

Health-Related Concepts and Cognitive Linguistics

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ABSTRACT

Human behavior is governed by concepts. Concepts are cognitive representations of reality. Cognitive linguistics suggests that there are cognitive models affecting the formation of concepts in human mind, such as cognitive metaphor and a prototype model. We used the example of an ancient procedure – trepanation in order to show the connection between the procedure and the concept of the skull as a container, which is a metaphor. Most important concepts in medical systems are health and disease. There is no agreement about their exact definition, although there have been many studies focusing on that. Based on the previous research, we suggest possible benefits from approaching the disease as a prototype category. In all studies so far there have always been consistencies in rating entities qualifying as a disease which is a feature of a prototype category – membership gradience. Entities perceived as diseases by respondents in studies so far have not been the same, but they share certain features. It is more likely for an entity to be considered a disease if it can lead to death, for example. In our opinion there are common core features determining disease as a cognitive category. Further cross-cultural studies could answer what features an entity needs to have in order to be considered a disease. Stressing such features could improve patients' cooperation when a new disease appears.

Keywords: *medical anthropology, disease, trepanation, cognitive science, concept formation, history of medicine*

Introduction

The key concept for medical systems is health, which is defined by the World Health Organization (WHO) as „a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity“¹. Disease is mentioned in the definition of health, but it is not itself defined by WHO. According to Medical Subject Headings (MeSH), disease is „A definite pathologic process with a characteristic set of signs and symptoms. It may affect the whole body or any of its parts, and its etiology, pathology, and prognosis may be known or unknown“². Both health and disease seem to be simple, straightforward phenomena, but there is no definition for either of them that would be universally accepted and undisputed³.

Many scholars have dealt with health and disease as concepts, in different ways. Some scholars analysed the term or the word representing the concept, its etymology, and relations between the words and meanings of the words ‘health’, ‘disease’, ‘illness’ and ‘sickness’^{4,5}. Some of them analysed opposing theories of defining health^{6,7}, effects those concepts have on health-related behavior⁸ or different aspects of health and disease as concepts^{3, 9-12}. A

common denominator in all these studies was the conclusion that these concepts are too elusive to be firmly defined¹³. The other aspect all these analyses share is the premise that there is actually a common core of ideas about what health and disease are¹³. However, the majority of the aforementioned research lacks awareness about the concept itself. It is our goal to explore potential significance of applying some new ideas in cognitive linguistics about the human conceptual system to the components of a medical system.

Medical systems represent the interplay between medical science and the application of that science with the purpose of improving human health. Medicine is both an art and a science. The other important dichotomy in every medical system is the healer/patient dichotomy. It is true, however, that 228 million cases of malaria occurred in 2018 and 405 thousands people died of malaria the same year¹⁴. Malaria is a preventable and curable disease, so the number of cases and deaths caused by malaria, as an example, show that there is a gap between the medical science and its application. There are many reasons why medicine is not as successful as it could be, including po-

litical or economic reasons. But, there are examples when the effectiveness of medical knowledge in practice was diminished by poor communication between experts and patients. For instance, medical anthropologist Sara Crabtree and her colleagues worked on prevention of the dengue in Malaysia. While talking to the members of the affected community, they discovered that the communities were not aware of the mosquito-borne disease transmission, implying they did not focus on defending themselves against mosquito bites. That was addressed through appropriate measures created in cooperation with the communities and resulted in success¹⁵. The dengue example shows it is important to share scientific knowledge or concepts in an appropriate way with the general population. It was important for the members of those communities to perceive mosquitos as a potential health threat. According to this example, medical systems could be more effective if they would establish cognitive models of knowledge and if they would be able to successfully share that with the potential beneficiaries.

Our paper, therefore, has three parts. The first one is a very short overview of cognitive linguistics and its ideas relevant for our further analysis. The second part is dedicated to trepanation. We will use that procedure as an example to show that medical procedures have an underlying concept and also to demonstrate how that underlying concept can potentially affect the relation between the medical experts/healers and the recipients of their medical art. The third part is the analysis of previous research of 'disease' as a concept through the prism of disease as a prototype category.

