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## КОНТЕНТ-АНАЛИЗ ТИПОВ РАЦИОНАЛЬНОСТИ В ПРЕДСТАВЛЕНИЯХ О МЕДИЦИНЕ БУДУЩЕГО

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**Аннотация.** В статье методом контент-анализа рассмотрены представления учащихся медицинского вуза об эталонах рациональности в медицине прошлого, настоящего и будущего. В исследовании приняли участие 229 ординаторов 32 специальностей. Количественный анализ ключевых слов в представлениях о будущем медицины обнаружил маркеры всех типов рациональности. Постмодернистские идеалы суперздоровья и бессмертия стали трендами в медицинской футурологии, несмотря на то, что десятая часть опрошенных считает их иллюзией. Молодые доктора вернули основной постулат Клятвы Гиппократов – «Исцеление» – в топ ключевых слов медицины будущего. Вера, авторитет, диалог, согласие, самолечение во многом утратили привлекательность.

**Ключевые слова:** права человека, биоэтика, социология медицины, типы рациональности, объективизм, субъективизм, релятивизм

Original article

## CONTENT ANALYSIS OF TYPES OF RATIONALITY IN THE CONCEPTS OF MEDICINE OF THE FUTURE

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**Abstract.** In this article content analysis is used to examine medical students' views on the standards of rationality in medicine of the past, present, and future. The study involved 229 residents of 32 specialties. A quantitative analysis of keywords in views of the future of medicine revealed indicators of all types of rationality. Postmodern ideals of superhealth and immortality became trends in medical futurology even though a tenth of respondents considered them illusory. Young doctors placed the basic tenet of the Hippocratic Oath, "Healing," back among the top keywords for medicine of the future. Faith, authority, dialogue, consent, and self-treatment have lost much of their appeal.

**Keywords:** human rights, bioethics, sociology of medicine, types of rationality, objectivism, subjectivism, relativism

**Introduction.** The Cartesians of Modernity rejected tradition, authority, and custom as ineffective points of reference for human activity and called for trust in reason alone. Since then, the French have answered the question, "What body part should I use to ride a horse?", – by saying "The head!".

If one lacks intelligence, one has to beat the animal – that is not rational. Rationality, according to Weber, is a precise calculation of the means to an end; according to Wittgenstein, it is the best adaptation to the circumstances of life; according to Toulmin, it is logical consistency. The historical change of the types of rationality

is described in every textbook on the philosophy of science [1]:

- classical understanding of rationality is closely related to the ideal of scientific objectivity;
- nonclassical rationality follows the principle of relativism, which takes into account a person's dynamic attitude to the world, their activity, subjectivity, armed with technical and linguistic means and methods of studying the interaction of objective and subjective realities;
- post-nonclassical rationality that allows one to construct a world in which one is both an observer and an activator, because today it is rational not to think, but to observe, take note, perceive, construct in the imagination and make one's fantasies come true if not in the objective, then at least in the virtual reality.

A historical shift in the types of rationality accompanies the development of medical science and practice. The prescription of classical rational thinking according to Descartes (dividing the complex into simple components, then arranging them in a strict sequence, making complete lists of the elements available for consideration) induced the emergence of medicine of suffering organs, excluding for a time the personality of the affected person, for whom illness is an unambiguous evil, from doctors' field of vision. Classical rationalism focuses on healing, understanding disease as a malfunction to be repaired.

Nonclassical rationality sees illness not only as evil, but also as good, since an ill person has a number of advantages, for example, some patients react to intolerable suffering by losing consciousness, illness gives grounds to avoid the need to search for a way out of their hopeless situation, deviation from the norm gives the right to create a new "norm", for example, the adaptation of patients with a psychiatric diagnosis in modern society is higher than that of people with a psychiatric norm. The doctor faces a tangled web of intricacies of unique individual human life, in which a decreed monologue of the doctor is inappropriate. Unlimited possibilities in the exploration of the difference of human existence in the situation of illness open up alternative medical technologies, a dialogue between doctor and patient, in which there is no definite clarity. Illness as a way of life induces the medicalization of culture as a phenomenon.

Rationalism in the postmodern era is designed to revitalize thought. Post-nonclassical rationality is oriented toward overcoming the obstacles that accompany illness, and is partial to variants of instability, contradiction, randomness. Subjectivism dictates the rules of social life through forceful methods, which, oddly enough, in medicine activates not the treating doctor, but the patient and the healthcare system. The patient, in a harsh form, relying on human rights and personal resources, despite the restrictions of an objective nature, demands healing there and then, increased longevity and quality of life, prolongation of youth, free medication and medical care. Chimeras of salvation, up to and including victory over death, paradise on earth, panacea for all diseases the patient seeks for themselves, falling into the trap set up for

the young and immature by those promoting a unique experience of incredible existence: "If you spend money, then spend it on this" [2], exclaims the hero of Victor Pelevin's latest novel. Refusal of dialogue with the doctor is fraught with a patient monologue, which is intended to pave the way to the goal by means of post-nonclassical rationality. Manipulation of doctors by patients is becoming the norm of life.

