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ENGLISH PHILOLOGY

CONCEPTUAL METAPHORS IN POPULAR MEDICAL DISCOURSE

BACHELOR THESIS

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KONCEPTUALIOSIOS METAFOROS POPULIARIAJAME MEDICINOS DISKURSE. SANTRAUKA

Bakalauro darbo tema – konceptualiosios metaforos populiariajame medicinos diskurse. Konceptualioji metafora yra apibrėžiama kaip vienos sąvokos, reiškiančios abstraktų dalyką, supratimas remiantis kita sąvoka, atspindinčią konkretų reiškinį. Populiariajam medicinos diskursui priskiriami žurnalų, laikraščių, internetinių naujienų svetainių straipsniai, brošiūros ir kita. **Darbo objektas** – konceptualiosios metaforos populiariuose medicinos straipsniuose. **Tyrimo tikslas** – nustatyti ir išanalizuoti konceptualiąsias metaforas populiariajame medicinos diskurse. Tikslui pasiekti užsibrėžti šie **uždaviniai**:

1. Pristatyti teorinę medžiagą apie konceptualiąsias metaforas;
2. Apžvelgti populiariojo medicinos diskurso ypatybes;
3. Atpažinti, išanalizuoti ir suklasifikuoti konceptualiąsias metaforas, pasireiškiančias metaforiniais pasakymais populiariajame medicinos diskurse;
4. Pateikti skirtingų konceptualiųjų metaforų procentinį pasiskirstymą.

Darbo **metodai**: 1) Metaforos nustatymo metodika MIP; 2) Konceptualiosios metaforos analizė; 3) Statistinis metodas. Tyrimo **imtis –** 210 metaforinių pasakymų, surinktų iš internetinių naujienų svetainių.

Baigiamojo darbo **struktūra.** Pagrindinės dalys: 1) teorinė dalis apie konceptualiąsias metaforas; 2) praktinė dalis, kurioje pateikiama konceptualiųjų medicinos metaforų analizė. Į darbą taip pat įeina įvadas, išvados, pateikti literatūros, žodynų, šaltinių sąrašai abėcėlės tvarka bei priedas.

Išvados. Atlikta analizė parodė, kad MEDICINA populiariajame medicinos diskurse gali būti suvokiama per KARO, DETEKTYVO ir ŽEMDIRBYSTĖS metaforas. Minėtos metaforos atskleidžia skirtingus MEDICINOS koncepto aspektus: žmogaus santykį su liga, diagnozės nustatymą ir medicininių procedūrų atlikimą. Priešingi konceptai SVEIKATA ir NESVEIKATA atitinka erdvinę aukštyn-žemyn orientaciją. Populiariuose medicinos tekstuose LIGA, žyminti abstraktų reiškinį, gali būti pateikta kaip konkretus fizinis, tačiau neįvardytas subjektas. Ši konceptualioji metafora, t.y. LIGA YRA FIZINIS SUBJEKTAS, būna praplečiama iki LIGA YRA GYVAS SUBJEKTAS ir konkretizuojama kaip ŽMOGUS, GYVŪNAS ar AUGALAS. Be to, ŽMOGAUS KŪNAS yra suvokiamas kaip LŪŽUS OBJEKTAS ir taip pat būna konkretizuojamas kaip MAŠINA ar PASTATAS. Iš visų nustatytų konceptualiųjų metaforų populiariuose medicinos straipsniuose labiausiai paplitusi yra MEDICINA YRA KARAS. Dažniausios konceptualiosios metaforos pagal pažinimo funkciją yra struktūrinės, o pagal konvencionalumo lygį – konvencinės.

CONTENTS

INTRODUCTION

There has been a spate of interest in metaphors since an ancient Greek philosopher and scientist Aristotle was the first one to provide the theory of metaphor. This classical perspective regarded metaphor as an element of figurative language that is used deliberately for rhetorical and poetic purposes. However, in the 20th century, Lakoff and Johnson in *Metaphors We Live By* (1980) made a revolutionary claim that metaphors are pervasive in everyday speech and are used subconsciously, naturally and without a deliberate purpose. They reflect the perception of an abstract concept in terms of another more concrete concept in the human thought system and are called conceptual metaphors. This approach to metaphor relates to a cognitive linguistics approach: the human thinking and understanding of life is reflected in a natural language. Since metaphors can be used in an ordinary language, they are present in a wide variety of discourses, including popular medical discourse. Conceptual metaphors have been researched to find out how various abstract concepts are perceived through concrete concepts in the human culture.

The **subject** of the thesis is conceptual metaphors in popular medical discourse. They allow to understand how difficult medical concepts are understood in terms of simpler concepts.

The **object** of the research is conceptual metaphors in popular medical articles published in news websites, such as bbc.com, theguardian.com, and telegraph.co.uk, among others. The **scope** of the research is 210 metaphorical expressions.

The **aim** of the present paper is to identify and analyse conceptual metaphors in popular medical discourse. To achieve the main aim the following **objectives** have been set up:

1. To present the theoretical material regarding conceptual metaphors;
2. To review characteristics of popular medical discourse;
3. To identify, analyse and categorize conceptual metaphors manifested by metaphorical expressions in popular medical discourse;
4. To present the distribution frequency and percentage of different conceptual medical metaphors.

The **relevance** of the work. Conceptual metaphors have been researched by prominent contemporary linguists (Lakoff and Johnson 1980, Gudavičius 2000, Marcinkevičienė 2006, Cibulskienė 2006, Semino 2008, Lakoff and Turner 2009, Kövecses 2010, Steen et al. 2010; among many). The pervasion of conceptual metaphors in medical discourse have been studied by Sontag 1978, 1989, Burnside 1983, Hodgkin 1985, Ross 1988, 1989, Norton et al. 1990, Stibbe 1997, Van Rijn-Van Tongeren 1997, Rapezzi et al. 2005, Papaurėlytė-Klovienė 2014, and other scholars as well.

The **novelty** of research. Metaphorical expressions were collected from popular medical news articles published during the period of 2018-2020. The majority of selected articles focus on individual people's experience with illness, while some of them are informative articles of a general type.

The following **methods** was employed in this thesis:

1. Metaphor Identification Procedure allowed to identify metaphorical expressions in the news articles concerning health issues;
2. Conceptual Metaphor Analysis was applied to identify and analyse conceptual metaphors, manifested by metaphoric expressions in popular medical discourse;
3. Statistical method was used to present the percentage distribution of different conceptual medical metaphors.

The **structure** of the work. The bachelor thesis consists of two main parts: theoretical part containing material about conceptual metaphors, and the empirical part of the research analysing conceptual metaphors found in popular medical discourse. This study also includes the following sections: the introduction, conclusions, references, dictionaries, sources, and the appendix. The introduction presents the subject, the aim, the objectives, the methods, the relevance, the scope, and the structure of this research. Conclusions summarize findings of the present work. The references section lists used theoretical material (books, journal articles, etc.) in alphabetical order. The dictionaries section presents the list of employed dictionaries. Sources presents the list of news websites from which the metaphorical expressions have been collected. The appendix contains repetitive expressions that were not presented in the practical part of the study.

I. CONCEPTUAL METAPHORS: THEORETICAL BACKGROUND

1.1 Traditional and Contemporary Views of Metaphor

The term *metaphor* has its etymological roots in the Greek word *metapherein*, which basically means 'to transfer' (Oxford Dictionary of English, 2010). Glucksberg (2001: 3) states that metaphor is perceived differently in various fields, such as linguistics, literature, science, education, etc., thus this term challenges definition. Nevertheless, he distinguishes two major meanings of metaphor: "a form of linguistic expression and communication," i.e. a literary trope and "a form of conceptual representation and symbolization," i.e. a cognitive device. The classical and modern views of metaphor are expressed in both senses accordingly.

The classical theory of metaphor dates back to ancient times when Aristotle discussed this matter in his writings *Poetics* and *Rhetoric*. The prominent Greek philosopher states that "Metaphor consists in giving the thing a name that belongs to something else" (as cited in Yu, 1998: 3). According to Richie (2013: 4), this perspective regards metaphor as a comparison between two ideas created by replacing one word with another word with a similar, yet different sense. The author illustrates this view of metaphor with following examples: *being greedy is* ***being a pig****, A person known for frequent emotional outbursts is a* ***drama queen***. Richie (2013: 5) further comments that metaphors are based on specific qualities that are common for two entities. McArthur and McArthur (2005: 56) remark that metaphor is related to other figurative language elements, such as simile, metonymy, allegory, parable, conceit, and pun, as all of them rely on analogy between two entities. Furthermore, this concept considers metaphor as part of figurative, i.e. non-literal, language, as it is used for aesthetic, poetic, and rhetorical purposes (McArthur and McArthur, 2005: 56). Thus traditionally, metaphor is a matter of language.

Cognitive linguistics is a relatively young approach to the study of natural language that emerged in the late 1970s (Geeraerts and Cuyckens 2010). According to Evans et al. (2007: 2), this discipline focuses on "the relationship between human language, the mind, and socio-physical experience." Cognitive linguists have developed several theories completely different from traditional views, including the Conceptual Metaphor Theory (CMT). This theory was pioneered by Lakoff and Johnson in their book *Metaphors We Live By* (1980). The authors suggest that "our ordinary conceptual system in terms of which we both think and act, is fundamentally metaphorical in nature" (Lakoff, Johnson, 1980: 3). They point out that this human thought system functions on a subconscious level. Thereof, they argue that metaphor is not solely a linguistic expression found in poetic or rhetoric language, but a matter of thought and action reflected in literal, i.e. everyday language, as well (Lakoff and Johnson 1980: 3).

They illustrate this strong statement with an example: *an argument* is understood in terms of *war*, as seen from such metaphorical expressions as: *your claims are **indefensible**; I **demolished** his argument*; *I've never **won** an argument with him*, etc. (1980: 4). Lakoff and Johnson coin the term *conceptual metaphors* for such kind of metaphors. According to Lakoff and Turner (2009: 62), this modern view is based on the predominance of metaphors in human speech, metaphor is a central human way of conceptualizing, used "automatically, effortlessly, and even unconsciously" for understanding life. In contrast to the traditional view of metaphor, the contemporary approach treats metaphor as 'a figure of thought,' rather than 'a figure of speech' (Lakoff, 1986).

1.2 Conceptual Domains

Kövecses (2010: 4) states that in CMT the basis of the conceptual metaphor is the relation between two domains. According to Kövecses (2010:4), individual metaphorical expressions (words, phrases, sentences) are drawn from one conceptual domain (the source domain) in order to understand another conceptual domain (the target domain). Knowles and Moon (2006: 40) explain that source domains influence the human thought and speech about a concept reflected in the target domain, as well as a way of behaving or carrying out particular activities. Moreover, Lakoff (1993: 5) proposes the following form for names of conceptual metaphors: "TARGET DOMAIN IS SOURCE DOMAIN." In the discussed case, an argument is understood through the concept of war, as seen from metaphorical expressions that are related to war, e.g., *indefensible, win, attack a position,* etc. Therefore, the name of the conceptual metaphor is ARGUMENT IS WAR.

Semino (2008: 5) characterizes the conceptual domains as "rich mental representations: they are portions of our background knowledge that relate to particular experiences or phenomenon <…>," e.g., the human knowledge about arguments is partly structured in terms of the knowledge about wars. She further emphasizes that target domains usually refer to "abstract, complex, unfamiliar, subjective or poorly delineated" phenomenon or an experience, e.g., life, time, love, health, etc., while source domains tend to represent "concrete, simple, familiar, physical and well-delineated" phenomenon or experiences, such as action, physical objects, bodily movement, etc. This applies to ARGUMENT IS WAR metaphor as well, as the target domain (argument) is more abstract than a concrete physical experience of an armed conflict, i.e. the source domain of war. Kövecses (2010: 18-27) holds the same position as Semino and proves it by providing a list of the most frequent conceptual domains, based on the survey by Alice Deignan in *Collins Cobuild English Guides 7: Metaphor.* The most common source and target domains are presented in the tables below.