Cognitive Linguistics

The conceptual system can be described as a filter between the surrounding reality and the thoughts appearing in the mind. It is not a process humans are aware of¹⁶. It is considered in cognitive linguistics that thoughts are embodied, imaginative, and having gestalt properties and an ecological structure. Conceptual structure can be described using cognitive models^{16–18}. One of them is the metaphor and it has already been suggested in which way medicine is connected to metaphor¹⁹. Metaphor is understanding and experiencing one kind of thing in terms of another¹⁶. This does not implicate simply using one word instead of another, it also means using a word to denote a concept, or the use of a concept to understand another concept. There are many examples for that, for instance, e.g. TIME IS MONEY – it can be spent like money, it is valuable and so on.¹⁶

The other cognitive model significant for our analysis is the prototype, central to the prototype theory of language¹⁸. A prototype is important in conceptual categorization. It means that some members of a category can be better examples of that category than the others, even when it comes to 'natural' categories. For instance, a robin is a better example for the cognitive category 'bird' than a penguin or a chicken¹⁷. Members of a category share properties based on the principle of family resemblance¹⁷.

It is important to stress that the prototype theory implies gradience of shared properties or attributes rather than binarism, in the sense that owning a certain attribute is a guarantee of membership or non-membership in a category. For instance, if a living creature does not possess the capability to fly, that does not automatically mean that the creature is not a bird – and a penguin is an example for that. The prototype model is similar to a syndrome in medicine. A syndrome has a cluster of symptoms and/or signs and not all of them have to be present to establish the diagnosis of a certain syndrome. Some symptoms and/or signs may be prototypical – more central and significant in a certain syndrome. For instance, Edwards syndrome has a central characteristic sign – trisomy 18, but its other diagnostic signs may be the same as in Patau syndrome with trisomy 13 as the central sign. Heart defects and cleft lip and palate, for example, appear in both.

Trepanation – Metaphor in Therapy

All human cultures have medical systems. Archaeological findings confirm that people took care of their health even in prehistoric times. One of the most fascinating and researched topics on that subject is trepanation – a procedure of removing a piece of the skull bone. There is material evidence that trepanation was performed in Europe (including Croatia),^{20–24} Asia,^{25–27} South America and Africa^{27, 28}. Five main techniques were used, all with the same aim – to create a hole in the head.²⁹ Trepanation was widely performed in Europe up until the 1850s. At that time the procedure started taking place in hospitals causing the mortality rates to become so high (because of infections) that it meant an almost certain death, so it made no sense to perform them^{27, 29}. However, it was still done in Africa until recently and there is an initiative trying to make it again popular today in Europe^{27, 29}.

The motivation to undergo or perform the procedure was a matter of interest to scholars. When it comes to prehistoric people, it is not possible to be completely certain why they did it, although there are different theories. Pioreschi, according to Faria²⁰, thinks it is possible that the Neolithic people noticed some individuals considered to be dead (probably losing consciousness due to a head injury) become un-dead, so they tried to achieve the same effect themselves - by trepanation. That would explain the post mortem trepanations and the interrupted ones – because the 'dead' may have woken during procedure²⁰. It is considered by some researchers that the goal of the procedure was to let evil spirits out of the head,^{20, 22, 29} although other argue that it was purely therapeutic²⁸. It is not possible to be certain why prehistoric people thought they should be trephined, but written sources from the past and participants of recent trepanations can be of help in finding possible explanations. In ancient Greece philosophy of illness was based on the humoral theory according to which imbalance and separation of humours (four bodily fluids) was thought to be the cause of diseases³⁰. One of the humours is blood. It was thought that it was necessary to let the blood out to prevent it from becoming spoiled. Indications

for trepanation in Hippocratic Corpus are head wounds, except for depressed fractures²⁹. On the other hand, there are findings of trephined skulls exclusively with prior depressed fractures in Peru²⁸. Galen argued that the evacuation of the humour phlegm was the cure for epilepsy and that could be achieved by trepanation³¹. Europeans performed trepanation in the past in order to let the 'evil air breathe out' while the Kisii people of South Nyanza in Kenya practice trepanation, or at least did until recently, as a completely common way to release headache after head injury. Some of them do believe it is to let evil spirits out, because they believe evil spirits cause the headache²⁹. Certain members of the International Trepanation Advocacy Group underwent trepanation and they claim the skull should be opened in order for blood to flow more freely and to give brain more space because it has a positive impact on a person's wellbeing²⁷.

