KWARTALNIK NEOFILOLOGICZNY, LXIX, 3/2022
DOI: 10.24425/kn.2022.142975

MAGDALENA ZABIELSKA
(ADAM MICKIEWICZ UNIVERSITY, POZNAŃ)
ORCID 0000-0002-9806-1981

ACTIVE VIRUS AND PASSIVE PATIENTS – A DISCOURSE ANALYSIS OF SPECIALISED MEDICAL PUBLICATIONS ABOUT COVID-19 IN ENGLISH

ABSTRACT
This paper offers an analysis of specialised medical discourse about COVID-19 in scientific articles in English, published in Polish professional medical journals. Special attention is paid to the textual representation of phenomena such as coronavirus and other pandemic-related concepts/aspects, as well the agency of doctors and patients. Methodologically, the paper blends the principles of qualitative discourse analysis with insights obtained from a quantitative exploration of the texts with the help of SketchEngine®.

KEYWORDS: specialised discourse, discourse analysis, medicine, COVID-19, patient, metaphor

STRESZCZENIE
Celem artykułu jest analiza dyskursu dotyczącego COVID-19 na podstawie anglojęzycznych publikacji naukowych zaczerpniętych z polskich fachowych czasopism medycznych. Szczególną uwagę zwrócono na tekstową reprezentację takich zjawisk jak koronawirus jak również innych konceptów/aspektów związanych z pandemią, a także na sprawczość lekarzy i pacjentów. Metodą badawczą zastosowaną w badaniu jest jakościowa analiza dyskursu uzupełniona elementami ilościowymi uzyskanymi dzięki oprogramowaniu SketchEngine®.

SŁOWA KLUCZOWE: dyskurs specjalistyczny, analiza dyskursu, medycyna, COVID-19, pacjent, metafora

INTRODUCTION

As reported by the World Health Organisation (2022), as of July 2022 over 100 000 research publications have been published worldwide about the COVID-19 disease and related aspects, indicating that not only doctors but also scientists in general are on the frontline[1] of the pandemic. In linguistic studies researchers seem to have so far focused primarily on various aspects of communication during the coronavirus pandemic in social and news media. The aim of the current paper is to present the initial results of an analysis of the specialised medical discourse about

[1] See Fotherby's (2020) response to the use of military metaphors in the COVID-19 pandemic.

COVID-19 on the basis of an original data sample of scientific articles in English, published in Polish professional medical journals. Special attention is paid to the textual representation of phenomena such as coronavirus and other pandemic-related concepts/aspects as well the agency of doctors and patients. Methodologically, the paper blends the principles of qualitative discourse analysis with additional insights from a computer-aided exploration of the texts with the help of SketchEngine®, which allows the researcher to identify patterns in language use. It will be shown that the analysed publications bear features of contemporary professional medical discourse which abstracts the patient as a subject of treatment. Additionally, the representation of the way the virus works is similar to the representation of disease in specialised medical discourse – e.g., military metaphors – yet some novel features have also been identified, for instance lexical fields. In this way this paper is meant to contribute to the body of the literature regarding broadly understood communication about the COVID-19 pandemic.

BACKGROUND OF THE STUDY

The first corona infections were identified in the Chinese city of Wuhan in December 2019. Only later, however, was it classified as belonging to the coronavirus family. The virus spread at extreme speed due to the global character of the contemporary travel and food trade (Krzystyniak 2020: 19–20). So far (July 2022), the global death count due to COVID-19 is over 6 million people, with the United States, India and Brazil as the countries worst affected by the virus (Worldometer 2022).

The virus is characterised by an extremely high virility and with a varying from person to person course, that is, while the typical symptoms of the infection are high fever, cough, apnea, muscle pain and fatigue, their very presence and severity may differ depending on person, including comorbidities (Welz, Breś-Targowska 2020: 263). These differences may additionally be the result of various mutations of the virus. The disease may also develop asymptomatically (Krzystyniak 2020: 20–21).

SPECIALISED MEDICAL DISCOURSE AND MEDICAL GENRES

According to Hyland (2004, 2011), communication within particular disciplines spans different angles which concern different study foci and different approaches to them. Following Gotti (2008: 15–16), specialised communication requires specialists, specialised context and a specialised way in which this communication takes place. Consequently, in the context of the present paper, we can define

communication via scientific publications as constituting interaction among medical professionals, in specialised clinical contexts, and which uses a specific variety of language. "Medical discourse is not just a matter of communicating with patients, about patients, and for patients. Indeed, this specialised type of communication is a very complex phenomenon, mainly relying on the fact that practitioners and researchers need to communicate in different ways, for different aims, and to different targets" (Sala *et al*. 2015: 9). Such a line of reasoning follows Swales's conceptualisation of genre in which the medical community (both specialists, practitioners as well as auxiliary staff) is regarded as a discursive community sharing communicative goals and forms of communicative exchange (Swales 1990: 58; Badziński 2019: 383). In Widdowson's (1997) classification of the configurations of users of professional discourse, we are dealing here with scientific instruction, i.e., expert-to-expert communication. "[H]ere specialised knowledge is co-constructed and negotiated with expert community members for it to be recognised as valid, language is biased by a specific emphasis conferred to given epistemological aspects" (Sala *et al.* 2015: 11–12). This happens, according to the authors, in the context of medical sciences which constantly evolve, which is juxtaposed with current knowledge, "to put forward claims, based on research investigation" (Carter-Thomas, Rowley-Jolivet 2014: 61). In response to this, the linguistic representation of such subject matter needs to conform to conventions in relation to discourse and genre structure characteristic of the field. Broadly speaking, as Bączkowska (2019: 299) observes, this means characteristic vocabulary and style, which is also the case, as in any other specialised discourse, in medicine. An interesting distinction is also offered by Atkinson (1995), who, interpreting Mishler's voice of medicine (1984), the biomedical perspective which seems to be particularly of interest to the doctor who bases his diagnosis of discernible/objectively observable signs of a disease, divides it into three subvoices: 1) the voice of an individual physician with all their experience, 2) the repository of the knowledge of numerous cases acquired in practice to which doctors resort to and 3) the so-called specialised voice, as represented in scientific publications acknowledging the research conducted so far. It is the third voice that is represented in the data in the current study, i.e., publications from professional medical journals. Finally, following Gotti's (2011: 29–52) useful division of medical discourse into medical genres, the above-mentioned research publications belong to written genres (as opposed to oral ones, such as conference or symposium presentations), which are aimed at experts for the exchange of scientific views and experience (see Badziński 2019: 383). Furthermore, they can be either primary or secondary, presenting new or already existing knowledge respectively, as well as perform different functions.