Table 1. The most common source domains

SOURCE DOMAIN	METAPHORICAL EXPRESSIONS
HUMAN BODY	*the **heart** of the problem; the **head** of the department*
HEALTH AND ILLNESS	*a **healthy** society; a **sick** mind; she **hurt** my feeling*
ANIMALS	*she is **a tiger**; he is **a sly fox** she is **a snake;** he is **a pig***
PLANTS	*the **fruit** of her labor; a **budding** beauty*
MACHINES AND TOOLS	*the **machine** of democracy; conceptual **tools***
BUILDINGS AND CONSTRUCTIONS	*a **towering** genius; He's **in ruins** financially*
GAMES AND SPORT	*He tried **to checkmate** her; **to toy** with an idea*
MONEY AND BUSINESS	*I tried **to save** some energy; **spend** your time wisely*
COOKING AND FOOD	*That's a **watered-down** idea; He **cooked up** a story*
HEAT AND COLD	*an **icy** stare; a **warm** welcome; in the **heat** of passion*
LIGHT AND DARKNESS	*a **dark** mood; She **brightened** up*
FORCES	*You're **driving** me nuts!; I was **overwhelmed***
MOVEMENT AND DIRECTION	*He **went** crazy; Inflation is **soaring***

Table 2. The most common target domains

TARGET DOMAIN	METAPHORICAL EXPRESSIONS
EMOTION	*He **unleashed** his anger; He was **bursting** with joy*
DESIRE	*I'm **starved for** affection; He's **burning** to go*
MORALITY	*She **resisted** the temptation; He's a **shady** character*
THOUGHT	*He **searched** for the memory; I **see** your point*
SOCIETY/NATION	***neighboring** countries; a **friendly** nation*
POLITICS	*They **forced** the opposition out; The party **plays hardball***
ECONOMY	*Spain **built a strong** economy; They **pruned** the budget*
HUMAN RELATIONSHIPS	***a budding** relationship; Their friendship is **in full flower***
COMMUNICATION	*That's a **dense** paragraph; He **gave** me information*
TIME	*Time **flies;** The time will **come** when…*
LIFE AND DEATH	*The baby will **arrive** soon; His father **passed away***

Kövecses (2010: 29) concludes that due to a tendency of the source domains being abstract concepts and the target domains being concrete concepts, conceptual metaphors could facilitate the understanding of "an intangible, and hence difficult-to-understand concept."

1.3 Classification of Conceptual Metaphors According to their Cognitive Function

Lakoff and Johnson (1980) distinguish the following types of conceptual metaphors: structural, orientational, and ontological. Kövecses (2010: 37) notices that this classification scheme is based on the cognitive function of metaphor.

1.3.1 Structural Metaphors

Kövecses (2010: 37) observes that structural metaphor is a dominant type of conceptual metaphor, thus, it gets the most attention in the cognitive linguistics. According to Lakoff and Johnson (1980: 14), in case of structural metaphors "one concept is metaphorically structured in terms of another." Kövecses (2010: 37) states that the cognitive function of such metaphors is to provide understanding for specified and named concept A through another specified and named concept B. The linguist further makes a claim that mappings are characteristic for the majority of structural metaphors. Semino (2008: 5) explains that this term refers to systematic sets of correspondences that reveal "conventional patterns of thought" across two domains. Kövecses (2010: 38) highlights that mappings provide a basic and well-defined overall structure for structural metaphors. For example, the already discussed conceptual metaphor ARGUMENT IS WAR is a structural metaphor and the following correspondences across the conceptual domains of ARGUMENT and WAR can be distinguished:

- The participants in arguments correspond to opponents or enemies.
- The strategies in arguments correspond to attack or defense.
- The outcomes of arguments correspond to victory or defeat (Semino 2008: 5).

Finally, the structure of conceptual metaphor ARGUMENT IS WAR could be shown schematically:

SOURCE DOMAIN (WAR) TARGET DOMAIN (ARGUMENT)

METAPHORICAL EXPRESSIONS → MAPPINGS

(He *attacked* every weak point in my argument; (ARGUER IS ENEMY/OPPONENT;

If you use that *strategy*; he'll *wipe you out*; STRATEGY IS ATTACK/DEFENSE;

I've never *won* an argument with him). OUTCOME IS VICTORY/DEFEAT).

1.3.2 Orientational Metaphors

According to Lakoff and Johnson (1980: 14), an orientational metaphor, also called a spatialization metaphor, defines "a whole system of concepts with respect to one another." The authors explain that the term "orientational" is due to the fact that such metaphors are mostly oriented spatially: "up-down, in-out, front-back, on-off, deep-shallow, central-peripheral," e.g., HAPPY IS UP; SAD IS DOWN. They further provide some English expressions which derived from the fact that HAPPY is oriented UP and SAD is oriented DOWN:

- I'm feeling *up.* You're in *high* spirits. My spirits *rose.* (happy-as-up concept);
- I'm feeling *down*. I *fell* into a depression. My spirits *sank*. (low-as-down concept).

Knowles and Moon (2004: 40) point out that in most cases both target and source concepts are antonyms or counterparts of each other, e.g., HAPPY is an antonym of SAD, while UP means the opposite of DOWN. Lakoff and Johnson (1980: 17) highlight the importance of a coherent systematicity within an orientational metaphor. For instance, an incoherent system would be one, in which "I'm feeling up" would mean "I'm feeling happy," but "My spirits rose" would signify "I became sadder." Kövecses (2010: 40) even considers that it would be more appropriate to name such metaphors "coherence metaphors" in order to represent the cognitive function they serve, i.e. to organize a coherent system of a group of target concepts.

Another important feature of orientational metaphors is that in the majority of cases they have physical basis since they are rooted in physical experiences (Currie 2015: 23). For example, the already mentioned metaphors HAPPY IS UP; SAD IS DOWN are based on the bodily posture: as Lakoff and Johnson (1980: 15) explain, a negative emotional state is commonly accompanied by drooping posture, while happiness and joy by erect posture. However, some spatialization metaphors have social bases as well: HIGH STATUS IS UP; LOW STATUS IS DOWN (She'll *rise* to the *top*; He's at the *bottom* of the social hierarchy), as status correlates with social power. Furthermore, despite the fact that opposite concepts such as up-down, in-out, etc. have physical nature, the meaning of metaphor rooted in them can vary in different cultures. For instance, depending on the culture, the future can be ahead of human (future-as-up, past-as-down concepts) and in back (future-as-down, past-as-up concepts). In addition to that, a culture is responsible for choosing bases for orientational metaphors from many possible variants. Lakoff and Johnson (1980: 18) explain this point: "happiness also tends to correlate physically with a smile and a general feeling of expansiveness," thus metaphors HAPPY IS WIDE; SAD IS NARROW can be formed, however, HAPPY IS UP is chosen, as it is coherent within the overall cultural system (e.g., GOOD IS UP, HEALTH IS UP). In conclusion, physical, social, and cultural aspects play a significant role in orientational metaphors.

1.3.3 Ontological Metaphors

According to Oxford Dictionary of English (2010: 1242), 'ontology' is "the branch of metaphysics dealing with the nature of being." Therefore, as Kövecses (2010: 38) states, the cognitive job of ontological metaphors is to assign a new ontological status to abstract target concepts. Knowles and Moon (2004: 40) explain that this means conceptualization of abstract things, experiences, processes, etc., so they could be identified as physical objects. Lakoff and Johnson (1980: 25) assert that for this reason, ontological metaphors serve various purposes, such as grouping, quantifying, identifying, referring, setting goals, etc. The use of ontological metaphors is manifested in the following examples from *Metaphors We Live By* (1980: 27):

- The use for the purpose of identifying: The *pressure of his responsibilities* caused his breakdown; His *emotional health* has deteriorated recently; I can't keep up with *the pace of modern life*. The first metaphor allows to identify cause (some physical ability not typical of abstract concept of *pressure),* whereas the rest of examples identify aspects (life course and mental state are perceived as some physical objects);
- The use for the purpose of setting goals and motivating actions: He went to New York to s*eek fame and fortune;* I'm changing my way of life so that I can *find true happiness*. Fame and happiness are viewed as physical objects that could be lost, found, etc.

Kövecses (2010: 38) points out that abstract concepts are represented by means of concrete concepts in general, i.e. not specifying the physical object. Therefore, ontological metaphors contain rather limited knowledge about the target concepts except few cases, when metaphors are further elaborated, e.g., THE MIND IS A MACHINE (He *broke down;* My mind just isn't *operating* today) or THE MIND IS A BRITTLE OBJECT (Her ego is very *fragile*; She's *easily crushed)*. Even though ontological metaphors usually provide solely basic knowledge and understanding of target concepts, they assign sharply delineated structure for vague concepts with little or no structure at all (Kövecses 2010: 39).

According to Lakoff and Johnson (1980: 33), personifications could be considered ontological metaphors, since the abstract concept is understood in terms of the physical object further specified as a human being, hence the examples:

- His *religion tells* him that he cannot drink fine French wines;
- *Life has cheated* me (Lakoff and Johnson 1980: 33).

Kövecses (2010: 40) claims that in cases of personification, nonhumans are given the human qualities. Nevertheless, personifications widely vary in a sense that each of them picks out different aspect of a person (Lakoff and Johnson 1980: 33-34). To conclude, ontological metaphors are representation of abstract concept by means of non-specified physical object.

1.4 Conventional and Novel Metaphors

Kövecses (2010: 28) mentions another criterion for metaphor classification: their degree of conventionality. The linguist notes that the typical meaning of 'conventionality' is 'arbitrary' in linguistics, semiotics, and the philosophy of language. However, as he further observes, when discussing conceptual metaphors, the degree of the conventionality defines how widely used it is by the linguistic community. Henceforth, conventional metaphor could be characterized as "well established and deeply entrenched" (Kövecses 2010: 28). For example, ARGUMENT IS WAR (I *defended* my argument), LOVE IS A JOURNEY (We'll just have to *go our separate ways*), IDEAS ARE FOOD (I can't *digest* all these facts), etc., are highly conventional, since these metaphors and their metaphorical expressions are present in everyday language. As Lakoff and Turner (2009: 80) remark, they are automatic, natural, and common, i.e. in the ordinary communication the use of metaphor can be unintentional and unnoticed. Knowles and Moon (2004: 12) hold the position that conventional metaphors reflect "the ideas, assumptions, and beliefs of a culture."

Lakoff and Turner (2009: 112) assert that conventional metaphors are in opposition to the unconventional or novel metaphors. Kövecses (2010: 28) remarks that conceptual metaphor can still be conventional, however the metaphorical expressions employed to express the idea of the target domain are not cliched and standard. Lakoff and Turner (2009: 9-10) provide an example: 'As I walked through the wilderness of this world' in *The Pilgrim's Progress* (1965). They comment that Bunyan here uses the conventional conceptual metaphor LIFE IS A JOURNEY, however it is creatively realized by a rather uncommon and unconventional linguistic expression. Semino and Steen (2008: 236) make a point that by means of novel metaphors, "poets challenge and extend the ordinary ways in which we think by using creatively the same metaphorical tools that we all use in everyday language." Kövecses (2010: 29) challenges the common belief that novel expressions are found solely in poetry or literature. He claims that they are used in a wide variety of fields, namely, sport journalism, politics, religion, song lyricism, graffiti writing, etc. Hidalgo-Downing and Kraljevic-Mujic (2017: 325) claim that inventive realizations of standard conceptual metaphors seem to be more persuasive and effective for advertising purposes. Furthermore, conceptual metaphors can be unconventional as well (Kövecses 2010: 30). The linguist quotes William P. Magee to provide the example of such occurrence: "Life is a mirror. If you smile, it smiles back at you; if you frown, it frowns back." The concept LIFE IS A MIRROR is not typical in the ordinary language, thus it is a creative conceptual metaphor. Kövecses (2010: 31) further highlights that such metaphors offer new ways of understanding the world. In conclusion, conventional metaphors are highly present in everyday language and novel metaphors are individual creations by the author.

1.5 The Features of Conceptual Metaphor

The idea of systematicity within conceptual metaphors is fundamental to the CMT. Lakoff and Johnson (1980: 7) believe that "since metaphorical expressions in our language are tied to metaphorical concepts in a systematic way, we can use metaphorical linguistic expressions to study the nature of metaphorical concepts and to gain an understanding of the metaphorical nature of our activities." Furthermore, different metaphorical concepts might form a coherent system that relies on subcategorization. For example, TIME IS MONEY *(spend, invest, budget, cost)* entails TIME IS A LIMITED RESOURCE *(use, use up, have enough of, run out of),* which entails TIME IS A VALUABLE COMMODITY (*have, give, lose, thank you for)*. The entire system can be characterized by using the most specific concept TIME IS MONEY. In conclusion, systematicity influences an understanding of a concept by means of another.

Lakoff and Johnson (1980: 10) claim that systematicity usually focuses on one aspect of a concept and gives no attention to other aspects of the same concept. Knowles and Moon (2004: 41) note that the term 'highlight' is used in a sense of "the selective mapping of source domain features onto target domains," while hiding means "the suppression of other features." For instance, in the conceptual metaphor ARGUMENT IS WAR the aspect of conflict is visible, but the feature of co-operation (arguer could be viewed as someone who is giving his/her time to achieve mutual understanding as well) is hidden. Knowles and Moon (2004: 41) believe that this linguistic phenomenon explains why the cases of multiple mappings are not contradictory. They provide the following examples of such cases: a single source domain WAR conceptualizes both ARGUMENT and ILLNESS, a single target domain TIME is conceptualized by COMMODITY and SPACE, and a single domain being both source and target, e.g., ILLNESS IS WAR, PROBLEMS ARE ILLNESS. Thus, even though they create a strong impression of a lack of system, they do not contrast as they highlight distinct aspects of the source and target domains.