It seems indisputable that it was really important to people all over the world to find a way to open skulls, because it is not easy to open a human skull. Several techniques were deployed²⁹. People underwent the procedure because they felt certain unpleasant physical sensations and they believed the procedure was going to remove them. Both the person doing and the person undergoing the procedure shared the belief or the idea that the unpleasant sensation was caused by the quantity or the quality of the skull content. In both cases the solution was to simply let some content out. That shared belief or the idea is a concept. There is an interesting example which shows why sharing concepts is important. It is a story from a Chinese novel written between 14th and 17th century about a Chinese doctor who suggested trepanation to an army commander as a cure for his unbearable headache. The doctor was executed because the commander thought he was trying to kill him, merely for proposing such a possibility²⁹. The commander seemed to have not understood the logic of the procedure, although the doctor explained he would release bad humours that way.

The motivations for the procedure were not unique, neither were the indications, but people did it in the human past all over the world. What links all its versions is the underlying metaphor of the skull as a container inside which is the content (which is and could have been visible by merely watching human remains). Trepanation is necessary when there is too much content or the content is bad - in order to let it out or when there is not enough room for the content. As Gross argues, when it comes to head injuries, headaches accompany them and they do feel like pounding,²⁹ which is the embodiment of the concept and people can conclude their skull is a container based on physical experience. It is the physical sensation accompanied by the knowledge that the human skull is somewhat similar to a container of a sort that could have led people to imagine there was some content in the skull that needed to be removed by opening it, or should be given more space that way. That idea enabled people to come up with techniques to open the skull, to perform that procedure and to find people willing to let their skull be opened. It is an example of how a conceptual metaphor affects therapy.

Prehistoric people created a procedure which is still performed in the 21st century. The metaphor of SKULL IS A CONTAINER enabled them to do that and it shows that perception or conceptualization of the human body/body parts is important in creating new knowledge and ways to apply it. Another example which confirms how important concepts are in medical science is William Harvey's discovery of blood circulation. He discovered that blood circulated in a closed system and that no new blood was produced and sent through vessels to different parts of the body where it stayed, as it had been believed until then³². That was one of the most significant discoveries in the history of medicine because of the great implications it has had in numerous medical fields, including therapeutic implications. The idea that BLOOD IS CIRCULATORY caused a complete shift in the perception of the way the human body works and that enabled new important discoveries.

Disease as a Prototype Category

Medical systems around the world operate with the concepts which are in English denoted by words 'health' and 'disease'. The meaning of the words and the concepts themselves can vary depending on the culture or language. The English triad 'disease/sickness/illness' does not, for example, exist in Croatian, where there is only one word 'bolest' (derived from 'bol' meaning 'pain') that signifies the same conceptual domain³³. But, there is a difference between a sign – as an objective change of an organism recognized by a medical expert, and a symptom – a subjective change or a disorder as a patient's sensation³⁴. Signs belong to disease and symptoms to illness. It is the same idea expressed differently showing that the same entity – disease is not perceived in the same way by experts and non-experts. Research has shown that certain concepts have influence on health-related behavior⁸ as can be expected since concepts govern complete human everyday functioning through the way reality is constituted in human minds¹⁶.

Disease is a biological and cultural universal, no matter what word or words are used to signify it. Medical experts possess a different concept of disease than lay people do³⁵, but the theory of the embodied nature of the human conceptual system allows for the assumption that there is a common core of the concept, perhaps even across different cultures. That common core is what previous studies about the concept of disease focused on. One of the attempts to define illness resulted in creating 'the common sense model of illness' (CSM) with the purpose of improving the patient's compliance because it became apparent that the patient's approach to therapy depends on his or her perception of illness³⁶. The first CSM was created by Leventhal, a health psychologist, and his associates, in the 1980s³⁶. Their model comprised four components that determined the way disease was perceived – identity, consequences, timeline and cause³⁷. That model was based on the perception of the disease by the patients treated for hypertension, cancer and those subjected to cardiac bypass surgery³⁷. The fact that respondents were actually patients with certain health conditions had an effect on

their perception, making it less universal and Leventhal and his associates noticed themselves that the patient's theory of illness changed with experience³⁶. For this reason, Lau, also a health psychologist, and his team added cure as the fifth component of the model, because they included the perception of common illnesses³⁷. Leventhal et al. later adapted their components into identity, timeline, consequences, cause and control³⁸. However, these components are the basis for the classification of diseases, they are the features of an entity, not a concept itself. CSM answers the question – what kind of a disease is it?, rather than the question – is it a disease? It is applicable after it is determined that something is actually a disease, not before that. However, the components of the CSM can be helpful when investigating shared properties of the members of the disease category.