The corpus of collected articles included the following genres (with their numbers in parentheses): original articles (20) and research papers (11)[2], review

[2] Although these two article labels are used in different journal titles in the analysed corpus, in both cases the publications are original texts based on research and subject to peer review.

articles (15), case reports (9), short communications (5), clinical vignettes (1), expert opinions (1), recommendations (1), letters to the editor (15), letters to readers (1), and other (5).

An overview of the genres examined is offered below, including the most prominent in the academic field, i.e., research paper, case report, review article and letter to the editor.

An original (research) paper "informs for the first time about empirical facts newly established or experimental research results" (Heleniak 2012: 35)[3]. It appears to be characterised by the highest degree of structural conventionalising (Carnet, Magnet 2006: 229), which originates from laboratory reports. These articles are supposed to present new knowledge in the most convincing way.

A review article is, above all, a presentation of the state of art in research on a given topic, basing on the data available in the literature. These publications delineate the boundaries of particular research areas and offer some theoretical underpinnings as well as an overview of the existing studies with the varying degrees of neutrality (Heleniak 2012: 35–36). Also, as Taylor (2005: 128) observes, "[t]hey provide us with practical insights and offer new approaches to old problems. In this way they are innovative and they expand medical understanding".

Another genre that appears in the corpus is case report. Following Taylor (2005), a report of a case should be made upon "encounter[ing] a disease manifestation or therapeutic outcome that lies so far outside our familiar realm of experience that we feel compelled to share the observation with others" (*ibidem*: 143). "[T]he case report is a focused review article. What is different is the emphasis on one or more actual cases, with a rationale for why the findings are being reported, and an evidence-based analysis of what has been found" (*ibidem*: 144). Case reports also hold a well-established position as pedagogic materials used in the educational context in medicine.

By contrast clinical practice guidelines are "a collection of statements formulated in a systematic way" with a view to providing information for doctors in order to optimise the decision-making process in patient care in particular circumstances (Heleniak 2012: 41).

Letters to the editor are an opportunity for readers to "indulge their spirit of refutation and debate the merits of published articles. Sometimes they share new ideas" (Taylor 2005: 150). Some letters contain polemics, which concern debatable matters (Heleniak 2012: 40), in this case expert opinions can be subsumed here.

Finally, it should also be noted that though the specialised publications analysed here were downloaded from internet portals, they do not bear features of computer-mediated communication, as they can be/are electronic versions of the published texts.

[3] Here and hereafter, unless otherwise stated, the author's translation.

DISCOURSE ABOUT COVID-19 – LITERATURE REVIEW

Since the beginning of the pandemic the virus has been investigated culture- and discipline-wise, including from a linguistic perspective. As observed by Bralczyk (2020), if a certain phenomenon appears in social life, which significantly leaves a mark, it affects language as well. In the context of the English language, research spans different contexts, methods and data sets. The importance of the language used to discuss COVID-19 issues has already been widely discussed with reference to the four main aspects. The first one is the use of (military) metaphors (e.g., Luporini 2021; Semino 2021). This can be observed for instance at the title level of a publication in a professional medical journal – *SARS wars: Family physicians undeployed soldiers* (Leong 2003) or *Pulmonary thromboembolism post-COVID convalescent plasma therapy: Adding fuel to a smoldering fire* (Marwah *et al*. 2021). An additional interesting metaphor in the discourse about COVID-19 identified by the researchers is "the nurse as hero" (Mohammed *et al*. 2021). The second main aspect attracting the keen interest of language researchers is social media, the use of which increased even more when various countries had to exercise lockdowns, sending people to quarantines. One of the frequently chosen aspects to be investigated is sentiment i.e., underlying emotions identified in the logs of different linguistic data representing individuals' communicated perception. In the context of specialised communication, sentiment analysis was adopted by Ovchinnikova *et al.* (2020), which is one of the few studies analysing professional medical discourse about COVID-19. In the study, the data came from Russian-language texts authored by physicians and they were divided into two groups – more personal ones, such as stories of professionals' experience of being a doctor as well as their opinions; and professional publications of various types. The authors conclude that these two source types differed in terms of the discourse used. The researchers whose communication was examined tend to focus more on the outcomes of the study, emphasising facts and basing on case studies, steering away from emotional language. If it indeed occurs, it is expressed via figurative language. As the authors observe, "[a]bsence of emotional words in the list of high frequency words confirms the unessential contribution of the emotional expressions to the content of the medical professional discourse texts" (Ovchinnikova *et al*. 2020: 106). Scientific discourse about COVID-19 has also been analysed on the basis of Polish-language professional medical publications (Zabielska 2021). The study demonstrated the presence of specialised stories, the impersonal nature of the argument, and numerous metaphors, including the metaphor of war, but also new lexical fields. Luzón Marco (2022), on the other hand, was interested in the genre which, in a way translates the knowledge presented in scientific publications to lay audience – medical expository newspaper articles – which are referred to as "explainers". They recontextualise expert knowledge through the use of discursive strategies to make it comprehensible and to generate interest in the topic at hand through the use of definitions, metaphors, and generalizations.