Another important feature of conceptual metaphors is similarity. Kövecses (2010:88) emphasizes that this concept is the motivation for selecting the source domain to represent the target domain. Moreover, Lakoff and Johnson (1980: 153) challenge the statement from the *comparison theory* by proposing that metaphors create similarities. For example, the metaphors LESS IS DOWN and SAD IS DOWN create a similarity between LESS and SAD in the human thought system (both are negative concepts). Ontological metaphors induce similarities as well, e.g. TIME and LABOR are metaphorically comprehended as RESOURCES, because there is "a correlation between the amount of time a task takes and the amount of labor it takes to accomplish the task" (Lakoff and Johnson 1980: 151). Moreover, they provide an example of structural metaphor IDEAS ARE FOOD creating a similarity: "both can be digested, swallowed, devoured, and warmed over, and both can nourish you." The linguists make a point that these

similarities are dependent on metaphor: the concept of digesting food exists independently of metaphor, but the concept of digesting ideas is created by conceptual metaphor. Furthermore, Lakoff and Johnson (1980: 154) make a distinction between objective and experiential (as experienced by people) similarities and hold the position that only the latter have relevance to conventional metaphor due to the reason that they are influenced by culture and personal understanding. Therefore, experiential similarities can reflect the human conceptual system. In conclusion, systematicity and similarity are important features of conceptual metaphors.

1.6 Criticism of the Conceptual Metaphor Theory

Kövecses (2017: 24) considers that despite its many achievements and popularity, the CMT has received critiques since the beginning of its existence. He challenges the claim of the opponents that the concept of domain is not well-defined and could not even be precisely defined at all by stating that "CMT works with a fairly clear definition of a domain that goes back to Fillmore's definition of a frame: a domain, or frame is a coherent organization of human experience." He further presents another critical statement about CMT: it is based on circular reasoning (linguistic metaphors are used to find conceptual metaphors, but it suggests that linguistic metaphors exist because of the conceptual ones). The linguist defends CMT by claiming that psycholinguistic experiments (Gibb's investigations in 1990s and further work) confirmed the existence of conceptual metaphors. Steen et al. (2010: 3) point out that lack of methodology in CMT studies was highly criticized by the researchers. Kövecses (2017: 24) partly agrees with this critical point, however he argues that the mission of CMT is not solely to collect metaphors, but to characterize "syntactic, discursive, social, pragmatic, rhetorical, aesthetic, etc. behavior and function of the metaphors in real data." In addition to that, since the Metaphor Identification Procedure presented a systematic method to identify metaphors, the criticism regarding this matter started to cease. This method will be reviewed in the next section.

Another debate about conceptual metaphors is whether they create new reality or not. Lakoff and Johnson (1980: 159) were the first to assert that social and political reality is constructed by conceptual metaphors. Van Teeffelen (1994: 384), supporter of this view, states: "it has become common knowledge in cognitive and cultural studies that metaphors do not only embellish a preconstituted reality for rhetorical purposes, but also contribute to the construction and understanding of social reality itself." Rohrer (1991: 179) tempers this strong claim by holding the position that "political language does not create political reality." However, he agrees that conceptional metaphors influence the understanding of political reality and events. In general, there are two contrasting positions regarding the creation of reality by conceptual metaphors. To conclude, CMT has been criticized for an obscure concept of domain, circular reasoning, lack of methodology, and statement that conceptual metaphors create new reality.

1.7 Metaphor Identification Procedure

According to Steen et al. (2010: 2-4), metaphor scholars often base their findings on their own perception of what counts as metaphor. Therefore, they are often not concerned to employ a particular method or technique for identification of metaphor in their investigations. The lack of systematic methodological framework and generally accepted standards raises the questions of reliability and validity of theoretical claims and draws the criticism on them (Steen et al. 2010: 3). For this reason, Pragglejaz Group (2007: 2), an international group of experienced metaphor researchers, has been working six years to develop an explicit, systematic, precise, and reliable procedure for identification of metaphorical expressions in language usage. Steen et al. (2010: 4) observe that it is a useful tool for research in various fields, namely, psycholinguistics, applied linguistics, sociolinguistics, cognitive linguistics, discourse analysis. Kövecses (2010: 4) highlights the importance of this method for the Conceptual Metaphor Theory: it allows to distinguish the metaphorical expressions (of which the mapping constitutes) from non-metaphorical units. It is called the Metaphor Identification Procedure, or MIP, and its steps are as follows:

1) "Read the entire text-discourse to establish a general understanding of the meaning.
2) Determine the lexical units in the text–discourse.
3)
    a) For each lexical unit in the text, establish its meaning in context, that is, how it applies to an entity, relation, or attribute in the situation evoked by the text (contextual meaning). Take into account what comes before and after the lexical unit.
    b) For each lexical unit, determine if it has a more basic contemporary meaning in other contexts than the one in the given context. For our purposes, basic meanings tend to be
        - More concrete; what they evoke is easier to imagine, see, hear, feel, smell, and taste.
        - Related to bodily action.
        - More precise (as opposed to vague)
        - Historically older.

        Basic meanings are not necessarily the most frequent meanings of the lexical unit.
    c) If the lexical unit has a more basic current–contemporary meaning in other contexts than the given context, decide whether the contextual meaning contrasts with the basic meaning but can be understood in comparison with it.
4) If yes, mark the lexical unit as metaphorical" (Pragglejaz Group 2007: 3).

To sum up, the text should be divided into separate lexical units and for each of them, basic and contextual meanings compared. The decision whether the unit is a metaphor or not is based on the difference (metaphor) or lack of difference (not metaphor) between meanings.

II. CONCEPTUAL METAPHORS IN POPULAR MEDICAL DISCOURSE

2.1 Professional and Popular Medical Texts

According to Ordóñez López and Edo Marzá (2016: 12), medical texts might be distinguished based on the degree of medical knowledge of their audience: "professional texts are aimed at medical professionals (researchers, practitioners, and students of medicine), while popular texts are targeted at the general readership." The authors further state the writers of the texts that belong to the first category are medical professionals, while popular texts can be written by journalists as well. Thus, professional texts require specialized and scientific knowledge and understanding of medicine and basic knowledge is sufficient for popular texts. Lankamp (1989: 21) claims that "medical language is by no means linguistically homogeneous," since each of subgenres of medical texts has their own language features: professional texts are technical and formal written, while popular texts tend to be informal and can contain figurative elements. According to Ten Hacken and Panocová (2015: 134), popular medical texts use common medical terms understandable by non-specialists. Professional medical texts can be subdivided into research papers, case reports, review articles, editorials, pedagogic texts, etc., while popular texts are articles in magazines, newspapers, websites. and brochures (Ordóñez López and Edo Marzá 2006: 13, Hacken and Panocová 2015: 134). To sum up, in contrast to professional texts, popular texts are informal and generally understood.

2.2 Methodological Considerations of the Research

The purpose of the empirical part of the research is to identify conceptual metaphors manifested by metaphorical expressions found in popular medical discourse. To fulfil this goal the Metaphor Identification Procedure and Conceptual Metaphor Analysis have been employed.

First, the Metaphor Identification Procedure was employed to distinguish lexical units as metaphorical expressions in the news articles related to medical field. This method can be demonstrated by applying it to the sentence of news article from bbc.com titled "Justin Bieber: Singer reveals he has Lyme disease." Step 1, that is a reading of the entire text, shows that it is about a personal experience with Lyme disease of a particular patient – pop singer Justin Bieber. At step 2, the lexical units are identified in the text–discourse and distinguished by slashes:

/ Canadian / pop / singer / Justin Bieber / has / revealed / he / has / Lyme disease /.

At step 3, basic and contextual meanings of each lexical unit are distinguished and compared. Based on the comparison of meanings, at step 4, it is determined whether a unit is metaphorical.

Canadian

(a) *contextual meaning:* In this text, the adjective "Canadian" refers to nationality.

(b) *basic meaning*: The adjective "Canadian" can be used in a sense "belonging to or relating to Canada and its people", as well as "(a person) of or coming from Canada" (Cambridge Dictionary, 2020).

(c) *contextual meaning versus basic meaning:* The contextual meaning does not contrast with the basic meaning.

Metaphorically used? No.

pop

(a) *contextual meaning:* In this text, the noun "pop" refers to the genre of music.

(b) *basic meaning*: The noun "pop" means "modern popular music, usually with a strong beat, created with electrical or electronic equipment, and easy to listen to and remember" (Cambridge Dictionary, 2020).

(c) *contextual meaning versus basic meaning:* The contextual and basic meanings are the same.

Metaphorically used? No.

singer

(a) *contextual meaning:* In this context, the noun "singer" indicates profession of a person.

(b) *basic meaning*: The noun "singer" is "a person who sings" (Cambridge Dictionary, 2020).

(c) *contextual meaning versus basic meaning*: The contextual and basic meanings are the same.

Metaphorically used? No.

Justin Bieber

(a) *contextual meaning:* The proper name refers to a specific, uniquely identifiable individual.

(b) *basic meaning:* The proper name does not have a more basic meaning.

(c) *contextual meaning versus basic meaning:* The contextual and basic meanings are the same.

Metaphorically used? No.

has

(a) *contextual meaning:* In this context, "has" is the operator in the verb phrase "has revealed"

(b) *basic meaning:* It is used as an auxiliary verb, so it does not have a more basic meaning.

(c) *contextual meaning versus basic meaning*: The contextual and basic meanings are the same.

Metaphorically used? No.

revealed

(a) *contextual meaning:* "revealed" means to make unknown or information known to others.

(b) *basic meaning:* The basic meaning of the verb "to reveal" is to "make known or show something that is surprising or that was previously secret" (Cambridge Dictionary, 2010).

(c) *contextual meaning versus basic meaning:* The contextual meaning does not contrast with the basic meaning.

Metaphorically used? No.

he

(a) *contextual meaning*: In this context, "he" indicates a male referent.

(b) *basic meaning:* The pronoun "he" does not have a more basic meaning.

(c) *contextual meaning versus basic meaning:* The contextual and basic meanings are the same.

Metaphorically used? No.

has

(a) *contextual meaning:* In this text, "has" indicates that a person is diagnosed with a disease.

(b) *basic meaning:* As a lexical verb, "to have" means "to own, to possess" (physical objects).

(c) *contextual meaning versus basic meaning:* A disease is not a physical object to be possessed, thus the meanings contrast with each other.

Metaphorically used? Yes.

Lyme disease

(a) *contextual meaning:* In this text, "Lyme disease" refers to a particular disease a person is sick of.

(b) *basic meaning:* "Lyme disease" means "a disease caused by bacteria that are spread by the bite of an insect called a tick" (Cambridge Dictionary, 2010).

(c) contextual meaning versus basic meaning: The contextual and basic meanings are the same.

Metaphorically used? No.

As it was showed with the Metaphor Identification Procedure, the sentence "Canadian pop singer Justin Bieber has revealed he has Lyme disease" contains a metaphorical expression "has" ("Lime disease.") By using the presented method, the total number of 210 expressions have been collected from popular health news articles. The main criteria for selecting texts was their recency (the articles are from the period of 2018-20). In addition, the main focus was on articles concerning personal experiences of patients. However, some recent informative articles about illnesses of general type were included as well. Furthermore, Conceptual Metaphor Analysis was applied to systematize metaphorical expression according to the source domains and identify conceptual metaphors. Moreover, all the distinguished conceptual metaphors have been categorized into structural metaphors, orientational metaphors, and ontological metaphors on cognitive function basis and classified into conventional and novel conceptual metaphors according to their degree of conventionality. Finally, the collected data was shown graphically by diagrams.

2.3 MEDICINE IS WAR

In popular medical texts, the domain of MEDICINE is widely reflected (84 metaphorical expressions out of collected 210) in terms of WAR domain. However, Semino (2008: 44) argues that some of actions that are typically assigned to WAR domain, such as *attack, defend, hit, slam, etc.,* are based not necessarily on first-hand war experience. Therefore, it should be noted that the term 'war' in this formulation is meant not in its primary sense, i.e. "armed fighting between two or more countries or groups" (Cambridge Dictionary, 2020), but in its secondary, more general sense, i.e. some sort of physical conflict between two opposing sides. Thus, the fact that this conceptual metaphor is common in popular medical discourse is evident from the following metaphorical expressions that are taken from health news articles:

1. *Noel Gallagher has revealed that he took cocaine every night for four years and it caused 'brutal* ***panic attacks'*** *which led him to quit the drug* (dailymail.co.uk);
2. *Science writer and journalist Laura Spinney discusses* ***the outbreak of Spanish flu****, which is believed to have* ***killed*** *up to 100 million people* (theguardian.com);
3. *"Everyone, including healthcare professionals, needs to be made more aware that* ***leukaemia*** *can* ***strike*** *anyone, any time," she says* (telegraph.co.uk);
4. ***The immune system defends*** *humans from pathogens* (bbc.co.uk);
5. ***The first line of defence*** *against infection stop the pathogens from entering your body* (bbc.co.uk);
6. *Unfortunately, today Lucy* ***lost her fight to cancer*** *and we are devastated* (dailymail.co.uk);
7. *If the body's immune system doesn't* ***kill it off*** *at this early stage, the virus travels down the windpipe and into the lungs* (telegraph.co.uk);
8. *After he was prescribed the* ***painkiller Lortab*** *for a football injury in high school, the teen began craving opioids* (npr.org);
9. *Early indications are that psilocybin, the hallucinogenic compound found in magic mushrooms, may be the* ***magic bullet for depression*** (telegraph.co.uk).