CSM was created by health psychologists and it does not have anything to do with the cognitive models defined by cognitive linguistics. After the prototype theory was introduced, health psychologists applied it to diseases, but not to the category 'disease' in the sense of defining it. It was applied to discover how disease prototypes relate to the sets of symptoms and if a set of symptoms can be recognized as a particular disease by laypeople and it was confirmed that there were certain prototypes for particular diseases³⁹. Similar research was done by von Lengerke who focused on distinctiveness of individual disease prototypes⁴⁰.

Like CSM, studies about prototypes of particular illnesses do not question if something is a disease or not, but simply assume something is a disease and then question what makes it a disease. It is necessary to investigate what constitutes the 'disease' category first, what are the members of that category, and then analyse their properties, because the real questions are where is the line between disease and non-disease and what is a disease along with a question whether 'disease' is a prototypical category.

Sadegh-Zadeh advocates the idea that the concept of the disease must be defined prescriptively, not descriptively⁴¹. He created 'the prototype resemblance theory of disease'⁴². It is stressed in his work that it is necessary to distinguish the 'disease' as a general category from individual diseases, and also from the patient's disease state.⁴² He recognizes disease as a deontic construct relative to a certain society, which means a particular human condition may be classified as a disease in a particular society and as a non-disease in another one⁴¹. The theoretical frame is very meticulously constructed in Sadegh-Zadeh's work through dealing with all the aspects pertinent to the 'disease' concept. His 'prototype resemblance theory of disease' describes the category of 'disease' as comprised of complex human conditions with the primary characteristic of being action-provoking state⁴²: „A human condition is not medically treated because it is a disease, but because it is a disease to a particular extent that is no longer tolerable"⁴². Sadegh-Zadeh mentions focal diseases as those known to the human society for a very long time. According to him 'disease' category is a multifocal category and there is not one prototypical disease. He also men-

tions the Hippocratic Corpus and examples of stroke, breast cancer, and angina pectoris⁴². He considers 'disease' to be a dynamic category, which has around 50 000 members, and „everyday new ones are added (e.g., alcoholism, computer game addiction, bulimia, dyslexia, etc.) and some other ones are removed (e.g., homosexuality, hysteria, neurasthenia, chlorosis, and drapetomania)"⁴². Sadegh-Zadeh concludes that „according to this theory, human conditions that constitute the category of diseases in medicine do not have sufficient and necessary features of diseasehood. The category is organized around a number of prototypes as its foci such that other human conditions that resemble them to particular extents are also included in the category to be called diseases"⁴². Sadegh-Zadeh stressed the cultural and the social aspect of the 'disease' concept.⁴² As a concept is a cultural construct, it is necessary to know who constructed a certain category. Sadegh-Zadeh's category of 'disease' belongs to the Western medicine, as stated in his work.⁴² He has a different approach to the 'disease' category than, for instance, Rosch had when investigating the 'bird' category. Sadegh-Zadeh claims that 'disease' category should be defined prescriptively, not descriptively, as already stated⁴¹. He does not question what belongs to the category, he defines it. Sadegh-Zadeh mentions examples from ancient Greece in his work⁴² and it is a fact that all past and present societies, as much as we know, have had medical systems including disease and the concept of disease^{15, 43}. Although the 'disease' category is a cultural construct, the human conceptual system is embodied^{16, 17} which enables mutual understanding and creates room for the premise that there is a part of that category which is universal. It seems that Sadegh-Zadeh is implying that the prescribed category 'disease' should actually be the category formed by the Western medicine as he defined members of the category by terms used in the Western medicine. Such a category would be useful, but it is the premise of this analysis that there is an intuitive 'disease' category universal to all humans, on the grounds of the embodiment of the human conceptual system.