Closely related to specialised discourse studies are terminological issues, the third aspect of interest. Haddad Haddad and Montero-Martínez (2020) have dealt with the semantics of the COVID-19 neologisms. They note that in general, while scientific research refers appropriately to the name of the disease and to the name of the virus causing it, in popular media the metonymic use of the term 'coronavirus' is spread in many languages, i.e., the use of the term 'coronavirus' to refer also to COVID-19, i.e., not to a type of virus but also a disease entity caused by it. Bharati (2020: 134) analyses COVID-19 neologisms in English, pointing to the heavy productivity of Covid and corona(virus) stems. Additionally, he notes the presence of very few pure neologisms like 'covidiot' and considers the longevity of these words in the language (see also Cierpich-Kozieł's study (2020) of an analogous vocabulary set in Polish). Finally, Ängsal (2021) offers a corpus-assisted analysis of the Swedish press coverage of the COVID-19 pandemic centring on the discursive construction of the *expert* theme, which, though not addressing specialised communication, may be seen as an interesting complement to it.

Communication during a pandemic in general is of interest to Hodalska (2014) and Loiacono (2015). Historically, military vocabulary and imagery was used, for instance in Early Modern English Plague Writings, as identified by Baseotto (2015), and also as a resource helping to portray the punishment administered by God, the leading explanation of the occurrence of a pandemic at that time (*ibidem*: 54–55).

In sum, while the current paper is meant to contribute to the body of the literature regarding broadly understood communication about the COVID-19 pandemic, it focuses specifically on specialised medical discourse, which, to the best of the present author's knowledge, has received scant attention so far, in comparison to social media or news discourse on the topic.

ANALYSIS

DATA AND METHODS

The data for the study constitutes 84 articles (totalling 265,424 words) in English, published in Polish medical journals, spanning different medical fields, e.g., cardiology, gynecology, neurology, diabetology or internal medicine and, as discussed earlier, representing different scientific genres.

The following titles are represented in the sample:

Advances in Respiratory Medicine (15), *Arterial Hypertension* (1), *Folia Cardiologica* (5), *Polish Gynecology* (6), *Cardiology Journal* (4), *Polish Cardiology* (5), *Medical Research Journal* (7), *Psychiatry* (3), *Polish Journal of Neurology and Neurosurgery* (5), *Acta Haematologica Polonica* (4), *International Maritime Health* (7), *Disaster and Emergency Medicine Journal* (2), *Oncology in Clinical Practice* (2), *Polish Endocrinology* (2), *Clinical Diabetology* (2), *Polish*

Surgery (1), *Medical Studies* (1), *Palliative Medicine in Practice* (2), *Journal of Transfusion Medicine* (1), *Student's Journal Club* (1) and *Advances in Medical Sciences* [Pol. Postępy Nauk Medycznych] (8).

They were downloaded from the portal *ViaMedica.pl* as well as *Czytelnia medyczna* [Medical reading room]. The first source is a portal which has been publishing articles from various peer-reviewed medical journals for 25 year (there are currently 40 journal titles available on the site); the other portal is the largest non-public repository of indexed medical publications in Poland. Many of these publishing outlets cooperate with widely acclaimed Polish medical societies. The texts were published in 2020 and 2021 by Polish and foreign authors. The shortest one counts 1 page while the longest as many as 37 pages.

The qualitative analysis consisted of a careful reading of the texts, paying special attention to their discursive aspects, such as narration style and perspective. With respect to individual words and phrases, the SketchEngine® tool was used in order to identify keywords, particular frequencies, and collocation patterns, which served as a quantitative complement to the study. First, the micro-perspective will be adopted, which will concern particular key words, frequencies and word patterns. Next, the discursive macro-perspective will follow, from which such aspects as narration, perspective and metaphors will be discussed.

RESULTS AND DISCUSSION

KEYWORDS, FREQUENCIES AND WORD PATTERNS

In the 84 articles under analysis, two keywords identified with the help of SketchEngine® are connected to the current pandemic, i.e., 1st SARS-CoV (839 hits) and 4th COVID-19 (2919 hits). Also, in terms of word frequencies, COVID-19 is the first most frequent content word in the current sample – 2919 hits. Of interest is also the fact that among the collocates of the word COVID-19, combinations with "and/or" are the most frequent, vis-a-vis COVID-19 with modifiers, and with verbs as subjects and objects. The preposition "and" appearing together with the keyword marks instances when comorbid diseases are listed which, as it is known, is a predisposing factor in more serious courses of COVID-19 (Welz, Breś-Targowska 2020: 263). This clearly demonstrates the topic of the texts under examination, which can be further complemented with some other topic-related keywords referring to different aspects of the pandemic: *comorbidities* (13th, 108 hits) (see comment on COVID-19 above), *ecmo* (14th, 82 hits), *pneumonia* (15th, 295 hits) and *remdesivir* (18th, 67 hits). In terms of n-grams, "patients with COVID-19" is the 3rd, with 221 hits, which will be discussed in greater detail below.

