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BIOMEDICAL MODEL, REDUCTIONISM AND THEIR CONSEQUENCES FOR BODY PERCEPTION

Abstract. Modern medicine is constantly evolving, enabling the early detection of diseases, offering various treatment options, protecting against undesirable conditions and providing advanced pharmacological solutions. The 19th century biomedical model, which prevailed into the 20th century, has greatly improved our understanding of the human body and the causes of disease. Despite the introduction of other models, such as the bio-psycho-social and the patient-centered model, the biomedical model remains an integral part of evidence-based medicine (EBM). It leads to various consequences such as specialization, biological determinism, the victim-blaming approach, reductionism and objectification. The article uses phenomenology as an analytical framework. Two research questions were posed: 1) How does the biomedical model influence the fragmentation of patient care? 2) What influence does the biomedical model have on the perception of the patient's body? The main argument is that the medical model of disease is still influential in the fields of research, education and medical practice and, with the advances of evidence-based medicine, influences the perception of the patient's body. The article is based on a literature review and aims to show the non-obvious connection between medical progress and body perception. The analysis has shown that the biomedical model influences the fragmentation of patient care through increasing professional reductionism and specialization, leading to an objectification of the body that can be made by both doctors and patients.

Keywords: medical reductionism, objectification, body, phenomenology.

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MODEL BIOMEDYCZNY, REDUKCJONIZM I ICH KONSEKWENCJE DLA PERCEPCJI CIAŁA

Abstrakt. Współczesna medycyna wciąż się rozwija, pozwalając na wykrywanie wczesnych stadiów choroby, oferując różnorodne warianty leczenia, chroniąc przed niepożądanymi chorobami a także zapewniając zaawansowane rozwiązania farmakologiczne. XIX-wieczny model biomedyczny, który zdominował wiek XX zdecydowanie polepszył nasze rozumienie ludzkiego ciała oraz przyczyn chorób. Pomimo rozwoju innych modeli, takich jak model bio-psycho-społeczny, czy model zorientowany na pacjenta, model biomedyczny pozostaje integralną częścią medycyny opartej na dowodach (*evidence-based medicine*, EBM). Prowadzi to do szeregu konsekwencji takich jak specjalizacja, determinizm biologiczny, podejście obwiniające, redukcjonizm czy uprzedmiotowienie. Artykuł wykorzystuje analityczną ramę fenomenologii. Postawiono dwa pytania badawcze: 1) w jaki sposób model biomedyczny wpływa na fragmentaryzację opieki nad pacjentem? 2) jaki wpływ ma model biomedyczny na percepcję ciała pacjenta? Główna teza artykułu brzmi: model biomedyczny jest wciąż wpływowy w obszarze badań, edukacji oraz praktyki medycznej i wraz z postępami EBM wpływa na postrzeganie ciała pacjenta. Artykuł opiera się na przeglądzie literatury i ma na celu ukazanie nieoczywistych związków między postępem medycznym i postrzeganiem ciała. Analiza wykazała, że model biomedyczny wpływa na fragmentaryzację opieki nad pacjentem poprzez zwiększający się redukcjonizm i wynikającą z niego specjalizację medycyny, prowadząc do uprzedmiotowienia ciała, które dokonywane jest zarówno przez lekarzy, jak i samych pacjentów.

Słowa kluczowe: redukcjonizm medyczny, uprzedmiotowienie, ciało, fenomenologia.

1. Introduction – is the biomedical model still relevant?

The contemporary model of medical practice known as evidence-based medicine (EBM) is based on three main principles: "an awareness of the best available evidence, the ability to decide on the trustworthiness of the evidence, and consideration of the patient's values and preferences" (Biccard 2022: S72). It is defined as "(…) the conscientious, explicit and judicious use of the best evidence in making decisions about the care of individual patients. The practice of evidence-based medicine involves integrating individual clinical experience with the best available external clinical evidence from systematic research" (Sacket et al. 1996). EBM evolved from and is closely related to the biomedical model, which assumes that the human body can be viewed as a machine made up of interrelated parts. The role of the physician is therefore comparable to the work of a mechanic who identifies a defective part in order to repair it (Acolin, Fishman 2023; Germov 2019; Marcum 2004). Disease is perceived as a consequence of "deviations from the norm of measurable biological (somatic) variables" (Engel 1977). Medical professionals take a number of measures to help those seeking medical treatment. The most efficient place for this is the hospital, which allows for optimization of instrumental medical intervention and treatment. At the center of these actions is "disease" as a term that describes an objective condition that is

