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Confused Learner. Online Health Information Seeking by Breast Cancer Patients

Abstract

The aim of this study was to reconstruct online health information seeking behaviors during oncological treatment. The qualitative research, in the interpretive paradigm, was conducted in Poland and Croatia. Purposive sampling was used. The participants were breast cancer patients after the oncological diagnosis obtained no more than 5 years before the study. A total of 24 participants aged 34 to 76 were enrolled in the study. In-depth interviews were conducted. Reflexive thematic analysis was used. Five strategies of involvement or non-involvement in online information-seeking required by health crisis used by research participants were identified: overly active/obsessive online information-seeking, active online information-seeking, withdrawing from online information-seeking, avoidance, non-involvement. The strategies are also ways of coping with illness and learning during a health crisis. They are associated with many burdens. That is why some cancer patients become confused learners.

Keywords: health, online information-seeking, internet, adult learning, confusion.

Zdezorientowana osoba ucząca się. Poszukiwanie informacji dotyczących zdrowia w internecie przez pacjentki z rakiem piersi

Abstrakt

Celem badania było zrekonstruowanie strategii poszukiwania w internecie informacji dotyczących zdrowia podczas udziału w leczeniu onkologicznym. Badania jakościowe, w paradygmacie interpretatywnym, zostały przeprowadzone w Polsce i Chorwacji. Za-

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stosowano celowy dobór próby. W badaniu wzięły udział 24 kobiety w wieku od 34 do 76 lat, u których zdiagnozowano raka piersi. Przeprowadzono wywiady pogłębione. Dokonano refleksyjnej analizy tematycznej transkrypcji wywiadów. Zidentyfikowano pięć strategii (nie)angażowania się w poszukiwanie informacji i/lub wiedzy w internecie podczas trajektorii choroby stosowanych przez uczestniczki badania: nadmierne/obsesyjne wyszukiwanie, aktywne wyszukiwanie, wycofanie się z wyszukiwania, unikanie, nieangażowanie się. Są one sposobami radzenia sobie z chorobą i uczenia się w sytuacji utraty zdrowia. Jednocześnie wiążą się z licznymi trudnościami i obciążeniami. Dlatego niektóre chorujące kobiety stają się zdezorientowanymi uczącymi się.

Słowa kluczowe: zdrowie, wyszukiwanie informacji online, internet, uczenie się dorosłych, dezorientacja.

Introduction

Over time, there have been changes in the understanding of the doctor-patient relationship in healthcare, with a few approaches to the relationship presented in the literature. In our considerations, we focus only on some of them. The first is the paternalistic model, also known as the parental or priestly model (Emanuel, Emanuel 1992). In this model, the dominant role is played by the doctor, who is seen as an expert with the appropriate knowledge and experience to correctly diagnose the disease, and implement treatment (Łuków 2005). The doctor figures as a parent who cares about the well-being of their child. However, the doctor understands well-being in their own way, without paying attention to the patient's perspective. Power resides solely with the physician. The paternalistic model is based on an authoritarian approach to the patient and the unquestionable authority of the doctor, whom the patient trusts implicitly. This assumption dates back to Hippocrates who believed that the doctor should apply remedies and independently make decisions regarding the patient's life and health in accordance with their knowledge. This approach is related to the biomedical model of health (Woynarowska 2017). The physician is responsible for determining the causes of disruptions and undertaking the interventions necessary to eliminate them and restore the functionality of the disturbed mechanisms.

However, the paternalistic model is not suitable for most contemporary patient-doctor relationships. The causes for the end of the hegemony of paternalism are notoriously difficult to pin-point (Shutzberg 2021). Currently, it is admissible only in a few, exceptional situations (Williams, Weinmen, Dale 1998; Wroński et al. 2008; Wroński et al. 2009). It has been replaced by a partnership model. It is associated with a holistic approach to health (Woynarowska 2017), the progress of civilization, the development of new technologies, universal access to knowledge, and the increasing awareness of people in the field of health and their readiness to decide about themselves. The partnership model is based on the assumption of the relative indifference to power structures outside of the doctor–patient relationship (Shutzberg 2021). This relationship is characterized by authenticity, empathy, mutual respect, tolerance, avoidance of judgment (Łuków 2005). The goal is the patient's participation in self-determination about their health and life. The literature also presents the consumer model in which the doctor's role is more passive, and the doctor-patient relationship is more asymmetrical than in the partnership model. However, it can be categorized as a realist offshoot of the partnership model (Shutzberg 2021).