SCIENTIFIC STORIES

The narrative turn in social sciences and humanities has resulted in ample research demonstrating the narrative nature of human existence. As we learn from Georgakopulou (2010: 397), it was Labov and Waletzky (1967), who pointed to the everyday character of story-like communication, reserved previously, as it was believed, to literary works exclusively. In this context, many disciplines have been identified as utilising the narrative format in the discursive construction of scientific knowledge (Garfinkel 1984: 1; Gergen 2003), including medicine. As Hunter (1991: 1) observes, "medicine is fundamentally narrative", from reports of scientific medical research, through stories of patient's cases from hospital documentation, to the stories patients share, and its narrative character has long been thoroughly researched (Hunter 1991; Charon 2006; Gygax, Locher 2015), both from the lay and professional perspective. The latter aspect in particular seems of interest, as it is not typically associated with everyday storytelling. As it turns out, the professional medical context is likewise rife with stories. Following Hunter (1991: 55), "[o]ddly enough in this scientific endeavour, the physician's own discourse about illness takes the form of a story", similarly to patients' which are subsequently transformed into some form of case-based genre (Gygax, Locher 2015: 1), shared further with fellow doctors, discussed during case conferences or team meetings, or published in journals. Yet, though the stories of patients' cases formulated in these formats are of a different, and decidedly non-entertaining character, they still offer a course of action characteristic of the very context of the entire therapeutic event, from the very beginning of the patient's presentation to their either successful or unsuccessful resolution. This course of events is generally referred to as a discursive construction of a medical case, "the basic unit of thought and discourse" in medicine (Hunter 1991: 51). Consequently, it can be concluded that professional medical stories are discursive constructs of cases, which means that they follow both content matter and structural conventions of the medical case presentation, and, additionally, utilise the narrative format. The example below showcases such a course of events – from admission, through examination, to diagnosis.

(a) A 43-year-old obese woman [body mass index (BMI) = 33.5 kg/m2), with HTN and hypothyroidism was admitted urgently on November 6, 2020 to the Department of Cardiology, Interventional Electrocardiology and Hypertension at Jagiellonian University Medical College Hospital, Kraków, Poland from one of the district hospitals for further diagnosis and treatment. The patient reported pain in the chest that occurred the previous day, at rest. It radiated to the left upper limb, then subsided and recurred several times. From 2–3 days before this episode, the woman generally felt worse, had a dry cough, slight dyspnoea and no fever. The onset of COVID-19 symptoms (cough, fever up to 39°C and weakness) were on October 21, 2020. The first positive polymerase chain reaction test was on October 22, 2020. […] Due to the persistence of chest discomfort, she was treated with morphine intravenously (i.v.) with a good effect, low-molecular-weight heparin

(LMWH) 1 × 60 mg subcutaneously (s.c.), acetylsalicylic acid (ASA) 75 mg orally and dexamethasone 1 × 8 mg i.v. Previous treatment of the patient (for 2 years) included levothyroxine 100 μg, indapamide with prolonged release 1.5 mg, bisoprolol 5 mg and lercanidipine 20 mg all once daily. </s><s> At admission to our Department, the patient was in a good general condition with slight chest discomfort (5/10) […] Eventually, the patient was diagnosed with a myocardial injury possibly secondary to a SARS-CoV-2 infection, and therefore would be called as a patient with "COVID-MINOCA" or "MINOCA caused by COVID-19" (Pęksa *et al.* 2021: 263–266).

IMPERSONALITY

Regarding the character of the discourse represented by the scientific publications about COVID-19, the language that doctors develop in the course of their medical education and are socialised into is characterised by a high level of abstractness and orientation on the disease (McCullough 1989: 124), where diseases are treated by means of procedures/operations carried out, and both the doer and the affected are not textually visible. In Brookes and Hunt's words, they are "carried out wordlessly by clinical technologies – stethoscopes, scanners, scalpels – and the chemical compounds that make up medications" (Brookes, Hunt 2021: 1). The effect of these linguistic resources selected is that the focus of the discourse falls on what is done (to treat the patient) and how, and not on who does it and to whom. For instance, in case presentations (and other case-based genres), the sentences in which diagnostic procedures and treatment are described, do not include the agent who performs these actions, thus they are removed. Again, what is emphasised here is the performed actions and their correct choice, but not the person who performs them. In general, the research on the use of various impersonal constructions in scientific discourse indicates that their aim is to focus on what is being studied (Bazerman 1988; Potter 1996; Luzón Marco 2000).

(b) Due to the confirmed SARS-CoV-2 infection, a viral etiology of the heart damage **was suspected** [emphasis mine] (Pęksa *et al.* 2021: 266).

METAPHORS

Although metaphor seems to stand in stark contrast to the empirical character of medical sciences, medical communication is in fact "soaked in metaphor, and thinking with metaphor is central to diagnostic work, medicine – that is, medical culture, clinical practice and medical education" (Bleakley 2017). In this context, Giannoni (2009) emphasises the potential of metaphor of mediating the values associated with this particular discipline. Yet, as Bleakley (2017) observes, "metaphors inhabit medicine – sometimes for the better and sometimes for the worse". What the author has in mind by saying "worse" appears to be the reference

to the double-edged nature of war metaphors, a biomedical conceptual metaphor (Fleischman 2001: 485), in which the experience of falling ill is portrayed as a battle between the disease – the enemy, and us – the victims. Though the metaphor has become pervasive (Hodgkin 1985) in all facets of broadly understood communication about health and illness (Hawkins 1984; Hodgkin 1985), in all configurations of participants of interaction, possibly due its mobilising character in the face of the disease, it is also seen as potentially reductionist in its one-to-one character. In other words, though supporting the patient to fight off the invader, the possible loss in the fight is seen as a loss because of the patient, for which they are responsible. An alternative has been proposed, for instance, the journey metaphor (Harrington 2012: 409–410; Hommerberg *et al*. 2020) which offers discursive frames to describe the course of disease with its many scenarios, at the same time teaching the acceptance of whatever the disease brings. In the current sample, instances of military metaphor were also been identified:

(c) Under **the SARS-CoV-2 invasion** the adipose tissue RAS might undergo the alterations described (Pawlikowski, Winczyk 2021: 257).
(d) To suggest a **severe viral attack** on these deep brain structures (Hasan *et al.* 2020: 320).
(e) which increases functional residual capacity (FRC) and causes alveolar **recruitments** (Czajkowska-Malinowska *et al.* 2020: 251).
(f) These patients warrant prophylactic heparin to prevent this **catastrophe** (Marwah *et al.* 2021: 348).
(g) SARS wars: family physicians **undeployed soldiers** (Leong 2003, only title).
(h) Passive immunisation in the **combat** against infectious diseases (Lasocka *et al.* 2021).