Thus, such metaphorical expressions allow to recognize the following correspondences across the conceptual domains of MEDICINE and WAR:

- The patient corresponds to a soldier (THE PATIENT IS A SOLDIER);
- Disease corresponds to an enemy (DISEASE IS AN ENEMY);
- Drugs correspond to weapons that are used in war (DRUGS ARE WEAPONS);
- The outcomes of medical case correspond to victory or defeat (OUTCOME IS VICTORY/ DEFEAT).

However, the mappings THE PATIENT IS A SOLDIER and DISEASE IS AN ENEMY are relative. They are visible in provided metaphorical expressions, as words that are connotated negatively, such as *brutal, kill, invaders*, are connected to diseases, while the act of defence, which has a positive connotation, is linked with the patient. Nevertheless, some metaphorical expressions do not indicate which side of the conflict is 'right' or 'wrong.' Naturally, in the human thought system, a disease more likely would be seen as an enemy, and a person as a war hero, however metaphorical expressions themselves do not give any judgement about this matter. Besides, even negatively connotated words, such as *kill it off, trap,* are sometimes used in relation to the patient. For instance, without relying on pre-requisite medical knowledge, and based solely on the metaphorical expressions, THE PATIENT and DISEASE would be perceived as opponents, enemies towards each other:

10. *Where the tumour was once able to lurk under the radar, it should now become a* ***prime target for an intense attack*** *from the immune cells, led by the programmed dendritic cells* (bbc.com);
11. *It contains* ***hydrochloric acid****, and while it does us no harm, it is strong enough* ***to kill*** *any pathogens* <…> (bbc.com);
12. *Cells in the nose produce* ***mucus which traps*** *pathogens before they can enter the lungs* (bbc.com).

Therefore, the mappings in such cases would be THE PATIENT/DISEASE is AN ENEMY. However, all the existing correspondences prove that MEDICINE is well-defined metaphorically in terms of WAR, thus this metaphor belongs to *structural metaphors* category. In addition, both target domain (MEDICINE) and source domain (WAR) are specified, i.e. identified clearly and exactly, as it is a characteristic feature for this type of metaphors.

Moreover, it could be noticed that MEDICINE IS WAR metaphor fits into the following tendencies that have been discussed in the theoretical part of the research:

1. WAR is a typical source domain, since it refers to concrete, physical, and relatively easier to comprehend phenomenon. MEDICINE, as the majority of target domains, denotes to an abstract, complex, hence more difficult to understand concept. Therefore, perception of MEDICINE by characteristic features of WAR facilitates the understanding of the concept of medicine.
2. This conceptual metaphor creates similarity between compared concepts as well. For instance, both DISEASE and AN ENEMY can be *attacked, defended against, defeated,* etc., but these concepts in regard to DISEASE are constructed by metaphor, as they do not exist independently of it.

3. The linguistic phenomenon of highlighting and hiding. In provided metaphorical expressions, the focus is on aggressive, hostile actions against the opponent (one feature of WAR concept), while the aspect of joined forces, alliances of two or more groups, which belongs to the same concept as well, is not visible. However, it applies to expressions that refer to an individual case of illness, and not to pandemics, i.e. "a dangerous disease that infects many people at one time" (Cambridge Dictionary, 2020). In such cases, the cooperative feature of war can be visible, for instance:

    13. *What ultimately **curbed the outbreak** were solutions rooted in the community. <…> Police, health and recovery workers, community activists and faith leaders **joined forces.*** (npr.org);
    14. ***To help combat COVID-19,** Lukashenko has recommended having 40–50 grams of vodka daily, frequenting saunas and farm work* (insidehook.com);
    15. ***Covid-19**, Harry says, is an 'evil disease' but one the country will once again **come together to defeat*** (telegraph.co.uk).

Furthermore, MEDICINE IS WAR metaphor in medical discourse is quite well known and researched, thus it receives various interpretations and criticisms. For example, Hodgkin (1985: 1820) believes that while such understanding has some benefits, it dehumanizes patients, as the main focus is on actions, diseases, and drugs, and the patient is perceived as a 'battlefield.' Nevertheless, in majority of cases, contemporary popular medical texts, especially when the story focuses on a personal experience with illness (but not necessarily), contain metaphorical expressions that present the patient as an active participant of war. The active role of patients can have positive psychological effects on them: to give motivation and optimism, to encourage in unpleasant experience, since they are considered to be brave soldiers fighting a strong enemy. This aspect is explicitly emphasized in the following set of expressions:

16. Canadian pop singer Justin Bieber has revealed he has been diagnosed with Lyme disease. *"You can learn all that **I've been battling and OVERCOMING**!!"* (bbc.com);
17. *More than 100 years after living through the 1918 influenza pandemic, the 101-year-old woman just **beat coronavirus*** (cnn.com);
18. *Lionel Messi **has been struggling with a thigh problem** for several weeks but continues to play through **the pain barrier** <…>.* (espn.com);
19. *The ancient sport helping **breast cancer survivors*** (bbc.com);
20. ***My son's fight with Kawasaki disease** taught me to trust my instincts* (cnn.com).

In the metaphorical expressions that are related to outbreak or pandemics, a valuable role of medical staff might be highlighted, e.g.:

21. *From a flower drop to a star performance - a look at some of the ways that people have expressed thanks* ***to the workers on the frontline against Covid-19*** (bbc.com);
22. *<…> to working on guidance that's going to be put into practice by* ***staff*** *who are actively* ***fighting the virus,****" he said* (bbc.com).

Finally, based on the enormous number of collected metaphorical expressions that constitute to MEDICINE IS WAR, it could be stated that this metaphor is extremely widely used in popular medical discourse. Thus, it has a high degree of conventionality, as such expressions as *to battle disease, to defend against disease,* etc. are common and standard. Besides, even some common medical terms are metaphorical: *panic attack, painkiller,* etc. Hence, the use of this conceptual metaphor can be natural, automatic, and even inevitable. Since it is a well established and deeply entrenched metaphor in the linguistic community, it could be concluded that in the conceptual human thought system MEDICINE is strongly associated with WAR.

2.4 MEDICINE IS A DETECTIVE STORY

Another conceptual metaphor which is common (31 expressions out of collected 210) in popular health texts is MEDICINE IS A DETECTIVE STORY. Hodgkin (1985: 1820) views it as a variant of the previously analysed MEDICINE IS WAR, since a disease is a villain in both of them. However, A DETECTIVE STORY focuses not on a crime, or aggressive activities, but on the process of investigation. Besides, the guilt of disease has yet to be proven, making it a suspected crime/criminal. Henceforth, MEDICINE IS A DETECTIVE STORY is manifested:

23. *And she was confident enough to take her concerns to the doctors,* ***suspecting Kawasaki disease****, sometimes called Kawasaki syndrome* (cnn.com);
24. *<…> whose* ***HIV*** *is so well controlled it's* ***undetectable*** (npr.org);
25. *The Argentine should be fit to play against Athletic Bilbao on Thursday in the Copa del Rey but the 32-year-old* ***is showing signs of fatigue*** (espn.com);
26. *<...> dramatic recoveries from a childhood cancer <…> – offering some of the best* ***clues*** *about what might trigger spontaneous remission* (bbc.com);
27. *She was given the blood* ***test*** *revealing the cause of* ***mysterious*** *stomach pain* (telegraph.co.uk);
28. *The tumor was "treated definitively and there is* ***no evidence of disease*** *elsewhere in the body," the court said* (theguardian.com);
29. *He defrosted their samples and* ***tested*** *them* ***for traces*** *of Covid-19* (bbc.com);

30. *It was the start of a "horrendous" three years of **investigation** before "they came to the conclusion through a process of elimination, it was nerve damage"* (bbc.com);
31. *A mysterious illness affecting children, possibly linked to the coronavirus, is now **blamed** for at least three deaths in New York <…>* (cbsnews.com).

Thus, from these metaphorical expressions the following correspondences across the conceptual domains of MEDICINE and A DETECTIVE STORY could be identified:

- The doctor correlates with a detective (DOCTOR IS A DETECTIVE);
- Medical data correlates with evidence (MEDICAL DATA IS EVIDENCE);
- Disease correlates with a crime/suspect (DISEASE IS A CRIME/SUSPECT);
- The patient correlates with a victim (THE PATIENT IS A VICTIM).

In metaphorical expressions 21-27, an illness is not personified, it is considered as a crime to be solved, but in expression 28 a disease corresponds to a suspected criminal. In addition, some specialist medical terms expand an idea that a disease is perceived as a suspect in the conceptual thought system: *interrogated vessels*, *a mutational footprint, Polypectomy Surveillance, the culprit artery, a culprit lesion,* etc. However, as discussed in the theoretical part, specialist terms are more common in texts intended for medical professionals, thus they rarely appear in popular discourse, since they might be not familiar to general audience. Nevertheless, the existence of such terms allows to assume that the process of making medical diagnosis is associated with the act of investigating in general understanding of medicine. Hence the mentioned terms are characteristic of professional medical texts, the dominant correspondence of DISEASE in popular texts is A CRIME. Furthermore, the existence of a set of mappings allows to make decision that this metaphor has a basic overall structure, therefore it is a *structural metaphor*. Besides, both target and source domains are specified (MEDICINE and A DETECTIVE STORY). Moreover, this conceptual metaphor has the following features:

1. MEDICINE and A DETECTIVE STORY are typical conceptual domains in terms of what they refer to. The target domain denotes more abstract and complex concept, while the source domain is concrete and more comprehensive. Thus, metaphorical conceptualization of MEDICINE to A DETECTIVE STORY gives an insight about how the target concept is understood in parallel with the source concept.
2. MEDICINE IS A DETECTIVE STORY creates similarity between compared concepts. Detectives and doctors both employ logical reasoning and systematic methods to reach decisions about crimes and diagnoses, respectively. However, the concepts of doctor activities: *detecting, investigating illnesses, looking for clues and traces of diseases, etc.* are dependent on the metaphorical human thinking.

3. The feature of highlighting/hiding. In this conceptual metaphor, an emphasis is put on the investigation, one aspect of source domain, and the feature of the act of crime, which is also characteristic of A DETECTIVE STORY domain, is hidden. It could be argued that some of the previously reviewed metaphorical expressions that refer to hostile physical activities and that have been linked to WAR domain, belong to A DETECTIVE STORY domain as well, since physical assault is considered to be a crime. However, the reason that these expressions are more compatible with the domain of WAR is that both opposing sides of the conflict are acting aggressively towards each other (*fighting, attacking, defending,* etc.,) rather than one of them is viewed as a criminal and another as a victim.

Furthermore, the doctor is given the key role, since he/she identifies an illness, symptoms, and causes, thus the aspect of identifying/investigating is highlighted in this metaphor. Rapezzi et al. (2005) comment that both doctors and detectives are supposed "to restore a status quo that has been undermined by a crime or disease" by resolving a criminal or medical case. Based on this approach, the right diagnosis is sufficient to re-establish harmony to social order. However, the patients' lives might not always be saved though they are rightly diagnosed. Therefore, a critical point could be made that this understanding of medicine prioritizes the process of medical diagnosing, while the patient is a secondary focus.

Finally, MEDICINE IS A DETECTIVE STORY is a conventional metaphor, since the metaphorical expressions that constitutes to it are present in various popular medical texts. In addition, relatively novel metaphorical expressions: '*a disease robs'* and '*a disease steals'* can be found occasionally in popular medical texts, e.g.:

32. *And for me* ***PTSD stole the latter half of my 30s from me****: it* ***stole my career****,* ***it stole my chances at finding the right partner*** *<…> it* ***stole my ability to eat and to sleep****, and it* ***stole my mind*** (thetimes.co.uk)

33. ***Antenatal depression and anxiety robbed me*** *of my first pregnancy* (theguardian.com).

It could be noted that it refers to a usually hidden aspect in MEDICINE IS A DETECTIVE STORY: the action of criminal activity. Besides, it is mainly used in such health news that give insights about the experiences of the patients with mental health disorders: in these particular cases illnesses are compared to *thieves*, since they interfere with positive aspects of the patients' lives. As mental health topic is growing in popularity in articles related to health issues, there is a possibility that this unconventional expression will be common in the future. To conclude, the concept of medicine is commonly associated with a detective story in the human thought.

2.5 MEDICINE IS AGRICULTURE

Conceptual metaphor MEDICINE IS AGRICULTURE can be commonly found in popular medical discourse as well (32 metaphorical expressions out of collected 210). Its existence can be validated by the following expressions:

34. *"**Vaginal seeding**" is not mainstream medicine, but it is growing in popularity* (bbc.com);
35. *The other 10% are done through **bone marrow harvest*** <…> (bbc.com);
36. *After two days, the millions of **holes** in the porous windpipe **had been seeded** with the patient's own tissue* (bbc.com);
37. *The family were told this week that one of **the heart valves** belonging to Angelo Ray was successfully **transplanted** to a newborn baby* <…> (bbc.com);
38. *In all, from the time the **stem cells** are **harvested** from a donor to the time they can be implanted in the patient, we've got a maximum of 72 hours* (bbc.com);
39. *The procedure involved placing four paddle-shaped electrodes <..> in the spinal nerve known as **the dorsal root ganglion (DRG**)* <…> (bbc.com);
40. *The ultimate aim is to use **the graft** in coronary artery and lower-limb arterial surgery, which doctors say could reduce amputations* <…> (bbc.com).