strictly bound to the physiological background. There is little or no room for the term 'illness', which could be defined as a subjective state describing a person's experience of a state of discomfort (Buzzoni et al. 2022; Cockerham 2022; Eisenberg 1977; Farre, Rapley 2017; Helman 1981). Although new models have evolved over several decades, including the bio-psycho-social model, the holistic model or the patient-centered model, "(…) the biomedical model is so influential and deeply rooted that it has survived and is still the dominant view in medicine" (Rocca, Anjum 2020). In describing the new medical model, Fuller (2017) points out features of the biomedical model, such as the reductionism that has been incorporated into it. The biomedical model is also present in the psychiatric field (Fried 2022; Kallivayalil 2020; Krakauer 2017). As a sociologist working at medical school, I personally observe that medical education is also instrumentally oriented and narrowed to clinical knowledge and skills, leaving little room for non-medical and non-clinical aspects of an illness and the perception of being ill. The recent government act on the standards of education of future doctors in Poland (Dz.U. 2023, poz. 2152) has made further changes in medical curricula that have strengthened the position of the biomedical model – it allows medical teachers without sociological or psychological training to teach courses on communication, family or domestic violence. In addition, the standards allocated 240 hours of the total 5150 hours of the medical curriculum to behavioral and social sciences with elements of professionalism and communication, taking into account the idea of humanism in medicine. Another argument for the strong position of the biomedical model is the shift in the clinical picture – from acute to chronic – and comorbidity. On the one hand, these two factors contributed to a change in the relationship between doctor and patient, which became more of a partnership and based on mutual cooperation. On the other hand, however, they also led to doctors focusing on "broken" parts of the body and to a fragmentation of treatment (Wybourn, Mendoza, Campbell 2017; Snow, Galaviz, Turbow 2020; Elhauge 2010). Empirical studies show that even with chronic illnesses, patients report feelings of objectification, loss of autonomy and loss of control over their medical situation during doctor-patient interactions (Grīnfelde 2023). The development of medical knowledge makes communication with the patient increasingly difficult and complicated. This is the result of advanced research, complex therapies, but also uncertainty about the causes and nature of the patient's condition.

The fragmentation of care also results from the development of medicine itself – progress in medical technology makes it possible to detect pathogens at the molecular level. Medical studies identify complicated and highly specialized functions of human organs, tissues and structures as well as processes and mechanisms responsible for certain diseases. As a result, the number of diseases classified in either the International Classification of Diseases (ICD-11) or the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) is increasing and

the number of medical specialties is growing. These professionals usually have a broad knowledge of a specific organ or body part, but are not able to understand other medical problems of their patients, so they are not able to see the wholeness of a patient.

The direct impetus to address the influence of the biomedical and reductionist approach on the patient's body perception was the news about the new anti-obesity drug (Anon 2023) reported in the Polish media at the end of 2023. The substance responsible for reducing body mass was originally used in diabetes medicine to regulate insulin and glucagon levels. As a result, the substance regulates appetite (Chao et al. 2023; Oleszczuk et al. 2022). The drug acts at the level of cell proteins. There are currently six anti-obesity drugs approved by the Chief Pharmaceutical Inspectorate in Poland (https://rejestry.ezdrowie.gov.pl/rpl/search/public), similar to those in other countries, including the United States (National Institute of Health). In addition, there are other products on the Polish market, such as dietary supplements, which are claimed to help with weight loss. According to the American Medical Association, the first generation of anti-obesity drugs was developed in the 1930s (Berg 2023). At the same time, the number of people who are overweight or obese is constantly increasing. According to the World Health Organization (WHO), one in eight people worldwide was obese in 2022 (2024). My first question was, why is medicine failing to combat obesity despite rapid development? On closer inspection, it turned out that the problem is much broader, as there are many other conditions that are treatable, but the treatment is ineffective. Furthermore, in many cases it takes a very long time for a patient to receive a diagnosis, and during this process they report being treated as objects of medical intervention rather than subjects in the doctor-patient relationship (Maslach, Leiter 2011; Haque, Waytz 2012; Kuskowski 2019). They are sent from one specialist to another without being treated as a whole, but as diseased organs (Głębocka, Wilczek-Rużyczka 2016; Wybourn, Mendoza, Campbell 2017; Prior et al. 2023). Every illness is not only a medical condition, but also a psychosocial phenomenon that is perceived, interpreted and reacted to by an individual. In order to illustrate the nature of an illness and its influence on body perception, I decided to use phenomenology as an analytical framework. I have formulated two research questions: 1) How does the biomedical model influence the fragmentation of patient care? 2) What influence does the biomedical model have on the perception of the patient's body? The main argument is that the medical model of disease is still influential in the fields of research, education and medical practice and, with the advances of evidence-based medicine, influences the perception of the patient's body. The article is based on a literature review and aims to clarify the relationship between medical progress and body perception.