In Musolff's classification of the many scenarios of the application of war metaphor, the "invasion" (c), "attack" (d) of the virus and "combatting" it (h) follows the "pandemic management as a fight" scenario (Musolff 2021: 312). Semino and colleagues (2017), who analysed cancer patients' contributions to online forums, emphasise the violence element in instances such as "attack". Interestingly enough, no instances of the 'battle' appeared here, which was the case in the Polish sample (Zabielska 2001: 30).

In the context of the current pandemic, Semino proposes an alternative metaphor, i.e., of fires and firefighters. According to Semino (2021: 56),

> [f]ires can spread quickly, be hard to control, and grow very large, causing large-scale and irreparable damage", which can well be applied to the urgent, devastating and unpredicted nature of the virus, with is multiple consequences. In this context, doctors are those who "run into raging blazes" for the sake of everyone else (Semino 2021: 56).

Such an instance was found in the analysed corpus, in which the disease is described as a "smoldering fire", which, following the title, can be exacerbated further by some comorbidities (see Welz, Breś-Targowska 2020: 263).

(i) Pulmonary thromboembolism post-COVID convalescent plasma therapy: **adding fuel to a smoldering fire** (Marwah *et al.* 2021).

Additionally, the word "catastrophe" in example (f) above may also be seen as an instance of fire metaphor, i.e., a natural catastrophe. Instances of fire metaphors were identified as well by Ovchinnikova and colleagues (2020) in their sentiment analysis of the discourse of Russian medical professionals, for instance "playing with fire".

NOVEL METAPHORICAL ASPECTS OF THE SAMPLE

Furthermore, some novel metaphorical aspects were identified in the corpus. The first of them is referring to disease as a process, which can be contrasted with objectification, also present in the sample at hand. In the examples below, COVID-19 is described as "developing", as in (j), therefore having a lasting character, as opposed to something that one can have and supposedly can get rid of (see (k) below).

(j) A significant proportion of patients with COVID-19 **develop** respiratory failure (Urlik *et al.* 2021: 330).
(k) Clinical manifestations of SARS-CoV [..] can be […] less **aggressive** (Szarpak *et al.* 2019).

Of particular interest is the aggressive attribute of the manifestations of the disease, as in example (k), which has been categorised as an instance of personification in medical discourse (e.g., in the case of "aggressive lymphoma", see Navarro i Ferrando 2021: 161). In this case, the labelling of the manifestations as 'aggressive' already presupposes, apart from the character of the disease, the speed with which the disease progresses.

Furthermore, a particular lexical field has been identified in which various activities of the work of the virus are described ("spreading" in (l), "transmission" in (m)), body mechanisms ("cytokine storm" in (n), "migration" in (p)) or treatment ("oxygen flow", in (o)) related to it. All these examples point to some form of activity, movement.

(l) In order to prevent **the spread of** the SARS-CoV-2 virus (Matyjaszek-Matuszek *et al.* 2021: 176).
(m) **SARS-CoV-2 transmission** through an abdominal **route** from patients to the operating theatre (Strojko *et al*. 2020: 427).
(n) with **cytokine storm** and unregulated inflammation in COVID-19 patients (Szarpak *et al*. 2021: 12).
(o) The oxygen fraction is titrated by **changing oxygen flow** through the cannula (Czajkowska-Malinowska *et al.* 2020: 249).
(p) **migration** of leucocytes (Zuratynski *et al*. 2019).

METAPHORS TYPICAL OF MEDICAL DISCOURSE IN GENERAL

As well as some new metaphorical elements characteristic of the sample, others, representing medical discourse in general were present too.

Firstly, with regard to patients as containers, in which patients are presented as vessels in which diseases develop, are identified and treated, as well as procedures carried out (Murawska 2010: 85), in the current sample, in 3-4-grams with the word 'patient', "in patient with" is the 2nd (with 247 hits) and "in patients with COVID-19" is the 29th (with 60 hits). Both these phrases seem to contribute to this particular patient imaging. Similarly, in word sketch, in the left context of the word 'patient', the preposition "in" is the most frequent preposition (359 hits).

Secondly, with regard to the concept of disease represented as a thing, where it is something one has (as opposed to something that 'develops' and lasts, see above) and that can be itemised or enumerated, in the current sample, the 3-gram "patients with COVID-19" is the 3rd (219 hits) and "of patients with" is the 5th (135 hits), with the preposition "with" followed by some disease/condition. In word sketch for 'COVID-19', in the left word context, the 2nd preposition is "with" as well, with 536 hits. In the case of the left word context of 'sars-COV-2' "with" is also the 2nd, with 73 hits. Instances of patients as containers and the disease as a thing have also been identified in the discourse about COVID-19 on the basis of Polish scientific publications (Zabielska 2001: 31–32).

According to Van Rijn-Van Tongeren (1997: 97–113), metaphors in written medical discourse can perform three functions: catachretic, didactic, and theory-constitutive. Catachretic and didactic are used to describe familiar phenomena: catachretic metaphors provide vocabulary resources, e.g. "the initial "blood vessels as rivers" metaphors, instantiating the conceptual metaphor "Anatomy is a landscape"," whereas didactic metaphors shed light on new ideas resorting to those already known, e.g. "the transcription machinery of m[essenger] RNA (itself a metaphor), instantiating both "The body is a machine" (specifically "Cells contain machinery") and "A genome is a text."". It is, however, theory-constitutive metaphors that provide structure in order to understand new concepts. What is more, they may transform into didactic ones. In this case, on the basis of the results obtained, the presented metaphors are seen as explaining a new concept – COVID-19, by means of concepts such as disease as a war or a thing. Therefore, one is dealing with didactic metaphor.