Therefore, the following correspondences across the conceptual domains emerge:

- The doctor correlates with a farmer (DOCTOR IS A FARMER);
- The patient corresponds to a cultivated field (THE PATIENT IS A CROP);
- Cells, tissues, and organs correlate with plants (INTERNAL PARTS OF THE HUMAN BODY ARE PLANTS).

It could be noted that a disease is considered to be harmful and damaging to plants/human body, however the mapping could not be settled, since a disease is not specified: it could possibly be pests, pathogens, droughts, etc. Nevertheless, the provided set of mappings allows to classify this metaphor as *structural.* Besides, both domains (MEDICINE and AGRICULTURE) are specified. Furthermore, MEDICINE IS AGRICULTURE has the following characteristics:

1. The target and the source domains are tendential: abstract and complex concept, and more concrete and easier to understand phenomenon, respectively.
2. The creation of similarity. The concepts of *harvested, seeded,* etc. plants exist in the reality independently of the metaphor, however the metaphorical human thinking is responsible for the emergence of the concepts of *harvested, seeded,* etc. parts of the human body.

3. The linguistic phenomenon of highlighting/hiding. MEDICINE IS AGRICULTURE focuses on the feature of agricultural work, while other characteristic aspects of the same source concept, e.g., the use of farming tools, machinery, or animals, are insignificant. Although one metaphorical medical term that is related to agriculture denotes *sickle,* i.e. a farming tool, the basis of this expression is a visual similarity (that a particular blood cell resembles the form of *sickle),* rather than conceptual thinking of medicine as agriculture, e.g.:

   41. As an example, some communities in Africa seem to have a higher incidence of a blood disorder - ***sickle cell anaemia*** <…> (bbc.com).

Moreover, this metaphor puts emphasis on medical procedures/operations and the human anatomy. The first part of this statement is supported by the use of names of the procedures in expressions 34-35: *seeding, harvest,* and the use of passive forms in expressions 36-38: *seeded, transplanted, harvested,* that concentrate on the activities, i.e. medical operations, while the subject, i.e. the doctor, is implicit and less significant. A strong accent on the anatomy is manifested in expressions 38-40 that refer to internal parts of the human body: *stem cells, the dorsal root, the graft.*

Speaking of the degree of conventionality, MEDICINE IS AGRICULTURE is a highly conventional metaphor, as expressions that manifest it have become common medical terms and are widely used. For example, *to transplant* for a long time meant solely "plant again in a different place," however in 20th century it started to refer to surgeries "of humans organs or tissue," as well as *graft* used to signify "shoot inserted into another plant," and in 19th century acquired its medical sense: a piece of skin or bone used to heal human body (Online Etymology Dictionary, 2020). It could further be noted that the use of such metaphorical expressions, as found in examples 34-40, is natural and indeliberate, since they are officially established medical terms and the authors of popular medical texts should use them to denote medical operations, or parts of the human body. Therefore, it could be concluded that the understanding and thinking of MEDICINE in terms of AGRICULTURE is a well-established and deeply entrenched metaphor in the human conceptual system.

Finally, as it was already stated in the theoretical part, the fact that one target domain is conceptualized by more than one source domain can be seen as refuting the idea of systematicity in the CMT, however a different aspect of the source domain is highlighted in each metaphor. Speaking of MEDICINE, it can be understood in terms of three domains: WAR, A DETECTIVE STORY, and AGRICULTURE, reflecting different aspect of this concept: human interaction with illness, the process of identifying diagnosis, and the process of medical treatment, respectively.

2.6 HEALTH IS UP, ILLNESS IS DOWN

HEALTH IS UP, ILLNESS IS DOWN is quite uncommon conceptual metaphor pair in popular medical texts (14 expressions out of 210). It is represented by a number of expressions:

41. *And he has recruited the help of his son Cristiano Jr in order to help him stay **in peak condition** while he counts down the days until his return* (dailymail.co.uk);
42. *"We don't know when we are going to be back in, but the main thing we can do is keep ourselves **in top shape**"* (bbc.com);
43. *"[But] I'll be **in tip-top shape** as well. Injuries happen to people and they need filling so I will always be a ready option for the UFC to fill in <…>* (bbc.com);
44. *Noa was a woman on the cusp of adulthood, who – like so many of our youth – was struggling **to rise above depression** and suicidal thoughts* (telegraph.co.uk);
45. *Hundreds of Bangladeshi garment factory workers **have fallen ill** after drinking suspected contaminated water in their workplace <…>* (bbc.com);
46. *That night he **sank into a coma** and was rushed to hospital, and I left Beijing to be by his side* (theguardian.com);
47. *When soldiers at nearby Camp Lewis **came down with the flu,** the camp was quarantined* (theguardian.com);
48. ***His health is declining** and, as Organ Donation Week begins, the NHS wants people to join the UK's donor register* (bbc.com).

As seen from provided expressions 41-44, the HEALTH has spatial orientation UP (health-as-up concept), whereas expressions 45-46 show that ILLNESS is oriented DOWN (illness-as-down concept). Therefore, HEALTH IS UP, ILLNESS IS DOWN are orientational metaphors. Furthermore, they have the following characteristic features:

1. As a tendency of orientational metaphors, target and source domains of both of them are antonyms of each other: HEALTH has an opposite meaning of ILLNESS, while UP is a counterpart for DOWN.
2. HEALTH IS UP, ILLNESS IS DOWN metaphors have a coherent internal system, as they do not have inconsistencies. For instance, an unsystematic metaphor would be one, where "in peak condition" would refer to "best physical state," but "top shape" would mean "worst physical state." Furthermore, these conceptual metaphors are coherent within the overall cultural system. As Lakoff and Johnson (1980: 18) state, the major metaphor in the human culture is HAPPY IS UP and other metaphors with up-down orientation, including HEALTH IS UP, are formed in respect to it.

3. HEALTH IS UP, ILLNESS IS DOWN, as the majority of orientational metaphors, have a physical basis. The roots of this particular case were already identified by Lakoff and Johnson (1980: 15): “serious illnesses force us to lie down physically.” Besides, an upright posture could be associated with a healthy person.
4. They contribute to inducing a similarity that can be perceived in the human thought system. For example, the discussed metaphor HEALTH IS UP and other metaphors that are oriented UP, e.g., HAPPY IS UP, create a similarity between concepts of HEALTH and HAPPY in the conceptual system.

Based on the conventionality criteria, HEALTH IS UP, ILLNESS IS DOWN and metaphorical expressions that constitute it, are highly conventional. They were already recognized by Lakoff and Johnson (1980: 15) as existing in everyday language. As seen from examples 41-48, such expressions are still frequent in the contemporary popular medical discourse. It could also be noted that they are associated with figurative language, thus they would not be typically found in professional medical texts. In conclusion, the concept of HEALTH is oriented UP, while the concept of ILLNESS is oriented DOWN in the human thought system.

2.7 Conceptual Metaphors with DISEASE as a Target Domain

In popular medical texts, an abstract concept of disease is commonly represented as a concrete physical concept (34 metaphorical expressions out of 210). This statement can be supported by the following expressions:

49. *"My eldest son **has cancer** and I can't even hug him at the moment. We are all in this together to try and keep people safe," he continued* (bbc.com);

50. *"What we found are some compounds that are more present in people who have **got Parkinson's disease** <…>* (bbc.com);

51. *There are concerns that in trying to prevent outbreaks authorities may go too far in the culling of wild animals that can **carry disease*** (theguardian.com);

52. *Spiders <…> act as biological controls, eating lots of other pests and creatures that might be more of a problem and **pass on disease** to humans* (theguardian.com).

53. *While **his eating disorder and anxiety have diminished** since leaving One Direction, the singer continues to speak candidly about his mental health* (insidehook.com);

54. *“I’m concerned there will be a lot of delayed-onset PTSD or **increased anxiety, and OCD [obsessive-compulsive disorder]”*** (medicalnewstoday.com).

These metaphorical expressions do not specify the physical entity, i.e. “that which is perceived or known or inferred to have its own distinct existence (living or non-living)” (The Free Dictionary). Thus, DISEASE IS A PHYSICAL ENTITY is an ontological metaphor. As it was noted in the theoretical part of the research, such metaphors provide solely basic knowledge about the target concepts. However, they serve various purposes: expressions 49-52 allow to identify DISEASE as an object, more specific as a possession of the human body that can be acquired or lost, while expressions 53-54 serve the purpose of quantifying.

Moreover, disease can be further specified as a living being in popular medical texts. This claim could be justified by the following metaphorical expressions:

55. *"Young children are not infected and do not transmit the virus," he said. "They just don't have the receptors* ***to catch the disease****"* (bbc.com);
56. ***Depression runs*** *in families, we know* (theguardian.com);
57. *Covid-19, Harry says, is an '****evil disease****' but one the country will once again come together to defeat* (telegraph.co.uk);
58. *I have just lost my dear wife of 54 years to the* ***cruel disease*** *that is Alzheimer's* (theguardian.com);
59. *A woman who survived* ***aggressive cancer*** *said thieves who took her family's caravan had also "stolen our dreams"* (bbc.com).

In expressions 53-54 an abstract concept of DISEASE is perceived as a moving object, though not specified. Besides, in metaphorical expressions 54-56, diseases acquire qualities characteristic to humans or animals. Thus, the conceptual metaphor DISEASE IS A LIVING ENTITY might be formulated. This metaphor entails the already presented DISEASE IS A PHYSICAL ENTITY metaphor. As it was stated in the theoretical part, such subcategories form a coherent systematicity within a concept. According to a criteria of conventionality, both of identified conceptual metaphors are conventional, as well as expressions 49-53 that construct them. Such phrases as *to have/to get/carry on, etc. disease* are used naturally and frequently in literal language without a deliberate purpose to employ figurative elements. As for expressions 54-57, they are not fully conventionalized phrases, however they are not completely novel either. Such adjectives as *evil, cruel, aggressive* are used for intentional rhetorical effect to highlight damaging and harming characteristic quality of diseases and they are not extremely common in popular medical texts. However, their use is not rare either, thus they stand in the middle of the scale of conventionality.

Moreover, disease could be further specified from A LIVING ENTITY to three concepts: 1) HUMAN; 2) ANIMAL; 3) PLANT. This claim could be justified by the following expressions:

60. ***Regular anxiety told me*** *it was dangerous to go outside* ***<…> Regular depression told me*** *to lie on the couch all day.* ***PND told me*** *to put a pillow over my baby* (theguardian.com);
61. *As well as anxiety, I've been prone to* ***depression*** *in the past. My analyst taught me an exercise to invite they in. You say: 'OK, I can feel* ***the black dog*** *coming'* (dailymail.co.uk);
62. *'****Depression is cat*** *sitting on my chest'. He sits there for a few days and doesn't move. He is noticeably heavy but not in a way that actively stops me from carrying on doing things* (bbc.com);
63. *In some circumstances* ***seeds of depression*** *arrive and germinate. If* ***the seeds of depression*** *(stress, adverse circumstances)* <…> (theguardian.com).

Linguistic expression 58 is a personification, since it assigns a human-like quality, i.e. speaking ability, to a disease. *Disease tells* is a novel metaphorical expression, since its level of usage is low and the authors use it not automatically, but for the purpose to emphasize how the human mind and thoughts can be affected by a mental illness. The phrase *depression is the black dog* was created by Winston Churchill and it is still used on rare occasions to refer to depression in popular medical discourse (Storr, 2017). Another expression that denote to an animal, *depression is a cat* is novel, since it is an individual creation by the author of the text. Expressions 59-60 are possibly based on the loyalty and commitment of animals towards their owners: dogs are known for their loyalty, while cats are not typically described as loyal animals, in the text it is further elaborated that a cat *sits there [on a chest] for a few days and doesn't move,* thus it never leaves its owner. Therefore, the fact that dogs and cats are presented as loyal companions shows perceiving mental disease as a constant state of mind. The last expression 61 metaphorically represents a disease as a plant focusing on the growth aspect: as a plant might grow from planted small seeds, hence a disease might become more severe and bigger, besides, it can develop from seemingly not large factors. Moreover, all the further elaborated conceptual metaphors of the DISEASE IS A PHYSICAL ENTITY are ontological, as they do not have a basic overall structure.

To conclude, an abstract concept of disease is metaphorically perceived as A PHYSICAL ENTITY, A LIVING ENTITY, A HUMAN, AN ANIMAL, and A PLANT.

2.8 Conceptual Metaphors with HUMAN BODY as a Target Domain

In popular medical discourse several conceptual metaphors of which the target domain is HUMAN BODY can be identified. The first one HUMAN BODY IS A BREAKABLE OBJECT is manifested in the metaphorical expressions presented below:

64. *In a UK first, doctors have used keyhole surgery to successfully **repair the spine** of a baby with spina bifida while it was still inside the womb* (bbc.com);
65. *Eden Hazard will miss Real Madrid's Champions League last-16 tie with Manchester City after suffering **a broken ankle** during Saturday's La Liga defeat at Levante* (theguardian.com).