Despite the fact that we live in the postmodern age, it is irrational to abandon classical and nonclassical rationality. «And is it not with this perspective that M. Weber associated "the risk of the final disenchantment of the world" (when everything will finally be enclosed in the frame of one dimension – a thoroughly rationalized! – everyday life, ordinariness and routine)?» [3].

Our study is devoted to the young doctors' search for an effective mix of the available prescriptions for rational behavior in a situation of ill-health. The aim of the paper is to identify residents' views on trends in the development of rationalism by using content analysis, based on the selection of keywords reflecting the doctor-patient relationship in medicine past, present and future, and to analyze, based on the chosen concepts, meaningful statements about the future of rationalism in healthcare. In our opinion, the key words of classical rationality in medicine are: authority, faith, compliance, responsibility, healing; of nonclassical rationality: trust, awareness, dialogue, cooperation, consent; of post-nonclassical rationality: superhealth, immortality, self-treatment, third opinion, illusion.

A total of 229 residents from 32 specialties participated in the survey. A quantitative analysis of keywords in views on the future of medicine found markers of all types of rationality in the following percentages: superhealth (64 %), immortality (60 %), healing (34 %), cooperation (32.3 %), compliance (31 %), awareness (25.3 %), responsibility (22.7 %), trust (15.7 %), third opinion (13 %), illusion (10 %), faith (8.7 %), authority (7.4 %), dialogue (6.5 %), consent (6.1 %), self-treatment (4.8 %).

Clearly, postmodern ideals of superhealth and immortality have become trends in medical futurology despite the fact that a tenth of respondents consider them to be illusory. Classical (healing, compliance, responsibility) and nonclassical (cooperation, awareness) reference points, apparently, are meant to pave the path to achieving the goal set in a familiar manner. Among the vague reference points are trust and third opinion. Young doctors have a hard time with the loss of trust in doctors, they understand the importance of this condition, but they are afraid to define it as a key word. Third opinion is another matter. Google may help, though it may destroy the massiveness of the medical profession. Outliers include faith, authority, dialogue, consent, self-treatment – a mix of key words from all types of rationality. The first four are undermined by modern healthcare; the last is the bogeyman of medical education. A qualitative analysis of statements about future medicine actualizes old and

new meanings of key words that are relevant to the future in one way or another.

**Superhealth** means high health indicators, adherence to a healthy lifestyle, social well-being, compliance with doctor's recommendations, and control of aging. By 2100 scientists predict an increase in life expectancy by 50–70 years, and in another 100 years – achievement of practical immortality.

The medicine of the future is a superhealthy nation. Understanding the human genome will give superhealth, will make it possible to exceed human biological capabilities. Children born in the new world will be superhealthy, and it is important not only to be born superhealthy, but also to maintain this quality throughout life and subsequently leave behind a healthy generation. Health will be evaluated not as practically healthy, but as superhealthy. Smart pills, smart lenses, nanorobots, artificial bones, artificial cells, multiple organ transplants await us. Superhealth will improve performance, endurance and quality of life. The pursuit of superhealth will solve the problem of longevity. Superhealth is immunization against all diseases – an interdisciplinary, comprehensive approach to evaluating the body's resources. It is necessary to learn to be healthy, to be creative with your health, to be able to do it with your own hands. The ability to be superhealthy ensures awareness, cooperation, and compliance. Finally, with superhealth we can take on America.

Perhaps superhealth is not necessary for everyone, for some people it is of no interest. Superhealth is possible for a fraction of the population who will cooperate with their doctors, who are informed and skilled in every field. In the pursuit of superhealth, patients will realize and correct their mistakes – this will be the first step toward immortality.

**Immortality** is the industry of the new revolution. Resisting the natural course of life, curing ailments, slowing down the aging process, replacing its structures on all levels from genetic to organ, humanity will obtain immortality. Nanorobots will check every cell of the body and replace aging cells with new ones. Immortality will reduce the human population, as children will be born not from the womb, but from an incubator, a supercomputer will maintain an optimal population size.

Everyone strives toward immortality, but only a chosen few will reach it. To quote Plato: "None of us has yet been born immortal, and, if it happened to anyone, he would not be happy as it seems to many" [4]. Whether immortality is necessary is a philosophical question. For half of the respondents, immortality is an illusion, concealing the real problems of overpopulation and pollution. One thing is certain – medicine is immortal.

**Healing** of all humanity is possible through investment in medicine and the support of drug testers, volunteers who are willing to risk their health to save humanity. Healing as the purpose of medicine is actualized both by market mechanisms (if you pay, then pay for healing) and by a new paradigm (if healing is possible, then so is superhealth). Traditional tools of self-treatment will remain

relevant: willpower, resolve, wisdom, determination, composure. There will be new opportunities: healing of incurable diseases through genetic editing, through subconscious deception of feelings, through illusions. Mental healing is a trend of the future. Personalization is emphasized, stressing that everyone's healing is unique, so everyone makes their own sense of it.