In the partnership model the doctor is an advisor whose task is to present possible treatment methods and potential risks, and then help in choosing the best solution. The patient makes autonomous decisions. Therefore, the patient becomes co-responsible for the effects of treatment. Patient autonomy is understood as the right to accept or reject the diagnostic and/or therapeutic procedure proposed by the doctor (Wroński et al. 2009). In order for the patient to make a decision, he/she should be able to assess the potential benefits and losses resulting from the proposed medical procedure. In addition, the patient should be ready to take responsibility for their own decisions (Wroński et al. 2009). It requires receiving and understanding information from the doctor. The doctor has a legal obligation to provide the patient with comprehensive information about the disease, diagnosis and treatment (Wroński et al. 2008, Wroński et al. 2009). In the partnership model, communication is patient-centered (Zembala 2015; Chandra, Mohammadnezhad, Ward 2018; Adekunle et al. 2023). It is important, considering the research results which show that good quality of communication leads to patient's satisfaction (Chandra, Mohammadnezhad, Ward 2018), builds trust in the doctor (Krot 2019; Bontempo, 2023), and better compliance with medication (Adekunle et al. 2023).

The transition from the paternalistic model to the partnership model has contributed to changes in the patient's activity and involvement in medical treatment. This requires the patient to have more knowledge about health than before. At the same time, health information and knowledge are freely available. Patients increasingly use various sources of information to better meet their health needs, including online resources. It has become a global trend (Ghahramani, Wang, 2020; Jia, Pang, Liu 2021). Online health information seeking includes "anything regarding the symptoms, diagnoses and treatments of different diseases or simply general information about weight loss, healthy diets or wellness tips" (Ghahramani, Wang 2020: 1277). Thus, online health information consumers can be patients, their friends and families, as well as people who pursue good health or lifestyle (Jia, Pang, Liu 2021). According to Eurostat (2025), the share of people seeking health information online for private purposes has increased, and is varied across EU member states. In 2024, the highest share was recorded in the Netherlands, where 82,28% of people aged 16–74 searched online for health-related topics in the last three months prior to the survey. In contrast, the lowest shares were observed in Romania (31,53%). For Poland this indicator was 52.90%, and for Croatia 55.55%, with the average for the EU countries being 58.16%. Thus, an increasing group of traditional patients are becoming e-patients, i.e. consumers who actively take care of their own health and use health services using communication and information technologies. E-patients highly value their time, anonymity, and quality (Czerwińska 2015; Soboń 2021). The internet provides them 24/7 access to health information, the ability to register for medical visits, access to medical test results, access to information and advice on embarrassing ailments, opinions about doctors written by other e-patients, etc. The internet has become a new form of social control over medical professionals and healthcare institutions (Soboń 2021). Furthermore, the concept of the e-patient is constantly evolving towards m-patient and smart patient, who use mobile applications in the process of taking care of their own health (Czerwińska 2015). At the same time, with the development of the interactive version of the internet, Web 2.0, there has been a transformation in the role of internet users. Both patients and healthy people stopped being just consumers of information about health and illness, and became producers of it. They can share information, knowledge, experience, and advocacy through websites, blogs, chat rooms, listservs, electronic support groups, and social media. As a result, the private experience of illness has become a public experience (Conrad, Bandini, Vasquez 2016). New ways of sharing information, knowledge, and personal experience on the internet blur the boundaries between patient and expert (Conrad, Stults 2010).

