseases and interactions both inside the body and in the external space of a person's life. The limitations imposed on thinking by the approach of classical nationality, in fact, do not allow us to capture a person as a whole. This is how the medicine of the modern era acted and still operates.

In the course of the development of natural sciences, a breakthrough into the space of the microcosm was made. This led to the emergence of a new type of scientific rationality - the non-classical one. In the perspective of non-classical rationality, the boundaries of medical thinking can be

significantly expanded, which is exactly what happens in the most advanced areas of medical practice and deep pharmacology. The possibilities of body treatment at the level of microparticles are revealed. Thus, medical knowledge to a certain extent converges with physical knowledge. In addition, the special role of the observer in the course of various processes is disclosed. Then another historical type of scientific rationality appears, called in the literature post-non-classical. The discourses of human-dimensional knowledge, identity and wholeness of a person are expanding. The idea of a person as a complex multidimensionality is expanding. Under these conditions, medical thinking can use (and in some cases uses) the tools of multidimensional integrity, the inclusion of synergetic nonlinear interactions in complex systems. It becomes possible to comprehend the usefulness at the level of integrity and, accordingly, a multidimensional approach to its identification. In this case, treatment can be called healing, i.e. regaining the lost integrity, at least in part.

### **Possibilities of Medical Thinking in the Context of Non-Classical and Post-Non-Classical Rationality**

The penetration of physical science into depths of the microcosm has opened up unprecedented opportunities for medical research and medical practice, as well as the gradual expansion of the boundaries of everyday ideas about the process of treating a person. New concepts appeared, describing reality in a fundamentally different way.

From the point of view of possibilities of new medical thinking practices, the concepts of physical and quantum medicine are of particular importance, based on the use of discoveries in the field of non-classical physics in medical research and the choice of treatment strategies.

At the most general level, post-nonclassical rationality is characterized by approaches that make it possible to grasp the integrity and coherence of various processes and systems. In particular, such practices are fully applicable to medical thinking as well. Foucault (1963) shows diverse layers of interactions within the medical sphere, the contradictions existing between them, and the ways of coordination.

The post-non-classical tradition is characterized by the thinking of distinction, the distinction of various taps and compositions, and integrity in their coherence. In the light of medical thinking, this concerns distinguishing between kaleidoscopic representations of disease by various professionals, the patient himself, and his relatives (Mol, 2002). This gives rise to a broader multi-dimensional panoramic vision - understanding of diseases and thinking

about strategies for healing. Post-nonclassical discourse also reveals the very ways of theorizing differences in the plurality of reality.

On the whole, one can agree with Mol (2002) that, in fact, medicine as such cannot be called a coherent system of knowledge. There are many inconsistencies and stratifications in medical knowledge, depending on schools, specializations, methodologies and clinical experience. In cases where mismatch occurs, the disease is perceived in different coordinate systems in different ways. There is a staged or acting out disease.

For medical practice, the activity approach in medical thinking, in our opinion, opens up significant prospects at all levels of the flow of thought activity. Mol (2002) points out that the most important question is not how to find the truth, but how to deal with objects in practice? On the basis of such a transition, an ethnographic practice is revealed that can provide a key to complex relationships between complex multiple objects.

In this connection, Mol (2002) notes that, in fact, there is no one disease in the hospital, i.e. there are many diseases (as kaleidoscopic representations of various particular practices of medical thinking). As a result, Mol, in his reflections, moves to practice, reflecting on how to make the work of the hospital as a whole better.

Tompson introduces the concept of "ontological choreography", which expresses the connection between different ontological orders and the nature of the construction of ontologies in the connection of various phenomena. Cambrosio and Keating in "Biomedical Platforms" also pose the problem of new forms of medical thinking about wholeness.

### **Ontologization of the Body in Medical Thinking**

The mental grasp of the body diseases in their coherence and multidimensionality allows to go beyond the boundaries of the mechanistic approach, inherent in medical practices, which are within the limits of classical rationality.

In different historical types of scientific rationality, the human body is ontologized in different ways. The classical trend is characterized by a mechanistic view of the ontology of the body and its interrelations. In this case, the body is perceived as a kind of truth, which in the process of research is gradually becoming more and more concrete. The non-classical is characterized by a view of corporeality from the position of its deep structure and fine adjustments, and many new uncertainties appear. Post-non-classical rationality is characterized by constructing ideas about the body and the life of the body in the world. Increasing attention is being paid to

the importance of life in conditions of fundamental uncertainty about the body and its life in various aspects.