**Cooperation** is understood as mutually beneficial, with oneself, on an equal footing with one's environment, with telemedicine, with pharmaceutical companies, with foreign luminaries, with domestic scientists. Cooperation is ensured by unlimited time to see the patient. The ability to understand the patient is the agreement to accept everyone and everything, having understood the intentions. Patients must be taught to stop arguing with the doctor. Cooperation is destroyed by the rigid bureaucratization of medical practice. Collaboration with the devil for superhealth and a cure for all diseases is an illusion.

**Compliance** in the future grows through the convenience of following doctor's recommendations, through finding one's own doctor. It is becoming clear to all that the greater the commitment to the doctor's recommendations, the higher the quality of life. Patient education, improvement of dosage regimens, focus on results, and reduction of negative treatment effects are all contributing to compliance. Respondents were divided in their interpretation of the effectiveness of compliance methods. Some believe that a change in mindset will lead to 100 % compliance, namely, the old cultural pattern of following all prescriptions without exception. Others rely on simple human relationships between doctor and patient, on goodwill.

Patient **awareness** grows through a third opinion, through a phone app about the course of treatment, the research being conducted, the ability to tell the truth about the consequences for themselves and for others.

Patients' responsibility for their health is understood as a conscious choice that will lead not to immortality, but to longevity. The doctor becomes not just an episodic person in the patient's life, but a person who shapes their health and lifestyle. Doctors fear the responsibility of introducing new drugs. Computer modeling will make experiments on humans a thing of the past.

**Trust** is the psychological compatibility of doctor and patient, a dialogue with a highly qualified specialist along with a third opinion from specialists in different fields. To gain trust, one must take responsibility, hence doctors must become more responsible than they are now.

The **third opinion** will be given by artificial intelligence – a system of medical image recognition, a neural network based on the appearance of the disease is able to reduce the time of diagnosis by 40 %. The future of medicine is a unified digital space, based on the cooperation of doctor, patient and artificial intelligence. Who will be the beneficiary of digital clinical thinking: the largest transnational research laboratories or regional medical centers, or maybe just a person from the outside, reasoning in terms of common sense? While it is unclear, what is clear is that artificial intelligence is already making the doctor's job both easier and more difficult. The third

opinion has yet to be incorporated into the doctor's professional competencies, elevating his status.

The **illusions** of immortality, the cure of all diseases, the feeling of having complete information are given not by doctors, but by engineers and cyberneticists. Superhealth is an illusion generated by the philistine "third mind," which reduces everything to self-treatment. The more a person lives, the more often they become ill. The more advanced medicine is, the more sick and weak society becomes, because sick people produce sick offspring. Developed medicine, like fire, can warm or burn. Society as a whole abuse the benefits of medicine – uncontrolled antibiotics, genome editing... The big question is, what is the alternative? The illusion of a beautiful and carefree life blinds people: this self-deception is the belief in a brighter future.

**Belief** in God, in immortality, in healing, in superhealth unites doctors and patients. Residents believe in a bright future, reliable high-quality medicine, decent wages, and grateful patients. Belief in medicine is not going anywhere, because a person's belief in the omnipotence of medicine, in themselves, in the best, in the good is the secret of superhealth.

**Authority** is the ability to influence the patient, to explain, to teach, to share knowledge, to be able to show power, authority in the professional sphere. To become an authority for the patient the doctor must improve. Authority is a capital that accumulates over the years of work. By reducing the routine workload of healthcare workers, they will learn more and therefore teach their patients.

**Dialogue** is the art that leads to healing.

**Consent** is based on an understanding of the benefits to the patient.

**Self-treatment:** In 100 years, everyone will be capable of self-treatment without the aid of doctors and medical institutions through artificial intelligence and religious sects. Robotic doctors will replace the patient's examination with a digitized dialogue with the patient. Self-treatment with genetically engineered bacteria is promising – symbiotes that live in the human body and can produce and inject the necessary hormones, painkillers, and antibiotics into their host's bloodstream as needed.

**In conclusion** we note the residents' solidarity with A. Camus, who believed that the real generosity toward the future lies in giving everything to the present. Until we have this, we live with illusions of superhealth and immortality, which does not inspire confidence in patients. The qualitative component of the content analysis captures the understanding of the main aspects of medicine of the future – personalized treatment, doctor-patient cooperation, patient responsibility for their own health, creation of new drugs with artificial intelligence, robotization of surgery and therapy. The attractiveness of artificial intelligence systems, which "are essentially expert services assisting the doctor," [5] is obvious to young doctors, but there is no understanding of the impact of doctor decision support systems, automatic evaluation of visual images, and telemedicine on the future of the medical profession.

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