This conceptual metaphor allows to perceive HUMAN BODY as a physical object which is breakable, perhaps fragile, hence it can be broken and then, if possible, restored to its previous condition. For the reason that HUMAN BODY IS A BREAKABLE OBJECT contains limited knowledge about the target concept, it is classified as *ontological* metaphor.

Moreover, HUMAN BODY can be further conceptualized by the source domain of A MACHINE. This statement is reflected in the following metaphorical expressions:

66. ***The immune apparatus** has another class, called T cells which work in tandem with B cells* (thehindu.com);
67. *Such peptides are involved in the **body's non-specific defense mechanisms*** (deutshcewelle.com);
68. *<…> the number of these in the blood is controlled by regulatory T cells (Tregs), **a protection mechanism** to prevent T cells from running riot in the body* (theguardian.com).

Thus, the formulation of conceptual metaphor reflected in the provided expressions is HUMAN BODY IS A MACHINE, which entails HUMAN BODY IS A BREAKABLE OBJECT metaphor. The MACHINE metaphor and expressions that constitute it are conventional, since they were already recognized and discussed by researchers, such as Hodgkins (1985: 1820). Besides, it is ontological metaphor, since it has no elaborate structure, even though it contains more information about HUMAN BODY than the BREAKABLE OBJECT metaphor. Moreover, this metaphor focuses on the operating condition of the HUMAN BODY, allows to understand it as consisting of several parts that function and work together.

The third conceptual metaphor related to human body that could be identified in popular medical texts is HUMAN BODY IS A BUILDING. It is apparent from the following expressions:

69. ***The palmar arches** allow the palms to curl inward. Strengthening these helps coordinate the movement of fingers. <…>* (healthline.com);
70. *Tyler Smith <…>, was diagnosed with chronic kidney disease in 2013 and had a transplant from his cousin in 2018, <…>who is now the British and European men's physique **bodybuilding** champion* (bbc.com);

71. *Ellie also said that while she is a fan of intermittent fasting, she started fasting for 12 hours first, and slowly, was able* ***to build her stamina*** *and can now withstand not eating for 40 hours* (indiatimes.com);
72. *A woman is facing* ***reconstructive surgery*** *after being left scarred by cosmetic procedures in Turkey* (bbc.com).

This conceptual metaphor and expressions that form it, are *conventional*, since most of them became medical terms: *palmar arches, bodybuilding, reconstructive surgery.* It could be mentioned that *palmar arches* is a specialist medical term, hence uncommon in popular medical discourse, however it can be sometimes used in popular articles. Other mentioned terms are common medical terms and have a wide usage. Besides, based on the cognitive function, this conceptual metaphor is *ontological*, as it does not have an overall structure. Moreover, HUMAN BODY IS A BUILDING could be considered as another elaboration of the HUMAN BODY IS A BREAKABLE OBJECT metaphor, as the concept of building contains the feature of breakability as well: *a building* might be *demolished, destroyed, etc.*, and an additional conception of human body being *a constructed structure.*

In conclusion, the concept of HUMAN BODY is metaphorically represented in popular medical discourse by the concepts of A BREAKABLE OBJECT, A MACHINE, and A BUILDING.

2.9 The Distribution of Conceptual Metaphors in Popular Medical Discourse

The percentage of all the collected metaphorical expressions that manifest conceptual metaphors can be shown graphically:

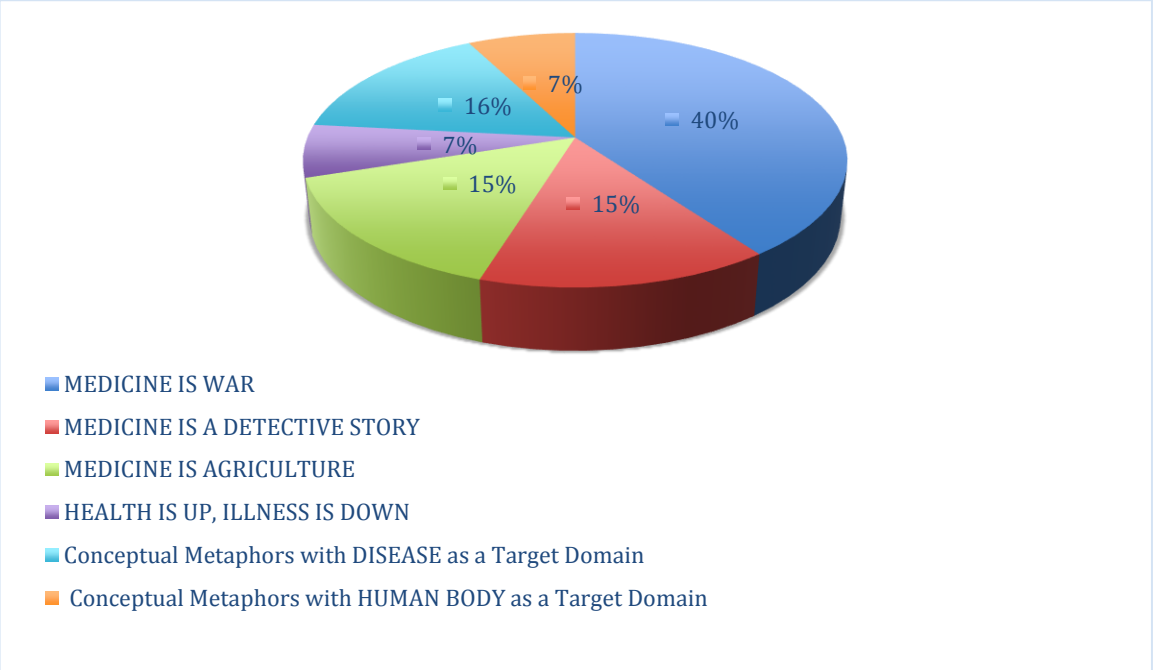

Figure 1. The percentage distribution of conceptual metaphors in popular medical discourse.

As it can be seen from the figure above, MEDICINE IS WAR is the most frequent metaphor in popular medical discourse, since the largest number of expressions that construct it has been collected (84 out of 210). MEDICINE IS A DETECTIVE STORY, MEDICINE IS AGRICULTURE and conceptual metaphors with DISEASE as a target domain are quite common as well, as their percentage in the overall amount of data is: 14,76%; 15,23%, and 16,19% respectively. HEALTH IS UP, ILLNESS IS DOWN and conceptual metaphors with HUMAN BODY as a target domain are least frequent conceptual metaphors, since they account for 6,66% and 7,61% of all uses.

The following figure reflects the frequency of metaphorical expressions that constitute different conceptual metaphor types based on their cognitive function:

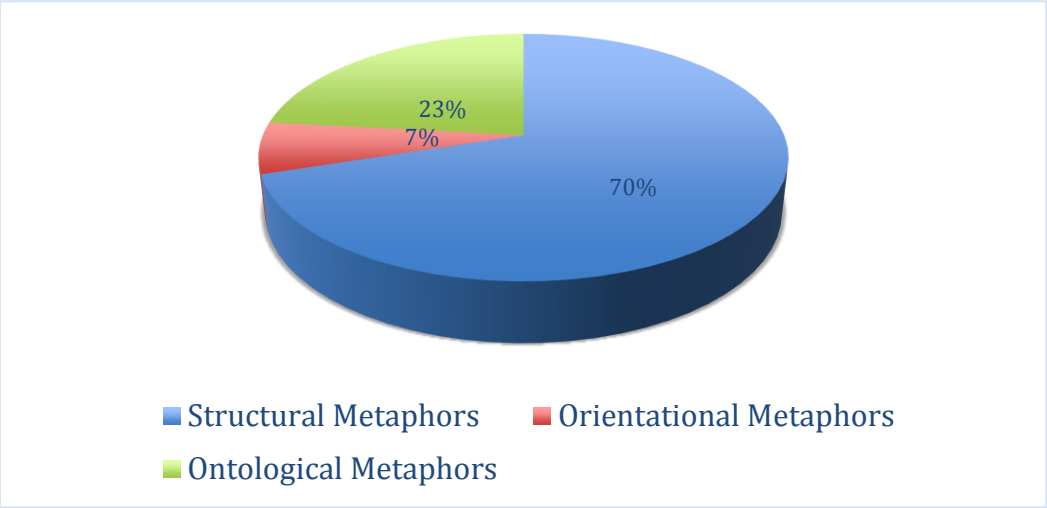

Figure 2. The percentage distribution of different conceptual metaphor types based on the cognitive function

The figure above illustrates that the majority of metaphorical expressions found in popular medical discourse form structural metaphors: they amount to 70%. The percentage of ontological metaphors is 23% and orientational metaphors have the smallest percentage: 7%.

Furthermore, the distribution of collected metaphorical expressions based on the degree of conventionality can be illustrated graphically:

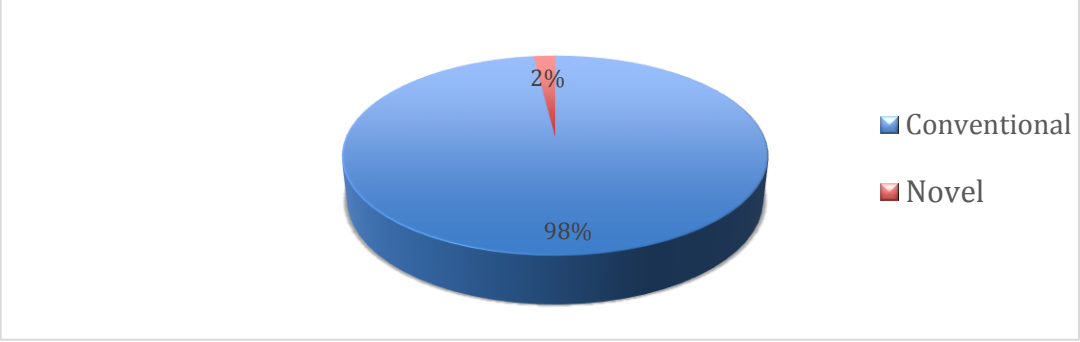

Figure 2. The percentage distribution of collected expressions based on their conventionality

The figure above shows that conventional metaphorical expressions dominate in popular medical discourse, however novel expressions occasionally are found as well. In addition, it should be noted that 6 metaphorical expressions that were considered neither fully conventional, nor fully novel, were excluded from calculation of the percentages.

CONCLUSIONS

The aim of the research was to identify and analyse conceptual metaphors in popular medical discourse. Corresponding to the objectives that have been set up to fulfil this goal, the following conclusions have been drawn:

1. In the 20th century a completely new theory of metaphor has emerged: *Conceptual Metaphor Theory*. It treats metaphor as a cognitive device that allows to understand one concept in terms of another. Such metaphors are pervasive in everyday life and can be used subconsciously. They can be categorized on the basis of their cognitive function: structural, orientational, and ontological. Structural metaphors has a well-defined structure that are manifested by a set of mappings. Orientational metaphors are oriented spatially: up-down, in-out, front-back, etc. Ontological metaphors represent abstract concept by means of non-specified physical object. Based on the degree of conventionality, conceptual metaphors can be divided into conventional (well-known and widely used by the linguistic community) and novel (an individual creation by the author). The main characteristic features of conceptual metaphors are systematicity, highlighting/hiding phenomenon, and the creation of similarity.
2. Popular medical texts are targeted at general readership, i.e. readers not having specialist scientific knowledge in medical field. They can be written by medical professionals, or journalists. Popular medical texts are articles in magazines, newspapers, websites, and brochures. They are informal and can be understood by general public.
3. The understanding of various medical concepts is reflected in metaphoric expressions used in popular medical texts. The concept of MEDICINE can be metaphorically understood in terms of three different source concepts: WAR, A DETECTIVE STORY, and AGRICULTURE. They highlight the different aspect of the same concept: the interaction with illness, the process of identifying diagnosis, and the process of medical treatment. All the mentioned conceptual metaphors are well established and deeply entrenched in the linguistic community. Hence, the use of these metaphors can be natural, automatic, and inevitable. However, some of the metaphorical expressions that manifest them can be novel. The HEALTH concept is oriented UP, and its counterpart concept of ILLNESS is oriented DOWN. This pair of metaphors has internal and external systematicity, and a it is based on physical grounds. The abstract concept of DISEASE is perceived as a PHYSICAL ENTITY. This metaphor allow to identify DISEASE as an object, as a possession of a human.

Henceforth, it can be specified as A LIVING ENTITY, and even further elaborated into HUMAN, AN ANIMAL, and A PLANT. The HUMAN BODY can be understood in terms of A BREAKABLE OBJECT. This metaphor indicates aspects of fragility and breakability of the human body. It can be further specified into A MACHINE, and into A BUILDING.

4. The supreme conceptual metaphor in popular medical discourse is MEDICINE IS WAR (40%). The most popular type based on the cognitive function is structural metaphors (70%). Conventional metaphorical expressions are the dominant type in regard to the degree of conventionality (98%).