There is a research testing Sadegh-Zadeh's hypothesis done by Hofmann, an expert in philosophy of medicine, stating that disease is not a prototypical category amongst health professionals⁴⁴. In his study health professionals were given a list of entities and were asked to rank diseases in accordance to what they consider to be a more typical disease⁴⁴. It is not really clear why he asked that question, rather than if something at all was a disease in the view of the respondents. Could a typical disease be the one which appears more often, for example? The prototype is not defined by the attribute of 'typical' but with the prototype – the typical member. The list of entities, presumed to be diseases was taken from a study about health professionals' conceptions of prestige related to diseases⁴⁴. In that study it was concluded that a higher level of prestige was related to technologically sophisticated, immediate and invasive procedures, and also to treating young people rather than the elderly, among other⁴⁵. On the other hand, Sadegh-Zadeh claims that Western medicine

focal diseases on which the category ‘disease’ is based exist for a very long time⁴² and that it is common knowledge that old-age is associated with vulnerability to diseases. Old-age diseases are more typical. That does not mean that the list was not valid for the research about the possible prototype, but it is unclear why it was not adapted, at least, in accordance to Sadegh-Zadeh’s hypothesis.

Two other studies used methods comparable to Hofmann’s. They were also based on a list of entities given to respondents, but the question was „is it a disease?“, without the presumption that a certain entity was a disease. The first study was conducted by Campbell et al. in 1979³⁵, followed by a similar study carried out by Erueti et al.⁴⁶ in 2012. In Campbell et al.’s study respondents were from UK and Canada, both laypeople and medical experts. Researchers read 38 terms and asked respondents to mark the term with yes or no, and state if they are certain or uncertain about their answer³⁵. Erueti et al.’s respondents were medical students who were asked to respond whether in their opinion something was a disease⁴⁶.

Hofmann’s respondents were given a list of 62 diseases, Campbell et al.’s 38 terms and Erueti et al.’s 36 terms. The aforementioned three studies had different respondents in regards to their medical education, different lists of diseases and the inquiries were conducted in different settings at different times. Nevertheless, they do share the common feature connected to prototype categories which is consistency in rating certain members of the category⁴⁷. In all three studies there was a higher level of agreement around those entities which were ranked as the most highly likely a disease and the most highly likely not a disease while in the middle range the level of agreement was comparably lower. Entities ranked highest could be considered as what Sadegh-Zadeh calls focal diseases or central members of the category. Entities consistently awarded the status of ‘disease’ in Campbell’s study were malaria, tuberculosis, cancer of the lung, syphilis, poliomyelitis, emphysema, measles, diabetes mellitus and multiple sclerosis,³⁵; while in the 2012 study those were diabetes mellitus, tuberculosis, multiple sclerosis, myalgic encephalomyelitis, haemophilia, cancer of the lung, measles, epilepsy, polycystic ovary syndrome and fibromyalgia.⁴⁶ In the Hofmann’s study lung cancer, leukemia, colon cancer, myocardial infarction, AIDS, renal failure, multiple sclerosis and diabetes were consistently considered to be typical diseases with less standard deviation for participants⁴⁴. Campbell et al.’s research showed that respondents were consistent in classifying drowning and starvation as non-diseases,³⁵ while in Erueti et al.’s study such entities were heat stroke, fractured skull, baldness, menopause⁴⁶. In Hofmann’s study standard deviation for participants in rating dissidence, drapetomania, homosexuality and pregnancy was approximately as low as it was for entities frequently considered to be diseases – less than 1 for the first five diseases ranked as most typical and it was also less than 1 for homosexuality – ranked lowest and then the next four were around 1.5⁴⁴. It is might not be a statistically significant difference, but there is a common tendency obvious in all three studies

toward a higher level of agreement for what is considered to be a disease and also for entities considered non-diseases, while there was less agreement around entities for which respondents were unsure if they were diseases. It is also interesting to note that in Campbell et al.’s research the experts ranked disease in the same order as the laypeople, but there was a difference in the level of certainty – medical experts were generally more inclined to define something as a disease in relation to laypeople. That was again most expressed in the middle of the ranking order, that is where there was the highest level of difference between laypeople and medical experts, while there was a higher level of agreement between them around the entities ranked the most highly likely to be diseases and the most highly unlikely³⁵.