2. The consequences of the biomedical model of disease

As already mentioned, the biomedical model is still present in many areas of medicine – from education to research and treatment. The model has been developed since the 19th century. First, Rudolf Vichrow set a milestone for modern pathophysiology by stating that all pathology is the result of cellular damage. Vichrow's ideas led Louis Pasteur and Robert Koch to develop the germ theory and the concept of specific etiology (Acolin, Fishman 2023; Capra 1982; Germov 2019; Rocca, Anjum 2020). As Rocca and Anjun state, "By identifying the origin of disease with a malfunction at the simplest structural and functional level of organisms, the cell, this new paradigm allowed us to find new ways to address the causes of disease, for example through pharmaceutical interventions" (Rocca, Anjum 2020). With the increasing achievements in the field of drugs (especially antibiotics and vaccines), medicine was perceived as a promising field to improve human life and thus the biomedical model of disease was developed in the 20th century. It views a disease as a consequence of variations in certain measurable biological characteristics and perceives the patient's body as a mechanism with a defective element that needs to be repaired. Such a view of a disease and a patient has led to several consequences, which are briefly described in separate sections.

2.1. Specialization

The first consequence is specialization – as medical science advances, the number of specialists increases, focusing on ever more detailed parts of the patient's body and losing sight of the wholeness of the individual being diagnosed and treated (Germov 2019). As Detsky, Gauthier and Fuchs write, "(…) most individual physicians and surgeons are trained and qualified to provide only certain types of care" (Detsky et al. 2012). The authors note that specialization has an impact on the fragmentation of care, which is particularly visible in older people with comorbidity (Detsky et al. 2012). Numerous highly specialized professionals treat one patient and lose sight of the context in which the conditions occur. This can ultimately lead to a reduction in the efficiency of treatment and increase the risk of iatrogenic effects due to a lack of communication between specialists who prescribe conflicting therapies. Fragmentation of care can increase the rate of potentially inappropriate medication and even mortality (Prior et al. 2023; Snow, Galaviz, Turbow 2020). This is not to deny the necessity of specialization, but one must be aware of some of the negative consequences it has for patients. Ranjana Srivastava describes her friend's experience, which illustrates the crux of the problem: "And then it dawns on me. His three tubes, a nasogastric, a drain, and a urinary catheter, are managed by three different surgeons. The

infectious diseases physician is running the antibiotics. The nephrologist is juggling the fluid balance. The rehab physician says it's not yet time for rehab. Six specialists visit the man and yet he is looking for a doctor" (Srivastava 2020). According to Paladino (2016), a "complex care patient" is treated by an average of ten specialists. This inevitably has an impact on the doctor-patient relationship and on the patient`s perception of their body.

2.2. Biological determinism

The second outcome of the biomedical model is biological determinism, which emphasizes that it is biology that determines a person's social, economic and health status and not the other way around (Germov 2019). Even though biological "endowments" can have an influence on the chances of achieving a certain social position (e.g. racial characteristics, congenital disabilities), the reverse direction of the relationship should not be underestimated. Social status, which is highly related to income and educational level, plays an important role in determining a person's physical and mental health. Non-biological factors determine health literacy, disease and health inequalities, which ultimately influence the biological potential of the body. In addition, social status, material capital and health status are based on work, determination, effort, social capital and support, which are non-biological determinants.