PASSIVE PATIENT

As Fleischman (2001) observes, the doctor-patient relationship in the medical context also assumes a particular allocation of agency, where the doctor is usually the doer and the patient a recipient (*ibidem*: 485). This can be achieved both at the cognitive-semantic level, when metaphors are used, but also grammar-wise, where

argument structure allows the writer to foreground or background certain information, due the so called "transitivity relationship" (*ibidem*: 485). As has been already mentioned, in the current sample, in 3-4-grams with the word 'patient', "in patient with" is the 2nd (with 247 hits), "of patients with" the 5th (with 135 hits), and the 29th "in patients with COVID-19" (with 60 hits), which contribute to the passive character of patient imaging. Such a perspective is characteristic of medical discourse in general, where the focus is on the various aspects of the disease itself and not on the patient who is, in a way, the milieu for a disease, which, in turn, is the consequence of the ideological underpinnings of professional communication (Ovchinnikova *et al*. 2020).

CONCLUSION

While the existing linguistic research on communication on the coronavirus pandemic has centred around social media and news dissemination, the aim of the present paper has been to analyse the COVID-19 discourse in scientific publications published in medical journals. The focus fell specifically on the discourse of various elements of the diagnosis/treatment of the disease as well as their main actors, namely those affected i.e., patients, and the agents, i.e., doctors. The data for the study was an original sample of 84 articles published in Polish medical journals and written in English. Methodologically, the article employed qualitative discourse analysis with quantitative insights from SketchEngine®. The results demonstrate a significant effect of the pandemic on the language of Polish medical literature. The discourse in the data is characterised by features characteristic of contemporary medical discourse, such as impersonality of both actors, i.e., patients and authors, but also by typical metaphors, pervasive in medical discourse, such as war, of disease as a thing and patients as containers. In particular, the passivity of the patient presentation visible at the level of language patterns seems of note. Narrative elements are also present, though admittedly of different character than in typical storytelling. At the same time, the disease is portrayed as a process, with significantly marked movement. Numerous similarities have also been observed in relation to the previous analysis of a sample of the COVID-19 discourse but in Polish. Concluding, the current study is intended to add to the literature regarding broadly understood communication about the COVID-19 pandemic, but focusing specifically on specialised medical texts.

BIBLIOGRAPHY

Ängsal M. P. (2021): *Who is an expert? A corpus-assisted analysis of the expert in Swedish Covid-19 discourse*, "Tekst und Diskurs", 15: 171–209.

Atkinson P. (1995): *Medical Talk and Medical Work. The Liturgy of the Clinic*, Sage Publications, London.

Badziński A. (2019): *Dyskurs w domenie języka specjalistycznego medycznego – uwagi dla tłumaczy i dydaktyków przekładu*, „Rocznik Przekładoznawczy", 14: 381–397. <https://apcz.umk.pl/RP/article/view/RP.2019.020/24257> [last access: 11.05.2022].

Bączkowska A. (2019): *Dyskurs medyczny a przekład naukowych tekstów medycznych*, „Konińskie Studia Językowe Wydział Filologiczny, Państwowa Wyższa Szkoła Zawodowa w Koninie KSJ", 7/3: 299–315.

Baseotto P. (2015): *Ideological uses of medical discourses in Early Modern English plague writings*, in: Gotti M., Maci S. M., Sala M. (eds.), *The Language of Medicine: Science, Practice and Academia*, CELSB, Bergamo: 49–68.

Bazerman C. (1994): *Systems of genres and the enactment of social intentions*, in: Freedman A., Medway P. (eds.), *Genre and the NEW RETHORIC*, Taylor & Francis Publishers, London: 105–123.

Bharati P. L. (2020): *Covid 19 neologisms in English*, "Saptagandaki Journal", 11: 122–135. <https://doi.org/10.3126/sj.v11i0.36901> [last access: 1.05.2022].

Bleakley A. (2017): *Front matter*, in: EAD., *Thinking with Metaphors in Medicine: State of the Art*, Routledge, London.

Brookes G., Hunt D. (2021): *Introduction*, in: ID. *Analysing Health Communication: Discourse Approaches*, Palgrave Macmillan, Cham: 1–17.

Carnet D., Magnet A. (2006): *Editorials: An intrinsic and/or extrinsic genre in medical journals,* in: Gotti M., Salager-Meyer F. (eds.), *Advances in Medical Discourse Analysis: Oral and Written Contexts*, Peter Lang, Bern: 229–250.

Carter-Thomas S., Rowley-Jolivet E. (2014): *A syntactic perspective on rhetorical purpose: The example of if-conditionals in medical editorials*, "Ibérica", 28: 59–82.

Charon R. (2006): *Narrative Medicine: Honoring the Stories of Illness*, Oxford University Press, New York.

Cierpich-Kozieł A. (2020): *Koronarzeczywistość – o nowych złożeniach z członem korona- w dobie pandemii*, „Język Polski", 100/4: 102–117.

Czapiewski P. (2015): *Specyfika artykułu case report,* in: Budyńko Ł., Waszak P. (eds.), *Pomysł – badanie – publikacja. Poradnik naukowy dla studentów kierunków medycznych*, Gdański Uniwersytet Medyczny, Gdańsk: 283–288.

Fleischman S. (2001): *Language and medicine*, in: Schiffrin D., Tannen D., Hamilton H. E. (eds.), *The Handbook of Discourse Analysis*, Blackwell Publishers, Oxford: 480–483.

Fotherby J. (2020): *The 'invisible enemy': A critical look at the use of military metaphors and anthropomorphisation during The COVID-19 Pandemic. Consciously quarantined: A COVID-19 response from the social sciences*, In: Medical Anthropology. <https://medanthucl.com/2020/05/13/the-invisible-enemy-a-critical-look-at-the-use-of-military-metaphors-and-anthropomorphisation-during-the-covid-19-pandemic/> [last access: 13.05.2022].

Garfinkel H. (1984): *Studies in Ethnomethodology*, Prentice-Hall, Cambridge.