Concepts are determined by frames, such as knowledge, or cultural belief and practices¹⁸. For instance, the ‘bird’ category would not be the same around the world, because there are no robins everywhere. But it would be expected that some bird with similar features would take its place, not a penguin or an ostrich, for example. Sadegh-Zadeh stresses that ‘disease’ category is culturally conditioned⁴², and also that occurrence of new diseases changes the concept, because the reality of medical systems changes. In the ‘bird’ category robin is a central member, with attributes „has feathers, has a beak, lays eggs, chirps, flies“⁴². If robins theoretically do not exist in some part of the world, would that mean that there would be no prototypical bird? Or, what we consider to be more likely, the central member would be a bird with attributes similar to a robin, because those attributes are distinctive for the ‘bird’ category. Following Sadegh-Zadeh, if a robin is central to the ‘bird’ category because it has distinctive attributes, there might be types of diseases, those which Sadegh-Zadeh calls focal diseases, central to ‘disease’ category. Sadegh-Zadeh says „It is thus a multifocal resemblance category comprising, around different foci, subcategories such as infectious diseases, heart diseases, genetic diseases, and so on“⁴². Malaria, ranked highest in Campbell et al.’s study, was not a part of Hofmann’s and Erueti et al.’s list, and diabetes ranked higher in these two studies as compared to Campbell et al.’s research. Malaria is not widespread nowadays as much as it was in the past, unlike diabetes. That could mean epidemic diseases are more likely to be considered diseases, they become a part of wider human experience by affecting more people. It is also a fact that there are entities consistently ranked high as diseases in all three studies including lung cancer, diabetes and multiple sclerosis. That could also be considered a confirmation of the theory that ‘disease’ is a prototype category. However, members of a category must not be confused with their attributes. It seems that it is more likely an entity will be considered a disease if its consequence can be death, for example. When it comes to the cause, infectious diseases rank high, together with sexually transmitted diseases. All these are observations that can be made at first glance, but further analysis is necessary in order to create a model of properties that make a disease prototypical.

Conclusion

Since knowledge is important in creating a concept,¹⁸ concepts can differ between different cultures, throughout history, or between experts and laypeople. Campbell et al.'s research has shown that medical experts are more willing to call an entity a disease than lay people³⁵ which can have an effect on patients' compliance. There are many examples from medical anthropology showing how ideas about health, disease and cure affect health-related behavior and health attitudes^{15, 43, 48}. If lay ideas are not correspondent with experts' ideas, it could contribute to a patient being less compliant. In other words, if a person does not think he or she has contracted a disease, it is not likely he or she will commence with therapy. COVID-19 pandemic raised many questions on compliance and perception of the disease caused by the novel virus, including conspiracy theories and falsehoods⁴⁹⁻⁵². Trust in science has been noted as important in complying to epidemiological measures⁵⁰. Knowing what laypeople consider to

be attributes or characteristics of a disease, what is their concept of disease, may contribute to better communication and explaining the severity of a specific disease. That could be achieved by a cross-cultural comparison of what people think is a disease and what they do not consider to be a disease. Previous research testing the notion of 'disease' has shown a tendency to a higher level of agreement about what is most likely a disease and also about what is not likely a disease. Cross-cultural research would help discover the intuitive, universal model of disease based multi focally on prototypical diseases.

Cognitive concepts govern all human behavior, including health-related behavior, and cognitive models can influence medicine. Perceiving human body through cognitive models affects both patient's compliance and creating therapies, as in the example of trepanation. Understanding and recognizing cognitive concepts can help improve application of modern medicine while recognizing and analysing the concepts of diseases and the human body can have a positive effect on therapy.