2.3. The victim-blaming approach

Medical practitioners locate a condition in the individual framework, often with individual responsibility (at the molecular level) (Germov 2019). "(…) the individual body becomes the focus of intervention, and health and disease are seen primarily as an individual responsibility. The preoccupation with treating the individual can lead to disease being seen as a victim, either in the form of genetic fatalism (your poor health is the result of bad genetics) or as the result of poor lifestyle choices" (Germov 2019: 11). The biomedical model does not focus on the broader, social level, it seems to neglect the search for explanations in working conditions, lifestyle, living conditions or access to health services and health inequalities. By focusing on the cellular or deeper level, medicine looks for pharmacological solutions and medical interventions, forgetting other causes of many of today's diseases that lie in society and its structure and are related to the policies and decisions of macro-structural actors. This narrow approach carries the risk of inefficiency. Even if doctors favor the bio-psycho-social model, the physician usually focuses on the biological dimension, a psychologist on the psychological and a social caretaker on the social dimension, so that one cannot speak of integration (Rocca, Anjum 2020).

2.4. Reductionism

Reductionism as a form of scientific orientation can be traced back to antiquity – it was Thales of Miletus who assumed that everything is made of water (Beresford 2010; Greene, Loscalzo 2017). In modern times, Rene Descartes reinvented this idea, claiming that everything, including the human body, can be compared to a clockwork mechanism in which each part can be examined individually (Descartes 2019). Nevertheless, this view is closely linked to the contemporary biomedical model in medicine and is often seen as a consequence of this approach (Miles 2009). It is a process of gradually deconstructing a complex process into smaller parts. This allows for a more detailed analysis and understanding of a particular phenomenon (Ahn et al. 2006; Beresford 2010). "Reductionism pervades the medical sciences and affects the way we diagnose, treat and prevent diseases" (Ahn et al. 2006). Undoubtedly, such an approach has many benefits for the development of medical knowledge and efficient treatment, but it can also lead to negative outcomes such as fragmentation of care, loss of the 'whole patient' perspective and interference with body image.

The idea of "greedy reductionism", described by Daniel Dennett almost thirty years ago, seems to be developing into an ultimate goal for medicine (Dennet 1995). According to Beresford, medical reductionism can be viewed under three main aspects (Beresford 2010):

- Ontological reductionism – this is the belief that every system is made up of molecules and the interactions between them. As such, it allows the description of a hierarchy of different types of properties: biological, physical or/and chemical.
- Epistemic reductionism – it states that knowledge can be reduced from a higher level to a lower, more fundamental level. It therefore assumes that the properties of the elements at the general level can be adequately explained by the properties of the elements observed at the lowest level.
- Methodological reductionism – as a consequence of the previous two, it assumes that biological systems can best be studied and understood at the lowest level.

Ahn, Tewari, Poon and Phillips note that the reductionist approach in contemporary medicine is evident in four practices (Ahn et al. 2006):

- The focus on a single factor. Since the human body is perceived as a collection of elements, it is studied by physicians to isolate the single factor responsible for a particular condition (abnormality, disease). So it becomes similar to a car mechanic looking for a broken part that he can repair, which has already been mentioned. In this way, the disease, rather than the person affected, becomes the focus of treatment. Such an approach is "blind" to more contextual, complex information that can have a significant impact on the person's condition. Furthermore, such an approach offers "universal"

treatments for "universal" diseases without taking into account the individual situation of the patient.

- The emphasis on homeostasis. Since the 19th century, it has been assumed that the most desirable state of the human body is homeostasis, i.e. the ability to maintain stability and consistency under stress. Every medical intervention therefore aims to correct disturbed mechanisms and deviating parameters to a normal range. There is a wide range of conditions to which this corrective treatment can be applied. Such a view neglects the homeodynamics of the body such as oscillatory behavior (e.g. circadian rhythms) or chaotic behavior (e.g. complex heart rate variability). "First, the emphasis on correcting the deviated parameter (e.g., low potassium) belies the importance of systems wide operations. Either alternate, less intuitive targets may be more effective, or correction of the deviated parameter may itself have harmful system-wide effects. (…) Secondly, the exclusive focus on normal ranges belies the importance of dynamic stability. Because reductionism often disregards the dynamic interactions between parts, the system is often depicted as a collection of static components" (Ahn et al. 2006).
- Inaccurate risk modification. One consequence of germ theory was the belief that a particular disease was triggered by a particular cause. This approach is applied today in relation to risk factors that are identified in medicine and addressed in order to modify them. Very often risk factors are presented as diseases and people who have been identified as having such a factor are often treated as already being ill. In the case of hypertension (which is a risk factor for coronary disease), it is claimed that people with a systolic blood pressure of over 140 should be suggested treatment. When the data is analyzed, it is found that although hypertension increases the risk of coronary heart disease, the "one- risk factor to one- disease" approach is too simplistic, as there is evidence that such disease often occurs in people with normal blood pressure (Kannel 2003). Such an approach makes it impossible to consider multiple risk factors and analyze their collective impact on individual health. This in turn increases the economic costs of unnecessary treatments and exposes people to unnecessary interventions.
- Additive treatments. They are a consequence of reductionism in the sense that such an approach leads to specialization and fragmentation of the patient's body. In the case of risk factors, each of them is treated separately, although they are often interconnected. When a patient suffers from a disease of the digestive system, he is treated by different specialists depending on the organ (intestine, stomach, liver). The more complex the disease, the more fragmented the body is and the more additive treatments are carried out.