Thus, patients become learners. They look for knowledge which allows them to make autonomous decisions regarding care and health recovery, and improve the outcomes. They recognize its causes, symptoms, prognosis, treatment options. They also seek advice on how to strengthen the body, what lifestyle to lead in the face of illness, how to emotionally cope with a health crisis, etc. They use many sources of knowledge, including the internet. Searching websites, scientific publications available online, as well as joining social groups aimed at patients and their families, using internet forums, reading blogs, are becoming more and more common. Some patients get involved in patient groups and/or support groups, take part in health education conducted by professionals or other active patients who share their experience. They reach for scientific textbooks, but also for pathographies and guides. The sources of knowledge and the offer of health education seem to be extremely rich, sometimes even exceeding the capabilities and competences of the learners. The specialized, scientific medical knowledge is mixed with everyday knowledge, also derived from the experiences of other patients. People may find knowledge that they either do not understand, or understand incorrectly. The acquired knowledge may also be unreliable, outdated, contradictory. At the same time, many patients are looking not for knowledge itself, but only for information that is sufficient or more accessible to them (see: Malewski 2023). They also seek out memories that reconstruct the experiences of coping with the disease by patients and their families. Those who share their experience become mentors and guides for others. It is worth emphasizing that sometimes there is even excessive involvement in online health information searching or creating such content, which may result in internet addiction or cyberchondria (i.e., excessive worry about one's health caused by searching for information online, often leading to heightened anxiety and a feeling of being unwell despite a lack of medical confirmation). On the other hand, for some patients, learning during the treatment may be impossible or difficult. Multiple factors may affect the learning process during coping with chronic illness, such as health literacy, culture, language, educational needs, social and digital exclusion, mental states, physical and cognitive conditions (Muijsenberg et al. 2023). Barriers to learning in a health crisis are experienced primarily by selected social groups, such as the elderly, the less educated, people with disabilities, those with special educational needs, the digitally excluded, people experiencing a homelessness crisis, those living far from places that provide health education and social support. There are also patients who do not want to know and do not make an effort to learn.

Knowledge about the disease supports patients in its management and decision making. The previous research confirms that knowledge about the disease is a factor in the initial decision to seek medical care and continue it, attitudes towards medical care, cure orientedness and other attitudes increasing propensities to seek professional help (Tagliacozzo, Ima 1970; Groen et al. 2015; Muijsenberg et al. 2023), compliance with medication, and following medical advice (Chandra, Mohammadnezhad, Ward 2018). Oncology patients, including those with breast cancer, are a special group of patients who proactively seek information about the disease (Melhem, Nabhani-Gebara, Kayyali 2024). They predominantly rely on healthcare providers for crucial cancer-related knowledge (Melhem, Nabhani-Gebara, Kayyali 2024). However, due to the rapid increase in the number of sick people and insufficient health education of patients, as well as easy access to information and knowledge, patients are increasingly searching online resources for answers to their questions (Melhem, Nabhani-Gebara, Kayyali 2023). At the same time, they face several challenges that may affect their learning, as well as experience difficulty in understanding knowledge or assessing its credibility, a multitude of information available, dissatisfaction with the information they receive, and frustration (Arora et al. 2002). The problem of patients' attitudes towards information and knowledge about their disease seems to be extremely complex and, at the same time, cognitively promising. Within this context, the purpose of this study was to reconstruct the online health information seeking behaviors during oncological treatment. The following research questions were asked:

- Do breast cancer patients seek health-related information after oncological diagnosis?
- If yes, how do they involve in online health information seeking?
- What are the causes and consequences of the involvement or non-involvement in health information seeking using the internet?

Methods and Procedures

This paper is part of a larger qualitative study entitled *'Memorable messages' as part of communication in formal and informal caregiving for women with breast cancer,* which was conducted in Poland and Croatia (see Mazurek, Martinec, Vilč 2025a; Mazurek et al. 2025b). The study was approved by both the Research Ethics Committee of the University of Lodz[1], and the Ethics Committee of Sestre Milosrdnice University Hospital Center in Zagreb[2]. All study participants were aware of their rights before expressing their informed and voluntary consent to participate in the study. All prospective participants who were willing to participate in the study signed the informed consent form.

Biographical research, in the interpretive paradigm, was conducted from May to October 2024. This qualitative study used in-depth interviews and lifelines. Each interview began with an encouragement to talk about coping with breast cancer from the moment when disturbing symptoms were noticed. The rest of the interview was adapted to the participant's story in order to reconstruct the trajectory of illness in details. The research participant also was asked to mark events that she considered as key in dealing with illness on the lifeline. After completing the storytelling phase, the researcher asked additional detailed questions.

In Poland the interviews were conducted based on the research participants' preferences related to the location, time, and form of communication. Most of them were conducted face-to-face at participant's home or in cafes, while others were conducted on-line using a camera. All interviews were conducted by EM in Polish. On the other hand, in Croatia all interviews were conducted by BV with assistance of EM at the university hospital. The interviews were conducted in a secluded place ensuring a sense of intimacy for the interviewee, and enabling compliance with the principle of confidentiality. The participants were interviewed in Croatian or, at the request of the interviewee, in English. All interviews were recorded on a voice recorder and transcribed.