REFERENCES

1. WHO, Official Records of WHO, 1946. Accessed 10.07.2020. Available from: <https://apps.who.int/iris/> — 2. MeSH, Disease. Accessed July, 15, 2020. Available from: <https://www.ncbi.nlm.nih.gov/mesh/?term=disease>. — 3. SCULLY JL, EMBO reports, 5 (2004) 650. DOI: 10.1038/sj.embor.7400195. — 4. HOFMANN B, J Med Philos, 27 (2002) 651. DOI: 10.1076/jmep.27.6.651.13793. — 5. MORDACCI R, SOBELL R, The Hastings Center Report, 28 (1998) 34. DOI: 10.2307/3527973. — 6. NORDENFELT L, Med Health Care Philos, 10 (2007) 5. DOI: 10.1007/s11019-006-9017-3. — 7. FRENK J, GÓMEZ-DANTÉS O, J Public Health Pol, 35 (2014) 401. — 8. WIKMAN A, MARKLUND S, ALEXANDERSON K, J Epidemiol Community Health, 59 (2005) 450. DOI: 10.1136/jech.2004.025346. — 9. COHEN H, Proc R Soc Med, 48 (1955) 155. — 10. BORUCHOVITCH E, MEDNICK B, Psico-USF, 7 (2002). DOI: 10.1590/S1413-82712002000200006. — 11. HALLOWELL AI, Am Anthropol, 37 (1935) 365. — 12. APOSTU M, Procedia - Soc Behav Sci, 92 (2013) 50. DOI: <https://doi.org/10.1016/j.sbspro.2013.08.636>. — 13. BOYD KM, Med Humanit, 26 (2000) 9. DOI: 10.1136/mh.26.1.9. — 14. WHO, Malaria. Accessed October 30, 2020. Available from: https://www.who.int/health-topics/malaria#tab=tab_1. — 15. SINGER M, BAER HA, Introducing medical anthropology : a discipline in action (AltaMira Press; 2007). — 16. LAKOFF G, JOHNSON M, Metaphors we live by (Chicago and London, University of Chicago Press, 1980). — 17. LAKOFF G, Women, fire, and dangerous things : what categories reveal about the mind (Chicago and London, The University of Chicago Press, 2012). — 18. TAYLOR JR, Linguistic categorization (Oxford, University Press, 2009). — 19. BLEAKLEY A, Thinking with metaphors in medicine: The state of the art (New York, Routledge, 2017). — 20. FARIA MA, Surg Neurol Int, 6 (2015) 72. DOI: 10.4103/2152-7806.156634. — 21. CARIĆ M, TRESIĆ PAVIČIĆ D, MIKIC I, ČAVKA M, CVITKUŠIĆ B, JANKOVIĆ I, TOYNE JM, NOVAK M, Anthropologie (Czech Republic), 58 (2020) 39. DOI: 10.26720/anthro.19.12.06.1. — 22. GRESKY J, BATIEVA E, KITOVA A, KALMYKOV A, BELINSKIY A, REINHOLD S, BEREZINA N, Am J Phys Anthropol, 160 (2016) 665. DOI: 10.1002/ajpa.22996. — 23. MOGHADDAM N, MAILLER-BURCH S, KARA L, KANZ F, JACKOWSKI C, LÖSCH S, Int J Paleopathol, 11 (2015) 56. DOI: 10.1016/j.ijpp.2015.08.002. — 24. NOVAK M, NAĐ M, PLEŠE T, ČAVKA M, Acta medico-historica Adriatica: AMHA, 11 (2013) 197-212. — 25. LV X, LI Z, LI Y, World Neurosurg, 80 (2013) 897. DOI: 10.1016/j.wneu.2012.08.009. — 26. REDDY DR, SATYAMURTHY T, Neurol India, 67 (2019) 639. DOI: 10.4103/0028-3886.263227. — 27. ANDRÉ C, Arq Neuropsiquiatr, 75 (2017) 307. DOI: 10.1590/0004-282x20170040. — 28. JØRGENSEN JB,