REFERENCES

1. Currie, M. (2005). *The Unexpected: Narrative Temporality and the Philosophy of Surprise*. Edinburgh: Edinburgh University Press.
2. Evans, V., Bergen, B., and Zinken, J. (2007). *The Cognitive Linguistics Reader*. London: Equinox.
3. Geeraerts, D., and Cuyckens, H. (2010). *Oxford Handbook of Cognitive Linguistics*. Oxford, UK: Oxford University Press.
4. Glucksberg, S. (2001). *Understanding Figurative Language: from Metaphors to Idioms*. Oxford: Oxford University Press.
5. Hidalgo-Downing, L., and Kraljevic-Mujic, B. (2017). Metaphor and Persuasion in Commercial Advertising. E. Semino and Z. Demjén (Ed.), *The Routledge Handbook of Metaphor and Language.* Abingdon: Routledge.
6. Hodgkin, P. (1985). *Medicine is war: and other medical metaphors*. British Medical Journal, 291(6511), 1820-1821. doi: 10.1136/bmj.291.6511.1820
7. Knowles, M., and Moon, R. (2006). *Introducing metaphor*. Abingdon: Routledge.
8. Kövecses, Z. (2010). *Metaphor: A Practical Introduction* (2nd ed.). New York: Oxford University Press.
9. Kövecses, Z. (2017). Conceptual Metaphor Theory. E. Semino and Z. Demjén (Ed.), *The Routledge Handbook of Metaphor and Language.* Abingdon: Routledge.
10. Lakoff, G. (1986). A Figure of Thought. *Metaphor and Symbolic Activity, 1*, (3), pp. 215-225. doi: 10.1207/s15327868ms0103_4
11. Lakoff, G. (1993). The Contemporary Theory of Metaphor. A. Ortony (Ed.), *Metaphor and Thought* (2nd ed.). Cambridge: Cambridge University Press.
12. Lakoff, G., and Johnson, M. (1980). *Metaphors We Live By*. Chicago: University of Chicago Press.
13. Lakoff, G., and Turner, M. (2009). *More than Cool Reason*. Chicago: Univ. of Chicago Press.
14. Lankamp, R. E. (1989). *A study on the effect of terminology on L2 reading comprehension: should specialist terms in medical texts be avoided?*. Amsterdam: Rodopi. https://doi.org/10.6100/IR297032
15. McArthur, T., and McArthur, R. (2005). *Concise Oxford companion to the English language*. Oxford: Oxford University Press.
16. Ordóñez López, P., and Edo Marzá, N. (2016). *Medical Discourse in Professional, Academic and Popular Settings*. Bristol: Multilingual Matters.

17. Pragglejaz Group (2007) *MIP: A Method for Identifying Metaphorically Used Words in Discourse*. Lawrence Erlbaum Associates, Inc. [Online] Available at: https://www.lancaster.ac.uk/staff/eiaes/Pragglejaz_Group_2007.pdf [Accessed 20th May 2019].
18. Rapezzi, C., Ferrari, R., & Branzi, A. (2005). *White coats and fingerprints: diagnostic reasoning in medicine and investigative methods of fictional detectives*. British Medical Journal, 331(7531), 1491-1494. doi: 10.1136/bmj.331.7531.1491
19. Richie, L. (2013). *Metaphor: Key Topics in Semantics and Pragmatics*. Cambridge: Cambridge University Press.
20. Rohrer, T. (1991). To Plow the Sea: Metaphors of Regional Peace in Latin America. *Metaphor and Symbolic Activity 5*, (2), 163-181. https://doi.org/10.1207/s15327868ms1002_3
21. Semino, E. (2008). *Metaphor in Discourse*. Cambridge: Cambridge University Press.
22. Semino, E., and Steen, G. (2008). *Metaphor in Literature.* R. W. Gibbs (Ed.), *The Cambridge Handbook of Metaphor and Thought* (pp. 236). Cambridge: Cambridge University Press.
23. Steen, G., Dorst, A., Herrmann, J., Kaal, A., Krennmayr, T., and Pasma, T. (2010). *A Method for Linguistic Metaphor Identification: From MIP to MIPVU*. Amsterdam: John Benjamins.
24. Storr, A. (2017). *Churchill's Black Dog*. London: HarperCollins Publishers.
25. Ten Hacken, P., and Panocová, R. (2015). *Word Formation and Transparency in Medical English*. Cambridge: Cambridge Scholars Publishing.
26. Van Teeffelen, T. (1994). Racism and Metaphor: The Palestinian-Israeli Conflict in Popular Literature. *Discourse & Society*, *5*(3), 381-405. doi: 10.1177/0957926594005003006
27. Yu, N. (1998). *The Contemporary Theory of Metaphor*. Amsterdam: John Benjamins Pub.

DICTIONARIES

1. Cambridge Dictionary | English Dictionary, Translations & Thesaurus. (2020). Retrieved 1 March 2020, from https://dictionary.cambridge.org/
2. Dictionary, Encyclopedia and Thesaurus - The Free Dictionary. (2020). Retrieved 1 May 2020, from https://www.thefreedictionary.com/

3. Online Etymology Dictionary | Origin, history and meaning of English words. (2020). Retrieved 15 May 2020, from https://www.etymonline.com/
4. Stevenson, A. (2010). *Oxford Dictionary of English* (3rd ed., pp. 1112-1242). Oxford: Oxford University Press.

SOURCES

1. BBC - Home. Retrieved, from https://www.bbc.co.uk/
2. BBC - Homepage. Retrieved from https://www.bbc.com/
3. Breaking News, India News, Sports News and Live Updates. Retrieved from https://www.thehindu.com/
4. CBS News - Breaking news, 24/7 live streaming news & top stories. (2020). Retrieved from https://www.cbsnews.com/
5. CNN International - Breaking News, US News, World News and Video. Retrieved from https://www.cnn.com/
6. ESPN. Retrieved from http://www.espn.com
7. Health News. Medical News Today. Retrieved from https://www.medicalnewstoday.com/
8. Healthline: Medical information and health advice you can trust. Retrieved from https://www.healthline.com/
9. Home | Daily Mail Online. Retrieved from https://www.dailymail.co.uk
10. News and current affairs from Germany and around the world | DW. Retrieved from https://www.deutschewelle.com/
11. New York Post. Retrieved from https://nypost.com/
12. News, Reviews, Health, Travel & Fashion for Men - InsideHook. Retrieved from https://www.insidehook.com/
13. NPR Choice page. Retrieved from https://www.npr.org/
14. Telegraph. Retrieved from https://www.telegraph.co.uk/
15. The Independent. Retrieved from https://www.independent.co.uk/
16. The Guardian | News. Retrieved from https://www.theguardian.com/news/
17. The Times & The Sunday Times. (2020). Retrieved from https://www.thetimes.co.uk/
18. Trending stories on Indian Lifestyle, Culture, Relationships, Food, Travel, Entertainment, News - Indiatimes.com. Retrieved from https://www.indiatimes.com/

APPENDIX

MEDICINE IS WAR

1. *When men and women present with the same acute abdominal pain, women have to wait longer to see a doctor and are less likely to be given* ***painkillers*** *<…>* (telegraph.co.uk);
2. *White* ***blood cells attack*** *pathogens* (bbc.co.uk);
3. ***Vaccines*** *are many months away and may well not be* ***a silver bullet*** *when they arrive* (telegraph.co.uk);
4. *A former Charlton Athletic women's player has tragically died aged 20 after* ***a battle with cancer*** (dailymail.co.uk);
5. *<…> our player Lucy Kerr* ***has been battling cancer*** *over the past months, she'd gone through so much and has been so incredibly brave and strong* (dailymail.co.uk);
6. *The former intravenous drug user was among the first <…> to be diagnosed in the worst drug-fueled* ***HIV outbreak*** *ever* ***to hit*** *rural America* (npr.org);
7. *Before the outbreak, addiction to the potent opioid* ***painkiller*** *Opana swept through the community* (npr.org);
8. *Or perhaps it's significant that* ***when we are fighting bacteria or viruses****, our blood is awash with inflammatory molecules that <..>, turning* ***these immune cells into warriors that kill*** *and engulf microbes <…>* (bbc.com);
9. *"I think the infection changes the innate immune cells from helping the tumours* ***to killing them,"*** *<…>* (bbc.com);
10. *<…> the tumorous cells, so that* ***they can attack the cancer*** *again <…>* (bbc.co.uk);
11. *<…>"immunotherapies"* ***hijack our natural defences to combat cancer*** (bbc.com);
12. *"Dengue fever crashes and regroups* ***the immune system****, so that it is reset* ***to kill tumour cells,"*** *says Bruce Lyday at PrimeVax* (bbc.com);
13. *Infecting vulnerable patients with a tropical illness may sound foolhardy, but* ***dengue fever*** *is less likely* ***to kill*** *the average adult than the common cold <…>* (bbc.com);
14. *If a pathogen does enter the body then* ***the immune system helps to fight it off*** (bbc.com);
15. *Much like* ***Covid-19 that has been found to disproportionally kill*** *and infect black and brown people, Kawasaki disease is also prevalent among African Americans* (cnn.com);
16. *Women, <…> failing to seek medical advice for a suspected* ***heart attack*** *for fear of being considered a hypochondriac, <…> (telegraph.co.uk);*
17. *The Harry Potter author has been open about her* ***battle with depression*** (bbc.co.uk);

18. ***She has battled other forms of cancer*** *over the past two decades but has continued to fulfil her duties on America's highest judicial body* (theguardian.com);
19. *This left her needing high doses of* ***painkillers*** *which left her unable to eat or drink* (bbc.com);
20. *Below, we rounded up celebrities who have spoken candidly about their own* ***battles with everything from postpartum depression to anorexia*** (insidehook.com);
21. *He's also been outspoken about his* ***battle with OCD,*** *which he described as "a condition that both fuels and hinders me"* (insidehook.com);
22. *The "Orange Is the New Black" star also said that her* ***health battles*** *have made her realize how resilient she is* (insidehook.com);
23. *An outspoken advocate for mental health awareness, Demi Lovato is open about her* ***battles with bipolar disorder, bulimia, and addiction*** (insidehook.com);
24. *Gaga has also told Paper magazine that she has clinical depression and "it's* ***a fight*** *all the time"* (insidehook.com);
25. *In January 2017, Hayden Panettiere offered some advice for fellow moms who have* ***struggled with postpartum depression*** (insidehook.com);
26. *It may not sound as dramatic as saving someone from a* ***heart attack****, but this is life-saving care* (bbc.com);
27. *She said it has ended a close relationship with a mental health nurse who had helped her over the last year to recover from an* ***anxiety attack*** *<…>* (bbc.com);
28. *The body is constantly* ***defending*** *against* ***attacks*** *from pathogens* (bbc.co.uk);
29. *It contains hydrochloric acid, and while it does us no harm, it is strong enough* ***to kill*** *any pathogens <…>* (bbc.co.uk);
30. *On Twitter, he cited "****the attack from the invisible enemy****", as he calls* ***the virus****, and the need to protect the jobs of Americans, but did not give details* (bbc.com);
31. *Last year she made a documentary for the BBC in which she spoke about and sought treatment for her regular* ***panic attacks*** (bbc.com);
32. *The British-Bangladeshi baker and writer has spoken openly and often about her lifelong* ***struggle with anxiety*** (bbc.com);
33. *The 23-time Olympic swimming champion has spoken in the past about his* ***struggles with depression*** *<…>* (bbc.com);
34. *Research suggests the contagion can get deep into our vascular system and even our brains – so how does the* ***virus attack****?* (telegraph.co.uk);
35. *<…> a respiratory virus – one that simply* ***attacks*** *the lungs* (telegraph.co.uk);

36. *“We are seeing a range of illness; some people develop blood clots, others* ***heart attacks*** *or kidney failure,” <…>* (telegraph.co.uk);
37. *So how does the* ***virus attack****?* (telegraph.co.uk);
38. *It is inside the lungs that the virus turns nasty. It* ***invades*** *the millions of tiny air sacs in the lungs, causing them to become inflamed* (telegraph.co.uk);
39. *“You’re keeping them alive hoping that their own* ***immune system fights*** *the virus”* (telegraph.co.uk);
40. *The lungs may be ground zero for Covid-19 but scientists think it may also* ***invade*** *the circulatory system, getting deep into our veins* (telegraph.co.uk);
41. *Precisely how the* ***virus attacks*** *the heart and blood vessels remains a mystery <…>* (telegraph.co.uk);
42. *<…> experts believe infection may cause blood clots,* ***heart attacks*** *and cardiac inflammation <…>* (telegraph.co.uk);
43. *It is unclear whether this happens because the* ***virus attacks*** *the kidneys directly – there is an abundance of ACE2 receptors within the organ <…>* (telegraph.co.uk);
44. *But as someone who self-harmed as a teenager and experienced* ***panic attacks*** *at university a decade ago <…>* (theguardian.com);
45. *Excessive use of* ***painkillers*** *is on the rise* (bbc.com);
46. *Jazmine Allen, 23, who already has a 10-year history of using prescription* ***painkillers,*** *is taking part in the '****Painkillers*** *Don't Exist' campaign <…>* (bbc.com);
47. *<…> which aims to raise awareness that the* ***medications*** *can simply be masking the pain rather than* ***killing it*** *<…>* (bbc.com);
48. *She opted to come off her* ***painkillers*** *and uses exercise to manage her symptoms instead* (bbc.com);
49. *<…> a team has been studying the increasing prevalence of* ***painkiller*** *use* (bbc.com);
50. *Bacteria normally found in yogurt have been turned into “silver bullets” that could provide a cure for the common cold* (telegraph.co.uk);
51. *A new type of genetic "****magic bullet****" could make it easier to treat cancers in sensitive areas, scientists believe* (telegraph.co.uk);
52. *Naomi Alderman tells the story of Paul Ehrlich's cure for syphilis and his '****magic bullet****' approach using targeted treatments that* ***hit the disease*** *and not the patient* (bbc.com);
53. *In 2015, Lisa Nicole Carson opened up about her* ***battle with bipolar disorder****, which sidelined her career for over a decade* (insidehook.com);
54. *Wayne Brady described his* ***battle with depression*** *and "constant self-doubt" in 2014* (insidehook.com);