Purposeful sampling was used. The following criteria were adopted for the selection of study participants: female gender and diagnosis of breast cancer obtained no more than 5 years before the study. Women with breast cancer were selected for the study for three reasons. In both countries breast cancer is the most commonly diagnosed cancer in women. According to the Global Cancer Observatory (2022), in 2022 in Poland it accounts for 24.5% of all malignant tumors in women, and in Croatia 23.5%. Additionally, the consequences of breast cancer and its treatment are not limited only to physical health, but also concern mental health (including the sense of femininity) and are strongly related to cultural conditions (i.e., breast cancer as a socially constructed problem, the cult of the body, the cult of beauty, patterns of femininity) (see: Mazurek 2018). In both countries there are breast cancer support groups that raise awareness and reduce the stigma of breast cancer through educa-

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[1] Reference number: 11/V/2023-2024 of 26.04.2024.

[2] Reference number: 003-06/24-03/031, Reg. No.: 251-29-11/3-24-03.

tion and provide support to patients. The procedures for recruiting study participants were different in each country. This difference was a consequence of the attitudes of the management staff of the hospital departments where the study was planned to be conducted. The research team obtained permission to conduct the study at the University Hospital for Tumors in Zagreb. The members of the research team are both employees of this hospital and researchers who have been cooperating with the hospital for several years. As a result, in Croatia the researchers personally invited the hospital patients to participate in the study in cooperation with medical staff. In Poland, despite submitting an application for consent to conduct the study in one of the hospitals, this intention was abandoned due to the terms of cooperation proposed by the hospital authorities. For this reason, the invitation to participate in the study was sent to patient associations of women with breast cancer and published on patient groups in social media, with a clear description of the aims of the study, planned procedures, and publication of results in scientific papers. Finally, 24 women (10 in Poland, 14 in Croatia) took part in the research. Participants ranged in age from 34 to 76 years. The vast majority of study participants declared higher education (N=18), while the rest declared middle education. The largest number of participants were professionally active (N=14). The other were unemployed (N=3), retired (N=6), and both professionally active and retired (N=1). All of them were diagnosed with breast cancer. The study group was very diverse in terms of oncological treatment and preventive surgical procedures experiences. Three participants were battling breast cancer for the second time. However, this was neither a recurrence nor a metastasis, but the second disease.

The transcripts were analyzed through reflexive thematic analysis (Braun, Clarke 2022). Inductive coding was used. The first stage consisted of analysis of the transcriptions in the language in which the interviews were conducted. Therefore, EM worked individually, and RM and BV worked as a team. Five stages of reflexive thematic analysis (i.e., familiarization with data, initial code generation, searching for themes, reviewing themes, and defining themes) were followed. As a result of inductive coding, themes were identified. These themes correspond to the strategies of involvement or non-involvement in online health information seeking required by cancer diagnosis. The next stage of data analysis was made after translating the transcripts into English (except for those conducted in English). Thus each interview transcript was analyzed twice. Then, there were several meetings of research team to discuss the results of previous work and reach consensus.

Results

Five strategies of involvement or non-involvement in online information-seeking required by health crisis used by research participants were identified: overly active/obsessive online health information-seeking, active online health information-seeking, withdrawing from online health information-seeking, avoidance, non-involvement (Table 1). One study participant used one or more of the strategies during the course of illness.

Table 1. Strategies of online health information seeking used by study participants

Strategy	Poland (N=10)	Croatia (N=14)
overly active/obsessive online health information-seeking	1	2
active online health information-seeking	9	11
withdrawing from online health information-seeking	1	1
avoidance	1	1
non-involvement	0	2

Source: own elaboration.

Overly active/obsessive online health information-seeking involves increased and uncontrollable searching for information or knowledge, especially repeated Google searching. This activity does not replace contacts with medical professionals to obtain explanations on health issues. Study participants who used this strategy had obsessive thoughts about their health, severe anxiety due to illness, numerous doubts regarding test results and treatment procedures. One of them said that she checked the test results or some minor parameters, and was looking for answers to health questions many times a day. She said:

> I was able to interrupt a meal that I was having with my husband, and leave the table to read something, check some small parameter of the result. […] It started to resemble an obsession that I couldn’t control [PL_10].