It is important to realize that reductionism does not only take place in the laboratory, where the human body is reduced to cells and molecules, but that it also manifests itself in clinical trials involving patients, in media publications and in doctor-patient interactions. When it comes to studies and tests, patients are not perceived as complex beings, but simplified as quantitative entities to enable statistical methods and meta-analyzes to ensure objectivity (Beresford 2010; Timmermans, Almeling 2009). Another dimension of the reductionist approach is simplified media coverage of scientific breakthroughs in the medical field. The media announce: "New drug against Alzheimer`s disease", "Scientists have identified a gene responsible for cancer". This gives the impression that the treatment of such a patient takes place in a single step, whereas there are many additional factors that need to be taken into account, including non-medical ones. All this leads to the interaction between doctor and patient changing and becoming instrumental. The doctor focuses on curing the disease and neglects the role of healer of the patient. At the same time, the patient feels fragmented and objectified and loses their autonomy and dignity (Buzzoni et al. 2022).

The reductionist approach supported by medicalization and pharmaceuticalization can lead to a preference for medical and pharmacological solutions while neglecting more comprehensive, psychosocial interventions. Furthermore, reductionism is supported by the so-called "gold standard" in medical research, namely randomized clinical trials. This type of testing neglects patient narratives, leads to 'one-size-fits-all medicine' and neglects minorities (Stevens 2018). As Beresford notes, "Again this is evident in medicine – although many 'targeted' agents are now used in the clinic, it is fair to say that in most cases the benefits to patients have been relatively modest, despite sound theoretical principles and laboratory data" (Beresford 2010).

2.5. Objectification of the body

Last but not least, the biomedical model also has an effect on the objectification of patients. They are treated and labeled as "cases", "bodies" or even "diseased organs" and thus lose their humanity and dignity. Their individual needs become unimportant. The only thing that matters is the physical body as an object of treatment (Carel 2016; Grīnfelde 2023; Toombs 1987). To better understand how medicine influences the perception of one's own body, especially when it becomes ill, the analytical framework of phenomenology is used.

"Being ill" can have different dimensions and meanings. In phenomenology, the term "illness" is used from an individual perspective, while medicine normally diagnoses and treats "diseases". "Disease" is a term that describes an objective condition that refers to characteristic symptoms that are classified, for example, in the International Classification of Diseases (ICD-11) under the unique alphanumeric codes used to describe medical conditions. "Illness" has a subjective

dimension that shows the individual's perception and interpretation of their own condition. It refers to the human experience of being "unwell". It is often described as a "state of discomfort" that may or may not be accompanied by specific symptoms. As Svenaeus writes (2022: 381): "Illness, on the other hand, by such a phenomenological view, consist in finding oneself at mercy of unhomelike existential feelings such as bodily pains, nausea, extreme unmotivated tiredness, depression, chronic anxiety and delusion, which make it harder and, in some cases, impossible to flourish. In illness suffering the lived body hurts, resists, or, in other ways, alienates the activities of the ill person". "Sickness" is a combination of the objective and subjective dimensions and describes the interaction between a sick person and other people. It refers to both the role of the sick person and the attitudes and reactions of people towards a sick person (Public Health Textbook, Twaddle 1968, 1994; Fleischman 1999; Hofmann 2002; Seidlein, Salloch 2019). As Farre and Rapley (2017) note, the definition of disease is a narrow approach that focuses on biological dysfunction and thus directs the clinician to the physical aspects of the patient's condition. In contrast, illness is a broad approach that focuses on the 'lifeworld of the patient' and allows the clinician to go beyond the clinical view and draw attention to psychological as well as socio-cultural aspects related to the condition.