The view of Amosov on human aging processes in the context of his integrity. The overall action potential decreases, however, the possibility of training remains, which makes it possible to counteract the entropic processes of the body occurring at various levels. In this way, it is possible to reduce the overall fatigue of the body, increasing its integral health, allowing for a longer time to maintain integrity and fullness with forces of life (Trachtenberg, 2018). In this case, an approach to age-related changes in a person is demonstrated, on the one hand, from the standpoint of the integrity of a person, and on the other hand, from the standpoint of a practitioner seeking to reverse these processes. In fact, this is a vivid example of the use of modern types of scientific rationality in medical thinking.

In the space of modern world culture, ideas about the body undergo some changes. A sufficiently large number of such changes can be seen in the second half of the 20th century. During this period, public life is characterized by many transformations related to the development of technology and peculiarities of the global situation in the world. So-called consumerism is becoming more widespread. New forms of practices aimed at caring for the body are emerging. Increasingly, virtuality enters a person's life at its most varied levels. The development of medical research and biotechnology has a direct impact on demographic processes of various countries.

### **Creativity Phenomenon in Medical Thinking**

In the process of solving research problems in the field of obtaining medical knowledge, as well as strategies and practices of providing medical care, both by professional doctors and in everyday life, there is a need for a creative approach to medical thinking practices (Kyshakevych, 2018).

In fact, the integration of medical thinking practices using classical, non-classical and post-non-classical types of rationality gives rise to great heuristic opportunities not only for understanding certain problems, but also for finding strategies for the most effective medical actions.

Kyshakevych (2018, p. 29) elaborates in sufficient detail on the special importance of creative medical thinking, showing its main features, such as flexibility, adaptability and multidimensionality, including the ability to create complex creative solutions that help develop treatment strategies and their implementation. In this sense, the creative thinking of the physician can be somewhat likened to the integration of minds of the

inventor, engineer, scientist, and artisan. Such integration gives rise to effective medical practice armed with methodology and theory, aimed at a comprehensive improvement of human health.

Popov (1988) in his work "Philosophy and Methodology of Scientific Medical Knowledge" comprehends the practice of research knowledge as an essential element of creative medical thinking. These practices in their integrity and coherence make it possible to expand both the theoretical and practical space of medical thinking to a significant extent. Often, theoretical and inventive problems are integrated in the strategies of medical thinking, which often makes it possible to solve problems of the highest complexity in an operational urgent manner.

### **Ethics and Aesthetics of Medical Thinking**

"Beautifully diagnosed", "elegant operation", "brilliant surgeon" - these and other epithets express the aesthetic dimension of medical thinking. Medical thinking, like any other form of thinking and life, contains an aesthetic dimension, which is determined by the measure of harmony and beauty of a particular model, solution, discovery or treatment strategy. As practice shows, aesthetic feeling is often the most important compass of correct and effective mental strategies. The harmony of beauty allows "Occam's razor" to cut off all unnecessary and superficial at various levels of thinking.

In connection with the aesthetic dimension, one can observe the process of movement of thought in accordance with different types of rationality from more cumbersome and even totalitarian forms of thinking, to more subtle and sensitive to different levels of integrity of processes and their changes.

It is obvious that medical thinking is directly related to the impact on the human and often determines his fate for many years, through a direct impact on health and well-being. For this reason, the practice of deontology is of great importance in the process of treatment, determining the level of contact between the doctor and patient. For this reason, the awakening of a living ethical and moral sense is the most important condition for the professional competence of a thinking researcher in the theory and practice of medicine, a doctor and any person who encounters medical problems in his life. Ethical feeling, no less than aesthetic, is a criterion for the quality of medical thinking, its effectiveness and, as a result, the choice of strategies for treating a person.

The combination of ethical and aesthetic feelings as criteria for the quality of medical thinking allows us to raise the intentions generated by

such thinking to a higher spiritual and cultural level. This is an unquestionable condition for effective medical practice.

## Conclusion

In the course of the research, we were able to show medical thinking in the perspective of classical, non-classical and post-non-classical historical types of scientific rationality. Cartographization of medical thinking in the context of research, medical and everyday levels has been carried out. The phenomenon of some “sticking” of medical thinking in the framework of classical rationality and significant limitations of medical thinking due to this state of affairs are revealed.

The possibilities of expanding the heuristic potential of medical thinking by introducing into it practices of non-classical and post-non-classical types of scientific rationality are substantiated. This is especially true for studies of the microcosm, the human dimension of research and practice, modern understanding of the integrity of man, the ontology of corporality and medical anthropology.