Overly active online information-seeking appears suddenly, and is difficult to control. Lack of knowledge increases fear not only of the disease, but also of the unknown (e.g., planned medical procedures). The patient searches for newer, more detailed information and falls into a trap, which is described in the following statement:

> For me, the biggest fear is the fear of the unknown. That’s why I like to research. Everything that was happening, I was researching a lot. And then I read so much, and I didn’t know what I read anymore [CR_1].

Engaging in the search for information gives a sense of peace for a moment until further questions, doubts and concerns appear. This kind of activity may reflect cyberchondriac behavior. One of the study participants noticed that her behavior was worrying and she sought help from a psychologist. However, she did not receive the expected support, and the solutions proposed by the psychologist were completely inaccurate. She announced that she would continue to seek help for herself. The other participant repeatedly emphasized the need for emotional and informational support for patients from the stage of tests preceding the diagnosis.

Active online health information-seeking involves looking for information/knowledge from many online resources, including websites with accessible content (explanations, statistics and prognoses, advice), scientific articles, stories about coping with breast cancer, blogs, forums, social networking. Online information-seeking is seen as an obvious consequence of experiencing a crisis situation in the era of universal access to the internet. The patient wants to have/regain control over her health and life. She wants to cope with the disease and its consequences as best as she can. The study participants were looking for information/knowledge on the types of breast cancer, the methods and procedures used for treatment, the effectiveness of treatment, prognosis, medical centers and specialists, the possibilities of taking care of one's body (i.e. lifestyle, diet, additional supplementation, alternative support for the body), the possibilities of limiting the negative effects of treatment (i.e. weakening the body, controlling body weight, wasting the body, changes in appearance, minimizing the side effects of the therapies used, sleep problems, premature menopause), coping with emotions and mental crisis, communication with doctors, family members and other people, patient rights, financial support for the patient from the state, stories of other patients. The above-mentioned list is broad, yet not exhaustive. Information seeking was perceived as learning by the study participants.

The primary source of knowledge and information for the study participants are doctors. The study participants mentioned numerous examples of conversations with medical personnel during which they received the desired knowledge, explanations, answers to their questions, recommendations, advice and justification. At the same time, they indicated insufficient health education provided by healthcare institutions in both Poland and Croatia. Un-met information needs, insufficient patient education, and dissatisfaction with cancer knowledge from doctors were the causes of online information-seeking, indicated alongside the need for independent learning and using internet as an obvious activity nowadays. The study participants understand the burden on doctors, and lack of time stating: "there are too many of us and too few of them" [CR_9]. At the same time, they appeal to doctors to devote more attention and time to them, because they are not dealing with a trivial disease, but are fighting for their lives. These are just selected examples of such appeals:

> No one explained it to me. I think that doctors focus on the disease because that's their job. And the human is being behind. But we want to know [PL_3];
>
> No one told me this before. Not even the doctor […] I didn't find out about it from the staff, who administer chemo but from outsiders. They should have told me [PL_2];
>
> Tell me why. Tell me more [CR_1];
>
> We would all like you to talk to us more and explain things, especially when people are truly seriously ill [CR_9];
>
> Maybe more information is not a bad idea? [CR_11].

Additionally, one of the study participants indicated that she searched for information in response to an unpleasant experience in one of the hospitals, where the doctors refused to treat her and did not advise her on which hospital provides it. She explained:

> They said that I had to find another hospital because they wouldn't do the surgery. They didn't even explain it to me properly. […] I've cried for two days, and then I got myself together. Finally I sat down at the computer and started searching. […] My husband and I searched. A lot of things… we found out a lot of things ourselves [PL_6].

It was the beginning of self-directed learning how to cope with cancer.

The study participants identified difficulties and burdens they faced as a result of using multiple sources of information/knowledge, including the internet. Among them, they mentioned a lack of desired information and insufficient knowledge, an excess of knowledge and sources, the difficulty in self-positioning toward them:

> There is so much written about cancer as if everyone knew everything about cancer [PL_9];
>
> So I think there's also more confusion sometimes. When you speak to more people, you lose sight of, I don't know what to do now. So many people are doing different things, but what is the best thing for me? [CR_1],

a discrepancy between knowledge acquired independently and that provided by a doctor:

> I told my sister that I read on the internet that with triple-negative HER cancer, it's more likely to be a mastectomy and chemotherapy. She [doctor] says that it's partial [PL_2],

learning from other people or from another source instead of medical professionals:

> Now I'm texting people, what do I do with this? Who do I do with that? But it's all non-doctors. It's all patients that are sharing information. It's not really coming from, I feel like it's not coming from the people that I should get the information from [CR_1],

easy access to information and, at the same time, difficult to assess its quality:

> I don't like to google too much because the internet is full of all kinds of information [CR_2],

insufficient competence to understand the content:

> Sometimes it is supposedly explained, but in such a way that I do not understand it. So I give up or keep looking [PL_9],

lack of anonymity and confidentiality in social media, limiting the possibility of learning from others:

> When I once wrote something on a forum, my dad immediately called me, because it is visible to everyone that you have written something. And with some question... I had some doubts... He must have seen it, […] So now I am keeping quiet [PL_3],

dispersion of responsibility in terms of distributing knowledge:

> I went to the seaside. And that doctor, whom we have already mentioned, looked at me and said: "Didn't anyone tell you that you can't sunbathe a year after radiotherapy?" "No, I don't think so…" [PL_3].

Patients who actively search information are also confronted with the assessment of their attitude by their doctors. Doctors sometimes appreciate the patient's proactive attitude ("you are well-organized" [PL_2]). On the other hand, they are skeptical or even ironic ("You know what, I have had a few such ambitious patients" [PL_2]). There are also those who encourage not reading, not searching ("it is best not to search, not to read, to leave it alone" [PL_9]), or those who do not like when the patient wants to know too much:

> And it just seems like the more you want to know, sometimes you get the feeling that the more buggy you are, and then they kind of don't really want to talk to you, because you ask too many questions [CR_1].

At the same time, study participants declared that their doctors occasionally suggested which websites are worth using for information about breast cancer.

Misinformation, disinformation, knowledge deficit, and knowledge overload make patients feel confused. Information sometimes appears "out of nowhere," uninvited, imposed by others, and also by the search engine (i.e. search suggestions). Study participants often do not feel competent enough to respond to knowledge and use it in their decision making process. Better orientation in the scope of the disease contributes to patient's empowerment. On the other hand, the variety of sources of knowledge provided often overwhelms them. They characterized the information found on the internet as useful and useless, helpful and harmful, reliable and unreliable, sufficient and incomplete. These dichotomies illustrate the numerous dilemmas and conflicts faced by cancer patients.

Withdrawing from online health information-seeking involves ceasing to actively search for information in online resources or limiting the type of resources that the patient used in the past. The study participants indicated three reasons for their decision, including disappointment with unreliable information, excessive worrying about the gained information/knowledge, and the uselessness of the knowledge gained due to the overly complicated situation of oncology patients requiring personalized treatment. One of the study participants admitted that she had withdrawn from information searching because she found that "in some cases you have to let go a little and trust the doctor" [PL_8]. The other woman limited the scope of her activity to searching only for scientific knowledge about breast cancer:

> I've googled too much, of course. I wanted to know more, even though the doctor explained everything to me. [...] I even went to a Facebook group for women with cancer, but I stopped reading because it was only pulling me down. I think if I need to read something, I'd rather read studies, proper medical research, than random things… That would be better [CR_2].

The study participants who use this strategy are satisfied with knowledge and information obtained from doctors. They occasionally seek it out on their own, only in exceptional situations, using reliable sources.

Avoidance involves intentional limitation or abandonment of information-seeking outside of contact with a doctor. This strategy was used by two study participants who, right after their oncological diagnosis, decided to not search or read, and instead rely on the doctor's experience. They said:

> I approached it quite sensibly, in that I decided that I would not read. I did not open the internet, I didn't visit any internet forums, I did not read on the internet. I assumed that this is what I had a doctor for. If I had any questions or doubts, I wrote them down and asked the doctor during my visit. Because there is so much information from all sides… […] I don't use the experience of others [PL_4];
>
> Everyone started reading a lot about it on the internet, but I wasn't interested in doing that. I told them to read whatever they wanted, but not to burden me with it — other people's diagnoses, how they handled it, or dietary advice [CR_14].

Both study participants used internet resources, but to a very limited extent or in specific situation when the sought knowledge went beyond the competence of the doctor and was related to the need to obtain information resulting from the experience of other patients.

The study participants who used this strategy declared that they trusted their doctors. In their opinion the doctor's role is to inform and educate patients ("that's what a doctor is for, to answer me" [PL_4]). At the same time, they expressed limited trust in information available on the internet. They ask their doctors many questions and are met with goodwill on their part. One of them was praised by the oncologist for her attitude:

> She [doctor] said that it was good, that it was great that I was doing this because when she remembered the patients who she treated 20 years ago, for example, they went through the treatment much more calmly. […] now they read, swallow something, drink hectoliters of strange drinks, or switch to some fermented diets that destroy the stomach and worsen their condition [PL_4].