55. *Hamm <…> has also talked about the benefits of therapy and antidepressants in his* ***battle with chronic depression*** (insidehook.com);
56. *Today, fear of dying, anxiety, depression, anger,* ***panic attacks****, insomnia and survivor's guilt - all known to affect survivors of natural disasters and war - have emerged as common symptoms* (bbc.com);
57. *Sometimes members of the same family are* ***fighting for their lives*** *in the same hospital, giving patients a different kind of guilt* (bbc.com);
58. *"When one dies, the other tells us the* ***virus*** *should have* ***killed*** *them and not the other," says Dr Rizzi* (bbc.com);
59. ***The fight at the frontlines of Covid-19*** *is being waged in clinics and hospitals around the world* (bbc.com);
60. *It's understood that the Wynnum Manly <…> is believed to have suffered a suspected* ***heart attack*** (theindependent.co.uk);
61. *Jason Chesney, of the University of Louisville, Kentucky, used the* ***body's own defences to fight the melanoma*** *in his patients* (theguardian.com);
62. ***The immune system attacks*** *cancers using activated T cells* (theguardian.com).

MEDICINE IS A DETECTIVE STORY

63. *I went for an ultrasound at the Royal Free Hospital, confirming it wasn't gallstones – but I also had* ***a blood test****, which* ***showed*** *my inflammation rate was high, and my platelet count low* (telegraph.co.uk);
64. *Nine years later, she shows* ***no sign of relapse*** (bbc.com);
65. *The NHS test, which is highly accurate, looks at antibodies the body produces, which can take some weeks to reach* ***detectable*** *levels* (bbc.com);
66. *Women, <…> failing to seek medical advice* ***for a suspected heart attack*** *for fear of being considered a hypochondriac, <…>* (telegraph.co.uk);
67. *Doctors say there is* ***no evidence the disease*** *has spread elsewhere* (theguardian.com);
68. *Antonio Cassano shows improvement after* ***suspected stroke*** *(theguardian.co.uk);*
69. *A patient treated in a hospital near Paris on 27 December for* ***suspected pneumonia*** *actually had the coronavirus, his doctor has said* (bbc.com);
70. *This was four days before the WHO's China country office was informed of cases of* ***pneumonia*** *of unknown cause* ***being detected*** *in the Chinese city of Wuha* (bbc.com);
71. *"Patients ill in hospital with Covid are* ***showing signs of significant heart and vascular problems,*** *" said Prof Shah* (telegraph.co.uk);

72. *Michael Levin<…> explained that most of the children tested negative for coronavirus, but tested positive for* ***detection of antibodies*** (bbc.com);
73. *Swab tests* ***to detect the virus*** *are not thought to be useful because the reaction tends to occur many weeks after infection* (bbc.com);
74. *It was the next day when the world was warned about the mysterious syndrome affecting children with* ***suspected coronavirus*** (bbc.com);
75. *"A molecular diagnostic test (RT-PCR) to detect coronavirus in respiratory samples was developed very early by the Central Virology Laboratory <…>* (bbc.com);
76. *But in some cases, the* ***tests may detect old particles of the virus*** (theguardian.com);
77. *They* ***do not detect other coronaviruses*** *nor do they* ***detect the common cold*** (bbc.com);
78. *It's understood that the Wynnum Manly <…> is believed to have suffered* ***a suspected heart attack*** (theindependent.co.uk);
79. *Arms – the person with* ***suspected stroke*** *may not be able to lift both arms and keep them there because of weakness or numbness in 1 arm* (theindependent.co.uk);
80. *His mom Rachel Flynn, 34, and dad Tom Darlington, 39, are now sharing Oliver's story to raise awareness for sepsis and to urge other parents to be* ***vigilant for the signs of the condition*** (nypost.com);
81. *A Scottish woman who astonished doctors with her ability* ***to detect Parkinson's disease*** *through smell has helped scientists find what causes the odour* (bbc.com);
82. *"In neurodegenerative disorders [such as Parkinson's], there is* ***no such evidence****, so no logic to doing this"* (bbc.com).

MEDICINE IS AGRICULTURE

83. *Tyler Smith <…>, was diagnosed with chronic kidney disease in 2013 and had a transplant from his cousin in 2018, <…>who is now the British and European men's physique* ***bodybuilding*** *champion (bbc.com);*
84. *Loss of fertility is common after* ***a stem cell*** *or* ***bone marrow transplant****, and chemotherapy can affect a woman's fertility <…>* (telegraph.co.uk);
85. *"If I'd needed* ***a transplant*** *as part of my treatment, I might have become -infertile as a result* (telegraph.co.uk);
86. *Prof Brocklehurst says: "At the moment some parents believe this hypothesis enough that they are doing their own* ***vaginal seeding*** (bbc.com);
87. *This is the idea that some parents are buying into when they perform* ***vaginal seeding*** (bbc.com);

88. *Maybe we could culture the bugs from the mums to purposefully colonise the babies <…> in other words, a scientifically controlled version of* ***vaginal seeding*** (bbc.com);
89. *There has been an emerging trend among mothers who have a caesarean section for* ***"vaginal seeding"*** *<…>* (theguardian.com);
90. *Surgeons in Sweden have carried out the world's first synthetic* ***organ transplant*** (bbc.com);
91. *Professor Macchiarini already has 10 other* ***windpipe transplants*** *under his belt - most notably the world's first tissue-engineered* ***tracheal transplant*** *<…>* (bbc.com);
92. *It wasn't something they had done before, and removing* ***organs*** *from such a small baby, and* ***transplanting them****, poses extra challenges* (bbc.com);
93. *The 45-year-old, from Stockport, has been waiting longer than anyone else in the UK on the current list of* ***heart transplant*** *patients* (theguardian.com);
94. *NHS Blood and Transplant figures show about 3,000* ***lifesaving transplants*** *were missed in the last year <…>* (theguardian.com);
95. *Gareth originally had a* ***heart transplant*** *in 1990, aged only 17, after he contracted cardiomyopathy, a disease of the heart muscle* (bbc.com);
96. *The cell bodies of the neurons are found in* ***the dorsal root ganglia*** *- for the face - and the trigeminal ganglia for the rest of the body* (dailymail.co.uk);
97. *The operation promised to reshape organ* ***transplantation*** (bbc.com);
98. *Ground-breaking work on synthetic* ***organ transplants*** *made Paolo Macchiarini one of the most famous doctors in the world* (bbc.com);
99. *The publication of this sent a signal to the medical community that the miraculous-sounding project of growing and* ***implanting synthetic transplants*** *was a viable treatment* (bbc.com);
100. *The synthetic "scaffold" for Beyene's new trachea was made in a lab in London.* ***It was seeded with*** *stem cells taken from the patient's bone marrow <…>* (bbc.com);
101. *Karolinska University Hospital stopped Macchiarini's work in November 2013, but he continued to perform* ***the transplants*** *as part of a clinical trial in Russia* (bbc.com)*;*
102. *<…> issues that are circumvented by the use* ***of stems cells harvested*** *from adult tissues* (bbc.com);
103. *A nine-year old boy developed multiple brain and spinal cord tumours following* ***stem cell transplant*** (bbc.com);
104. *Staff, mostly dressed in medical scrubs, neglected to mention any potential adverse events associated with* ***stem cell transplants*** (bbc.com);

105. *Even if **transplanted cells** are able to migrate to the areas of damage, mature and integrate into a patient's nervous system before the disease takes its toll* (bbc.com);
106. *In MS the condition has a clear immune basis, so it makes much more logical sense to do **bone marrow transplants** as a way of treating the disease," <…>* (bbc.com).

HEALTH IS UP, ILLNESS IS DOWN

107. *Cassano, who has remained at the Policlinico facility where he was taken for tests after **falling ill**, was reportedly joking with team-mates on the plane, before suddenly developing problems with his vision, speech and movement* (bbc.com);
108. *In that situation it's so easy to **fall ill** because it's just not a clean place* (bbc.com);
109. *Ms Jones and Mr Cowan were among 15 festival-goers to **fall ill** at the King George V Playing Fields in Cosham on the night of Saturday 26 May* (bbc.com);
110. *When "cheeky" Oliver Darlington **came down with cold-like symptoms**, his parents assumed it was nothing to worry about <…>* (nypost.com);
111. *Her husband **fell critically ill**, too, spending 17 days in an intensive care <…>* (theguardian.com);
112. *<...> part of a fitness regimen so obsessive we eventually learn regular facelifts help keep him in **tip-top shape*** (theguardian.com).

DISEASE IS A PHYSICAL ENTITY

113. *Imagine **having the psychosis** and having to have to go to hospital* (dailymail.co.uk);
114. *He added: 'I **had a few** brutal **panic attacks,** which is why I quit'* (dailymail.co.uk);
115. *I still didn't think I **had cancer**, thinking perhaps it was a stomach ulcer* (telegraph.co.uk);
116. *Doctors, who performed an MRI scan, also found the youngster **had lung cancer*** (dailymail.co.uk);
117. *She then discovered that she **had a tumour** between her rectum and her uterus, but before doctors could operate, she finally conceived* (bbc.com);
118. *Meanwhile, the patient is given a dose of dengue fever, **a disease** normally **carried by mosquitoes**, before they are injected with the newly trained dendritic cells* (bbc.com);
119. ***Lyme disease** - a bacterial infection - **is carried by** some species of ticks, and about 13% in the UK are believed to be infected* (bbc.co.uk);
120. *"She and my dad **had cancer** at the same time. She survived. He didn't," <..>* (cnn.com);
121. ***"I had my appendix** out and I remember I came round out of the anaesthetic screaming, the pain was something else."* (bbc.com);

122. *One study in JAMA Cardiology journal, found that 20 per cent of 416 patients hospitalised in Wuhan with the coronavirus* ***had heart damage*** (telegraph.co.uk);
123. *Prof Russell Viner, president of the Royal College of Paediatrics and Child Health, said the majority of children who have* ***had the condition*** *<…>* (bbc.com);
124. *Mr Jones also claims that anyone who has ever* ***had any coronavirus infection****, or the* ***common cold****, will produce a positive test* (bbc.com).

DISEASE IS A LIVING ENTITY

125. *Noel Gallagher has revealed that he took cocaine every night for four years and it caused '****brutal panic attacks****' which led him to quit the drug* (dailymail.co.uk);
126. *Similarly spectacular recoveries have now been recorded in many different kinds of cancer, including extremely* ***aggressive forms like acute myeloid leukaemia*** *<…>* (bbc.co.uk);
127. *If it is a recurrence that took a decade to form, "that tells me it's* ***not a very aggressive cancer,"*** *he said* (theguardian.com);
128. *For his colleagues, the biggest fear is* ***catching the virus*** *themselves and infecting family members at home, Dr Rizzi says* (bbc.com);
129. *It also notes there is some, albeit very limited evidence, that such <...> of adults* ***catching the disease*** *from children <…>* (theguardian.com);
130. *Oliver's family's nightmare began when he* ***caught a cold*** *during the Christmas holidays while he was enjoying a trip to New York with his mum, step-dad David and sister Holly, seven* (nypost.com);
131. *Hannah added: "This is such* ***a cruel disease*** (bbc.com).

HUMAN BODY IS A BREAKABLE OBJECT

132. *Lucy Kerr, 20, was diagnosed with bone cancer when* ***she broke her thigh bone*** (dailymail.co.uk);
133. *He said many other organs could* ***be repaired or replaced*** *<…>* (bbc.com)

HUMAN BODY IS A MACHINE

134. *The body has adapted* ***defence mechanisms*** *to protect itself against the entry of microorganisms* (bbc.co.uk);
135. *"With jagged particles, because of the way they follow the path of the air, there's a lower chance of them impacting the sinus walls at the back of the throat - which is the* ***body's defence mechanism*** *for keeping particles out of the lungs* (bbc.co.uk).

HUMAN BODY IS A BUILDING

136. *A woman who needs **reconstructive surgery** after getting a tummy tuck and breast implants in Turkey has said she "wishes she didn't" <…> (bbc.com);*

137. *But she said she has had "ongoing problems" since the surgery and is paying for private **reconstructive surgery** worth £10,000* (bbc.com);

138. ***A bodybuilder** celebrating British and European title wins says his "third kidney" gave him the energy to compete* (bbc.co.uk).