The main conclusion of the study is the prospect of expanding the boundaries of medical thinking through the integration of practices based on different historical types of scientific rationality. This will greatly expand the research and medical potential of medical thinking, and, most importantly, will create conditions for improving the quality of the medical culture of society as a whole by initiating new thinking practices based on a multidimensional comprehension of human integrity, bioethics and a creative approach in thinking.

---

## References

---

- Cassirer, E. (1944). *An essay on Man*. New Haven: Yale University Press.  
[https://monoskop.org/File:Cassirer\\_Ernst\\_An\\_essay\\_on\\_man\\_An\\_introduction\\_1944.pdf](https://monoskop.org/File:Cassirer_Ernst_An_essay_on_man_An_introduction_1944.pdf)
- Foucault, M. (1963). *Naissance de la clinique. Une archéologie du regard médical*. Paris, Presses Universitaires de France.  
[https://monoskop.org/images/9/92/Foucault\\_Michel\\_The\\_Birth\\_of\\_the\\_Clinic\\_1976.pdf](https://monoskop.org/images/9/92/Foucault_Michel_The_Birth_of_the_Clinic_1976.pdf)
- Gordon, W. (1976). *Metaphor and invention. The creativity Questions*. Durham, Duke University Press.
- Kundiev, Yu. I. (2013). Institute through the prism of epochs. 2, 66-82. Retrieved from [http://www.irbis-nbu.gov.ua/cgi-bin/irbis\\_nbu/cgiiirbis\\_64.exe?I21DBN=LINK&P21DBN=UJRN&Z21I](http://www.irbis-nbu.gov.ua/cgi-bin/irbis_nbu/cgiiirbis_64.exe?I21DBN=LINK&P21DBN=UJRN&Z21I)

[D=&S21REF=10&S21CNR=20&S21STN=1&S21FMT=ASP meta&C21 COM=S&2 S21P03=FILE=&2 S21STR MP](#)

- Kyshakevych, I. (2018). Formation of the creative mind of doctors for the help of causal and inherited nutrition. *Juveniles and markets* 6 (161), 28-35.
- Mol, A. (2002). *The Body Multiple: ontology in medical practice*. Durham, NC: Duke University Press.
- Naumov, L. B. (2001). Main problems of modern medicine in diagnostics and learning: ways of optimal solution. *Anadolu Kardiyoloji Dergisi: AKD= the Anatolian Journal of Cardiology*, 1(3), 166-178.
- Nerubasska, A., Maksymchuk, B. (2020b). The demarkation of creativity, talent and genius in humans: a systemic aspect. *Postmodern Openings*, 11 (2), 240-255. Retrieved from <https://www.lumenpublishing.com/journals/index.php/po/article/view/2625>
- Nerubasska, A., Palshkov, K., & Maksymchuk, B. (2020a). A systemic philosophical analysis of the contemporary society and the human: new potential. *Postmodern openings*, 11(4), 275-292. doi: 10.18662/po/11.4/235
- Osborn, A. F. (1963). *Applied imagination. Principles and procedures of creative problem solving*. New York : Scribner's
- Saienko, V. G., & Teplyi, V. M. (2010). Physical qualities of the young taekwondokas. *Pedagogics Psychology Medical-Biological Problems of Physical Training and Sports*, 4, 119-121. (Web of Science)
- Spaskyi, I. D. (2021). Sophia's ontological mystery of economy in the practices of philosophical reflection. Visnyk of Lviv University. *Philosopher-political scientist series*. 37, 126-131.
- Trachtenberg, I. M. (2018). Nikolay Amosov: Prevention should prevail (publicistic heritage of a scientist). *History of medical science, practice and education, a collection of articles and theses of the scientific and practical conference in Kyiv*. 204-211. Retrieved from [http://www.health.gov.ua/www.nsf/16a436f1b0cca21ec22571b300253d46/27d0fa70e61369bac2258331002796c4/\\$FILE/ATTV9Q72/\\_k0n3gboa\\_v0mp0bs85u82us1fgbs2uo1f50ni0bq05uo2ug1fd0nk5uchg64s0\\_.pdf](http://www.health.gov.ua/www.nsf/16a436f1b0cca21ec22571b300253d46/27d0fa70e61369bac2258331002796c4/$FILE/ATTV9Q72/_k0n3gboa_v0mp0bs85u82us1fgbs2uo1f50ni0bq05uo2ug1fd0nk5uchg64s0_.pdf)
- Vasiliev, K. K. (2005). *Actual problems of the history of medicine*. Materials of the International conference. Retrieved from <https://essuir.sumdu.edu.ua/bitstream/123456789/24398/1/2169.pdf>