Georgakopulou A. (2010): *Narrative analysis*, in: Wodak R., Johnstone B., Kerswill P. E. (eds.), *The Sage Handbook of Sociolinguistics*, Sage, London: 396–411.

Giannoni D. S. (2009): *Disciplinary values in English academic metaphors*, "Linguistica e Filologia", 28: 173–191. <https://doi.org/10.6092/LEF_28_P173> [last access: 14.05.2022].

Gergen K. J., Gergen M. M. (2003): *Introduction*, in: ID. *Social Construction: A Reader*, Sage, London: 2–7.

GOTTI M. (2008): *Investigating Specialised Discourse*, Peter Lang, Bern.
ID. (2011): *Insights into medical discourse in oral and written contexts*, in: LOIACONO A., IAMARTINO G., GREGO K. S. (eds.), *Teaching Medical English*, Polimetrica, Milan: 29–52.
GYGAX F., LOCHER M. A. (2015): *Introduction to narrative matters in medical contexts across disciplines*, in: ID., *Narrative matters in medical contexts across disciplines*, John Benjamins, Amsterdam: 1–14.
HADDAD HADDAD A., MONTERO-MARTINEZ S. (2020): *COVID-19: A metaphor-based neologism and its translation into Arabic*, "Journal of Science Communication", 19/5: A01.
HARRINGTON K. J. (2012): *The use of metaphor in discourse about cancer: A review of the literature*, "Clinical Journal of Oncology Nursing", 16/4: 408–412.
HAWKINS A. H. (1984): *Two pathographies: A study in illness and literature*, "Journal of Medicine and Philosophy", 9: 231–252.
HELENIAK Z. (2012): Gatunki tekstów naukowych, in: BUDYŃKO Ł., WASZAK P. (eds.), *Pomysł – badanie – publikacja. Poradnik naukowy dla studentów kierunków medycznych*, Gdański Uniwersytet Medyczny, Gdańsk: 31–43.
HODALSKA M. (2014): *Pandemie w kulturze strachu*, in: GOBAN-KLAS T. (ed.), *Komunikowanie w ochronie zdrowia – interpersonalne, organizacyjne i medialne*, Wolters Kluwer, Warszawa: 234–245.
HODGKIN P. (1985): *Medicine is war*, "The British Medical Journal", 241: 1820–1821.
HOMMERBERG C., GUSTAFSSON A. W., SANDGREN A. (2020): *Battle, Journey, Imprisonment and Burden: Patterns of metaphor use in blogs about living with advanced cancer*, "BMC Palliative Care", 19: 59.
HUNTER K. M. (1991): *Doctors' Stories. The Narrative Structure of Medical Knowledge*, Princeton University Press, Princeton.
HYLAND K. (2004): *Disciplinary Discourses: Social Interactions in Academic Writing*, Longman, London.
ID. (2011): *Disciplines and discourses: Social interactions in the construction of knowledge*, in: STARKE-MEYERRING D., PARE A., ARTEMEVA N., HORNE M., YOUSOUBOVA L. (eds.), *Writing in Knowledge Societies*, West Lafayette, IN, Parlor Press and the WAC Clearinghouse: 193–214.
Interview with prof. Bralczyk. 7.06.2020. <https://www.gazetaprawna.pl/artykuly/1481797, profesor-bralczyk-koronawirus-jezyk.html> [last access: 20.07.2020].
KRZYSTYNIAK K. (2020): *KORONAWIRUS – COVID-19, MERS, SARS – epidemiologia, leczenie, profilaktyka*, Medyk, Warszawa.
LABOV W., WALETZKY J. (1967): *Narrative analysis: Oral versions of personal experience,* in: HELM J. (ed.), *Essays on the verbal and visual arts*. University of Washington Press, Seattle, WA: 12–44.
LOIACONO A. (2015): *The language of fear: Pandemics and their cultural impact*, in: GOTTI M., MACI S. M., SALA M. (eds.), *The Language of Medicine: Science, Practice and Academia*, CELSB, Bergamo: 25–48.
LUPORINI A. (2021): *Metaphor, nominalization, appraisal: Analyzing Coronavirus-related headlines and subheadings in China Daily and The Wall Street Journal*, "GEMA Online Journal of Language Studies", 21: 253–273. <https://doi.org/10.17576/gema-2021-2101-15> [last access: 20.08.2021].
LUZÓN MARCO M. J. (2000): *Collocational frameworks in medical research papers: A genre-based study*, "English for Specific Purposes", 19: 63–86.
ID. (2022): "Coronavirus explainers' for public communication of science: Everything the public needs to know", in: MUSOLFF A., BREEZE R., KONDO K., VILAR-LLUCH S. (eds.), *Pandemic and Crisis Discourse: Communicating COVID-19 and Public Health Strategy*, Bloomsbury Academic, London: 97–114.

McCullough L. B. (1989). *The abstract character and transforming power of medical language*, "Soundings", 72/1: 111–125.

Mishler E. (1984): *The Discourse of Medicine: Dialectics of Medical Interviews*, Ablex, Norwood, N.J.

Mohammed S., Peter E., Killackey T. et al. (2021): *The "nurse as hero" discourse in the COVID-19 pandemic: A poststructural discourse analysis*, "International Journal of Nursing Studies", 117: 10388.

Murawska M. (2010): *Figures, grounds and containers. Patient presentation in medical case reports*, "Miscelanea", 16: 77–91.

Musolff A. (2021): *War against Covid-19: Is the pandemic management as war metaphor helpful or hurtful?*, in: Musolff A., Breeze R., Kondo K., Vilar-Lluch S. (eds.), *Pandemic and Crisis Discourse: Communicating COVID-19 and Public Health Strategy*, Bloomsbury Academic, London: 307–320.