The essential assumptions of the phenomenology of illness[1] can be found in Nielsen (Nielsen 2022). Proponents of this approach emphasize the first-person perspective, focus on explanations for the experience of illness and its influence on the patient's relationship to his or her body and to other people, and – above all assert that there is a unity between body and mind. In the phenomenological approach to illness, the concept of the "lived body" (Leib) and the "object body" (Körper) introduced by Husserl is also crucial. The lived body emphasizes a unity between the body and the self and thus rejects the Cartesian duality of body and mind. Merleau-Ponty describes it as "I am my body" (Merleau-Ponty 2005). It connects us to the world, shows us how we experience it through our body and enables us to understand who we are in the world. It can be viewed from the first-person perspective (de Boer 2020). The object body presupposes a distance between the body and the self and involves the conscious perception of one's own body (Grīnfelde 2023). It is an object in physical space and can be viewed from the perspective of a third person, whereby it can become an object of biomedical investigation (de Boer 2020). Objectification can be understood as the awareness of having one's own body and can be a positive or negative experience. The latter is usually an illness that manifests itself through the body – it is related to pain and/or loss of control over the body. Furthermore, the source of negative

[1] According to Nielsen, *phenomenology of illness* is a conceptual generalization including concepts of such authors as Havi Carel, Fredrik Svenaeus, and S. Kay Toombs. As such it is a simplified vision of common features found in their individual approaches.

objectification can be a doctor with an instrumental, reductionist approach and judgmental statements.

When it comes to disease, the body appears as an external and internal object at the same time. On the one hand, the body is an object that is accessible to others (doctors, nurses, those who make judgments). The body can be seen as a territory in which an illness occurs. On the other hand, the body is a subject that is only accessible to the individual (Grīnfelde 2023). It can therefore be seen as the experience of an illness. When a patient comes to the doctor`s office, they not only need to be "cured", but they are trying to cope with a condition on a psychosocial level. Furthermore, the objective condition is often secondary to the experience of an illness (Carel 2016).

Charmaz writes that a sick person verifies previous experiences and knowledge about the condition and its meaning. An illness is thus a socio-psychological process that involves the negotiation of meanings, reinterpretations and the updating of knowledge about oneself and others. A chronic illness "(…) provides a unique area in which to study the self because self-concern typically becomes so visible. Moreover, ill persons often become highly aware of previously taken-for-granted aspects of self because they are altered or gone" (Charmaz 1983).

Giddens points out that an illness changes the pattern of a person's everyday life and the pattern of interactions, thus emphasizing the private and public aspect (Giddens 2012). This is also emphasized by Beata Szluz, who writes about the individual and social aspect of a chronic illness using the example of Parkinson's disease (Szluz 2020). Illness is a critical moment in a person's life. The private aspect refers to the experience of limitations, pain and the fear of losing one`s life. A person may experience changes in body image, body structure or/and body functions. In this sense, chronic illness can lead to loss of self by being limited by the illness, becoming socially isolated, discrediting one's self-image, losing hope and "becoming a burden" (Charmaz 1983). Restrictions lead to a decline in activity and to dependency. In this respect, an illness has a social dimension. The sick person (and often their caregivers) works on health arrangements that allow life to be reorganized and adapted to the new circumstances. The illness affects interactions with others who may react negatively, making the illness a source of social stigmatization. Similarly, Charmaz considers the self-concept, which may be inconsistent with the self-image that others convey to the ill person (Charmaz 1983).

In the context of phenomenology, it can be said that the physician perceives a patient's body as a corporeal or object body (as opposed to the lived body exposed to treatment) (Leder 1984). Objectification usually takes place in the clinical setting and has two sources: the medical gaze and medical technology (Grīnfelde 2023). The first source is present during the encounter between doctor and patient, when the doctor focuses on the part of the patient's body that requires medical intervention. It is seen as a biological organism and forces the