- Acta Neurochir, 93 (1988) 3. DOI: 10.1007/BF01409893. — 29. GROSS CG, A Hole in the Head: A History of Trepanation. In: GROSS CG, A hole in the head: more tales in the history of neuroscience (Cambridge, MIT Press, 2012). Accessed 08.07.2020. Available from: <https://thefreader.mitpress.mit.edu/hole-in-the-head-trepanation/>. — 30. JOUANNA J, ALLIES N, The Legacy of the Hippocratic Treatise The Nature of Man: The Theory Of The Four Humours. In: VAN DER EIJK P (ED) Greek Medicine from Hippocrates to Galen (Brill, 2012). — 31. SCHIJNS OE, HOOGLAND G, KUBBEN PL, KOEHLER PJ, Neurosurg Rev, 38 (2015) 447. DOI: 10.1007/s10143-015-0641-3. — 32. PASIPOULARIDES A, J Appl Physiol, 114 (2013) 1493. DOI:10.1152/jappphysiol.00216.2013. — 33. GRMEK MD, BUDAK A. Uvod u medicinu (Globus, Zagreb, 1996). — 34. Simptom. Accessed 17. 9. 2020. Available from: <https://www.enciklopedija.hr/natuknica.aspx?id=56066>. — 35. CAMPBELL EJ, SCADING JG, ROBERTS RS, BMJ, 2 (1979) 757. DOI: 10.1136/bmj.2.6193.757. — 36. LEVENTHAL H, MEYER D, NERENZ D, The common sense representation of illness danger. In: S. RACHMAN (Ed) Contributions to medical psychology (New York, Pergamon Press, 1980). — 37. LAU RR, HARTMAN KA, Health Psychol, 2 (1983) 167. DOI: 10.1037/0278-6133.2.2.167. — 38. LEVENTHAL H, PHILLIPS L, BURNS E, Psychological Topics, 25 (2016) 1-18. — 39. BISHOP GD, CONVERSE SA, Health Psychol, 5 (1986) 95. DOI: 10.1037/0278-6133.5.2.95. — 40. VON LENGERKE T, Psychol Health Med, 10 (2005) 108. DOI: 10.1080/13548500512331315416. — 41. SADEGH-ZADEH K, J Med Philos, 25 (2000) 605. DOI: 10.1076/0360-5310(200010)25:5;1-w:ft605 — 42. SADEGH-ZADEH K, J Med Philos, 33 (2008) 106. DOI:10.1093/jmp/jhn004 — 43. FOSTER GM, ANDERSON BG, Medical anthropology (New York, John Wiley and Sons, 1978). — 44. HOFMANN B, Philos Ethics Humanit Med, 12 (2017) 6. DOI: 10.1186/s13010-017-0047-7. — 45. ALBUM D, WESTIN S, Social Science & Medicine, 66 (2008) 182. DOI:<https://doi.org/10.1016/j.socscimed.2007.07.003>. — 46. ERUETI C, GLASZIOU P, MAR CD, VAN DRIEL ML, BMC Med Educ, 12 (2012) 19. DOI: 10.1186/1472-6920-12-19. — 47. HAMPTON J, J Mem Lang, 34 (1995) 686. DOI: 10.1006/jmla.1995.1031. — 48. PELTO PJ, PELTO GH, Med Anthropol Q, 11 (1997) 147. DOI: 10.1525/maq.1997.11.2.147. — 49. ALPER S, BAYRAK F, YILMAZ O, Curr Psychol, (2020) 1. DOI:10.1007/s12144-020-00903-0 — 50. PLOHL N, MUSIL B. Psychol Health Med, (2020) 1. DOI: 10.1080/13548506.2020.1772988. — 51. CLARK C, DAVILA A, REGIS M, KRAUS S. Glob Transit, 2 (2020) 76. DOI: 10.1016/j.glt.2020.06.003. — 52. DHILLON P, BREUER M, HIRST N, FEBS J, (2020). DOI: 10.1111/febs.15442.

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KONCEPTI POVEZANI SA ZDRAVLJEM S ASPEKTA KOGNITIVNE LINGVISTIKE

SAŽETAK

Ljudskim ponašanjem upravljaju koncepti. Koncept je kognitivno predstavljena stvarnost. Prema kognitivnoj lingvistici, postoje kognitivni modeli koji utječu na oblikovanje koncepata u ljudskome umu. Među njih se ubrajaju kognitivna metafora i model prototipa. Na primjeru drevnoga postupka – trepanacije, prikazali smo povezanost samoga postupka i koncepta ljudske lubanje kao spremnika, što je metafora. Najvažniji su koncepti u medicinskome sustavu – zdravlje i bolest. Ne postoji njihova općenito prihvaćena definicija, mada je to bio predmet mnogih istraživanja. Na temelju prethodnih istraživanja moguće je zaključiti da postoje određene prednosti u pristupanju bolesti kao prototipnoj kategoriji. U svim dosadašnjim studijama postojala je dosljednost u procjenjivanju toga može li se određeni entitet kvalificirati kao bolest, što je karakteristika prototipne kategorije – stupnjevana pripadnost. Entiteti percipirani kao bolesti nisu jednaki za sve ispitanike u dosadašnjim studijama, ali dijele određene karakteristike. Veća je vjerojatnost da će neki entitet biti smatran bolešću ako može dovesti do smrtnog ishoda, na primjer. Smatramo kako postoji zajednička baza obilježja koja određuje bolest kao kognitivnu kategoriju. Daljnja međukulturna istraživanja mogla bi odgovoriti na pitanje koja su to obilježja koje entitet mora posjedovati kako bi ga se smatralo bolešću. Naglašavanje takvih obilježja moglo bi poboljšati suradljivost pacijenata u slučajevima pojave novih bolesti.