Navarro I Ferrando I. (2021): *Metaphorical concepts and their cognitive functions in medical discourse: Research papers vs. press articles*, "ESP Today", 9/1: 150–174. <https://doi.org/10.18485/esptoday.2021.9.1.8> [last access: 28.04.2022].

Ovchinnikova I., Ermakova L., Nurbakova D. (2020): *Sentiments in Russian medical professional discourse during the Covid-19 Pandemic*, "Proceedings of the Third Workshop on Computational Modeling of People's Opinions, PersonaLity, and Emotions in Social media", Barcelona, Spain (online), 13 Dec. 2020: 99–108.

Potter J. (1996): *Representing Reality: Discourse, Rhetoric and Social Construction*, Sage, London.

Sala M., Maci S. M., Gotti M. (2015): *Introduction*, in: Gotti M., Maci S. M., Sala M. (eds.), *The Language of Medicine: Science, Practice and Academia*, CELSB, Bergamo: 9–22.

Semino E. (2021): *Not soldiers but firefighters – Metaphors and Covid-19*, "Health Communication", 36/1: 50–58.

Semino E., Demjen Z., Demmen J., *et al*. (2017): *The online use of Violence and Journey metaphors by patients with cancer, as compared with health professionals: A mixed methods study*, "BMJ Supportive & Palliative Care", 7: 60–66.

Swales J. (1990): *Genre Analysis. English in Academic and Research Settings*, Cambridge University Press, Cambridge.

Taylor R. B. (2005): *The Clinician's Guide to Medical Writing*, Springer, New York.

Van Rijn-Van Tongeren G. W. (1997): *Metaphors in Medical Texts*, Rodopi, Amsterdam.

Widdowson H. G. (1979): *Explorations in Applied Linguistics*, Oxford University Press, Oxford.

World Health Organisation (2022): Global literature on coronavirus disease.
< https://search.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/> [last access: 14.05.2022].

Worldometer. (2022): COVID Live – Coronavirus Statistics.
< https://www.worldometers.info/coronavirus/> [last access: 14.05.2022].

Zabielska M. (2021): *Pacjenci z… / u pacjentów z… / w przebiegu COVID-19…: Dyskursywna analiza polskich fachowych publikacji medycznych dotyczących koronawirusa*, "Poradnik Językowy", 8/2: 23–37.

PRIMARY SOURCES

Czajkowska-Malinowska M., Kania A., Kuca P. J., Nasiłowski J., Skoczyński S., Sokołowski R., Śliwiński P. S. (2020): *Treatment of acute respiratory failure in the course of COVID-19. Practical hints from the expert panel of the Assembly of Intensive Care and Rehabilitation of the Polish Respiratory Society*, "Advanced Respiratory Medicine", 88/3: 245–266.

Hasan T. F., Tipton P. W., Vatz K. A., Brown S. M., Thottempudi N., Kamireddi P., Atwal P. S., Wszolek Z. K., Freeman W. D. (2020): *A practical approach to adult-onset white matter diseases, with illustrative cases*, "Neurologia i Neurochirurgia Polska", 54/4: 312–322.

Lasocka J., Bielawski A., Lachert E. (2021): *Passive immunization in the combat against infectious diseases (COVID-19 included)*, "Journal of Transfusion Medicine", 14/2: 50–57.

Leong R. M. W. (2003): *SARS wars: Family physicians undeployed soldiers*, "Canadian Family Physician", 49: 962–923.

Marwah V., Choudhary R., Deepu P., Gauray B. (2021): *Pulmonary thromboembolism post-COVID convalescent plasma therapy: Adding fuel to a smoldering fire!*, "Advanced Respiratory Medicine", 89/3: 347–349.

Matyjaszek-Matuszak B., Woźniak M., Ochmańska A., Sawicka-Gutaj N., Ruchała M., Czarnywojtek A. (2021): *Selected thyreology problems during the COVID-19 pandemic. Hypothyroidism and hyperthyroidism— did anything change?*, "Endokrynologia Polska", 72/2: 170–178.

Pawlikowski M., Wińczyk K. (2021): *Endocrine and metabolic aspects of COVID-19*, "Endokrynologia Polska", 72/3: 256–260.

Pęksa J. W., Klocek M., Polaczyk M., Rajzer M. (2019): *Dylematy czasu pandemii COVID-19 — ostry zespół wieńcowy, wirusowe zapalenie mięśnia sercowego czy jedno i drugie?*, "Postępy Nauk Medycznych", 4: 128–130.

Stojko R., Staniczek J., Olejek A., Rechberger T., Malinowski A., Pomorski M., Zimmer M. (2020): *The Polish Society of Gynecologists and Obstetricians statement on surgery in gynecology during the COVID-19 pandemic*, "Ginekologia Polska", 91/7: 424–427.

Szarpak Ł., Ishag A., Dzieciątkowski T., Nadolny K., Jaguszewski M., Filipiak K. J., Ładny J. R., Smereka J. (2019): *Characteristic of COVID-19 pediatric patients: Evidence from systematic review*, "*Postępy Nauk Medycznych*", 4: 128–130.

Urlik M., Szułdrzyński K., Stącel T., Necki M., Bielański P., Jankowski M., Antończyk R., Latos M., Pióro A., Zembala M., Pyrć K., Ochman M. (2021): *First lung transplantation as a treatment of a patient supported with extracorporeal membrane oxygenation (ECMO) after COVID-19 in* Poland, "Advanced Respiratory Medicine", 89: 328–333.

Welz A., Breś-Targowska A. (2020): *Koronawirus – aktualny problem medyczny i społeczny*, "Farmacja Polska", 76/5: 259–268.

Żuratyński P., Pietrzak D., Jałtuszewska S., Krzyżanowski K., Szczepański R., Robakowska M., Ślęzak D. (2019): *Patient abusing amphetamine and its derivatives in terms of emergency medicine – assessment of differential diagnosis and treatment*, "Postępy Nauk Medycznych", 4: 144–154.