patient to experience the body as an object, which in turn leads to a sense of alienation. The second source of objectification is medical technology, which includes diagnostic and therapeutic technologies. As Hofmann and Svenaeus point out, "medical technology is not only changing the way we specify and treat dysfunctions of the human body, it is also changing the way persons experience their physical condition" (Hofmann, Svenaeus 2018). And Havi Carel adds: "Seeing one's tumour as a set of CT images or aligning your limbs for a bone density scan can make the objecthood of the body prominent in one's experience. These objectifying experiences may lead to a sense of alienation from one's body, and to treating that body as an aberrant object over which one has little control" (Carel 2016). Patients become passive, withdrawn and lose control over the situation and over their body, which is diagnosed, measured, examined, scanned and controlled (Grīnfelde 2023). Medical technology can reveal the underlying disease, reveal the risk of disease, influence the experience of disease, lead to technological medicalization, change the perception of health and change the socio-cultural role of diagnoses (Hofmann, Svenaeus 2018). Objectification primarily affects our own experience of illness. The body, mediated by imaging procedures such as X-rays, magnetic resonance imaging (MRI) or computed tomography (CT), becomes alien to a person and is perceived as strange, which can lead to a feeling of alienation and loss of control over one's own body. The body is seen as an object of measurements, analyzes and procedures and not as a living and suffering subject of the disease experience. This in turn changes the experience of illness and can affect one's own illness behavior – the loss of autonomy, passivity in the relationship with medical personnel or the loss of responsibility for the healing process (Toombs 1987). But there is another way in which medical technology affects the objectification of one's body, and it is not in the medical context. A significant development in medical objectification is the use of self-tracking by the quantified-self movement (Topol 2015). People are increasingly using wearable sensors to measure bodily parameters like heartbeat, temperature, blood sugar, movement, sleep patterns, and diet. While using technology to quantify bodily characteristics isn't new, the extensive data collection by individuals rather than healthcare professionals is. Self-quantification can lead to better body awareness and control or to self-alienation when numbers replace the lived experience of the body (Svaenus 2023). An important problem for medical hermeneutics today is that self-measurement and genetic testing, which are aimed directly at the consumer, lead to medical objectifications outside the clinic that are interpreted by the patients themselves. While this may strengthen patient autonomy, it is also a cause for concern as it may be difficult for patients to understand and evaluate these objectifications. The sharing of data via health apps and DNA tests from medical technology companies can lead to a commodification of the bodily and physical alienation, making people feel less comfortable with their bodies. Medical objectification can reveal asymptomatic disease markers and future disease

risk factors, exacerbate illness experiences and change our perception of health (Svaenus 2023).

The objectification of the patient`s body is a consequence of the development of medical knowledge and technology supported by the biomedical model of disease.

3. Conclusions and perspectives

Elena Rocca and Rani Lill Anjum state: "Modern medicine, therefore, is faced with a contradiction by which scientific advances and medical technology offer the best opportunities ever, but at the same time an increasing number of patients are over-medicalised, over-diagnosed, become chronically ill, do not find a place in the health system, or feel that they are not met as whole persons in the healthcare system. The biomedical model seems to have played a central role in this development" (Rocca, Anjum 2020). It is undeniable that the biomedical model dominates contemporary medicine, leaving little room for other, non-medical aspects of disease.

The biomedical model influences the fragmentation of patient care through increasing professional specialization, reductionism and objectification. Reductionism leads to a growth of medical specialties, which in turn leads to an increase in the number of specialists. Each patient's illness is treated in isolation from others. A patient has to deal with various specialists, and each of them concentrates on their own field. Reductionism leads to the patient's treatment being concentrated on a limited part of their body, which leads to objectification.

The biomedical model and medical progress lead to an objectification of the patient's body. On the one hand, the body becomes an object of medical measurement and intervention and is usually limited to specific organs, functions or systems. Evidence-based medicine, supported by processes of medicalization and pharmaceuticalization, offers standardized solutions to cure the problem. On the other hand, individuals can objectify their body through self-tracking and self-measurement. The commercialization of medicine can also be an illustration of its own objectification, especially when considering esthetic medicine.

But the increasing number of diseases that have an environmental, behavioral and social background is already changing the approach to medical treatment, which also takes into account non-medical aspects that affect the overall condition of the patient. In addition, thanks to technological advances, patients have access to a variety of medical information sources that increase their awareness and sensitivity to the psychosocial aspects of their condition. This in turn makes them more expectant and demanding in the doctor-patient relationship. With the individualization of the body (Shilling 2021), people become more aware of its signals and needs, they better recognize and understand the symptoms and their

impact on their personal and professional lives. It is important to emphasize that as people become more knowledgeable, they take more responsibility for their health and "shape" their lifestyle more consciously, trying to avoid factors that could have a negative impact on their lives. The patient perspective looks promising, but one can also ask about the medical perspective. The development of treatment pathways, patient navigation and the patient-centered approach are just a few examples of how the medical perspective is changing. Non-medical aspects of diagnosis and treatment are also being taken into account, so that the focus is on the patient and not the disease.

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