Non-involvement in online health information-seeking is a consequence of insufficient digital skills, as well as trust in doctors and satisfaction with information obtained from them. This strategy was used by the oldest study participants (71 and 76 years old), and is present only in the empirical material collected in Croatia. These were patients who had just recently been diagnosed with breast cancer, so it may have been too early for them to seek information about cancer on their own. At the same time, the participants indicated the need to adapt doctor-patient communication and health education to the age and cognitive abilities of the patient. They recalled situations when they did not hear what the doctor said to them or did not remember much from the entire conversation. This is a particularly important complaint, considering the threat to the patient's ability to self-determine due to the lack of sufficient knowledge. In the event of a failure to receive reliable and understandable information from the doctor, and failure to use the information available online, the patient loses the opportunity to use two basic sources of knowledge about the disease. These women worry if they know everything that they need to know.

Conclusion

Chronic disease often leaves patients with an intensified need for information and knowledge about health. The results of the presented study mirror previous findings showing that cancer patients commonly become proactive information seekers even before their treatment (Mayer et al. 2007; Krot 2019; Melhem, Nabhani-Gebara, Kayyali 2024). Patients usually prefer receiving information from healthcare providers (Mayer et al. 2007; Krot 2019; Melhem, Nabhani-Gebara, Kayyali 2024). At the same time, some of them look for information from a variety of other sources, including the internet (Mayer et al. 2007; Krot 2019; Melhem, Nabhani-Gebara, Kayyali 2024). Turning to the internet for health information, and even treating online resources as a substitute for seeing a doctor, has contributed to the popularization of the term Doctor Google (Szpunar 2014). Some patients also look on the internet for more or less professional advice and tips, which is a manifestation of the emergence of "advice boom" (Kargulowa 2017: 9). The partnership model of the doctor-patient relationship and e-health require the patient to take a proactive attitude. Having knowledge is one of the key attributes of patient empowerment (Groen et al. 2015; Krot 2019). However, it is worth to emphasize that some patients do not actively look for cancer information outside of contact with the doctor (Mayer et al. 2007). This explains why health education for chronically ill people is an important task for healthcare providers and other entities (e.g., associations). Patient education should be patient-centered and learner-centered (Muijsenberg et al. 2023). Health education supports independently and self-directed patients' learning. Patients expect that physicians should support them in self-learning, and recommend them appropriate sources of knowledge on the web (Diaz et al. 2005).

Breast cancer patients who participated in the presented study used five strategies of involvement or non-involvement in online health information-seeking in the face of health crisis, i.e. overly active/obsessive online information-seeking, active online searching, withdrawing from online information-seeking, avoidance, and non-involvement. Involvement in online health information seeking is the result of unmet information needs, dissatisfaction with information received from doctors, insufficient health education, as well as easy access to online resources, convenience of using them, quick access to information provided in various forms, and sufficient digital competences. On the other hand, the reasons of withdrawing from online health information-seeking, avoidance, and non-involvement are more diverse. Withdrawing is a consequence of disappointment with unreliable and useless information and knowledge available on the internet. Patients do not feel competent enough to evaluate online health resources. They deliberately refrain from using them. In turn, avoiding independent internet searches results from a trust in doctors and a lack of desire to burden oneself with an excess of (questionable) information. A lack of engagement is the result of a lack of appropriate digital competences and digital exclusion. Each of these five identified strategies is associated with certain burdens that patients face (i.e., misinformation, disinformation, information chaos, knowledge overload, difficulties in assessing the quality of information and knowledge, fear of being discredited when actively engaging in social media groups, insufficient digital competences and fear of information exclusion, risk of cyberchondria). This in turn leads to confusion, uncertainty, a sense of chaos, frustration and growing fear. Knowledge and information do not always provide the expected peace of mind. On the other hand, lack of knowledge or insufficient knowledge also does not bring it. A breast cancer patient who engages in online information seeking in the face of a health crisis or who does not do it often becomes a confused learner. Furthermore, although health education provided by doctors is appreciated by patients, it is sometimes perceived by them as a burden (see: Mazurek et al. 2025).

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