



The impact of widespread Internet use on the healthcare professional-patient relationship – a scoping review

Wpływ powszechnego korzystania z Internetu na relację pracownik ochrony zdrowia – pacjent. Przegląd zakresu literatury

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Abstract

Introduction and objective. A steadily increasing number of individuals begin to seek a diagnosis online before consulting healthcare professionals (HCPs). This trend has transformed patients (Pts) into more informed participants in their own healthcare path. However, alongside greater patient engagement, new challenges have emerged, particularly in the form of misinformation prevalent across online platforms. Such online misguidance not only jeopardizes Pts' health but also strains the Pt – HCP relationship. The purpose of the work was to highlight changes that have taken place over the past few years in communication with Pts due to the increased availability of the Internet.

Review methods. The review is based on a search conducted in online scientific databases, including Pubmed, Google Scholar, Elsevier, and Scopus, with a restriction to publication years 2016–2024. Inclusion criteria encompassed research articles focusing on the Pt-HCP relationship in the Internet era.

Brief description of the state of knowledge. Taking into account the fact that about 93.3% of Polish households have Internet access, the long-term impact of increasingly widespread telemedicine seems important to consider. Research on the spread of misinformation is lacking. It would also be necessary to define guidelines for healthcare entities involved in online activities to ensure that their activities have a positive effect.

Summary. It is important to take care of the Pt-Internet-HCP balance. Helping patients select high-quality resources from reputable sources is within the responsibility of HCPs. However, Pts should keep in mind that their HCP is the one who needs their greatest trust.

Key words

e-health, online health information, health misinformation, healthcare professional – patient relationship, internet-informed patients

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Streszczenie

Wprowadzenie i cel pracy. Stale wzrasta liczba osób rozpoczynających poszukiwanie diagnozy online przed skonsultowaniem się z pracownikami ochrony zdrowia (POZ). Trend ten sprawił, iż pacjenci stali się bardziej świadomymi uczestnikami własnej ścieżki opieki zdrowotnej. Jednakże wraz z większym zaangażowaniem pacjentów pojawiły się nowe wyzwania, szczególnie w postaci dezinformacji rozpowszechnionej na platformach internetowych. Takie błędne informacje online nie tylko zagrażają zdrowiu pacjentów, ale także obciążają relację pacjent – POZ. Celem pracy było zwrócenie uwagi na zmiany, jakie zaszły w ciągu ostatnich lat w komunikacji z pacjentami ze względu na zwiększoną dostępność Internetu.

Metody przeglądu. Przegląd opiera się na wyszukiwaniu przeprowadzonym w internetowych bazach naukowych, w tym Pubmed, Google Scholar, Elsevier i Scopus, z ograniczeniem do lat publikacji 2016–2024. Kryteria włączenia obejmowały artykuły badawcze koncentrujące się na relacji pacjent – POZ w erze Internetu.

Opis stanu wiedzy. Biorąc pod uwagę, że ok. 93,3% polskich gospodarstw domowych ma dostęp do Internetu, wydaje się, że warto rozważyć długoterminowy wpływ społeczny coraz bardziej powszechnej telemedycyny. Brakuje badań nad rozprzestrzenianiem się dezinformacji. Konieczne byłoby również określenie wytycznych dla podmiotów opieki zdrowotnej udzielających świadczeń opieki zdrowotnej online, aby zapewnić pozytywny wpływ społeczny podejmowanych przez nie działań.

Podsumowanie. Istotne jest dbanie o równowagę pacjent – Internet – POZ. Pomoc pacjentom w wyborze wysokiej jakości zasobów z wiarygodnych źródeł leży w zakresie odpowiedzialności POZ-u. Mimo dostępu do różnych źródeł informacji pacjenci powinni pamiętać o kluczowej roli zaufania do pracowników ochrony zdrowia.

Słowa kluczowe

e-zdrowie, relacja pracownik ochrony zdrowia – pacjent, informacje zdrowotne online, dezinformacja zdrowotna, pacjenci poinformowani przez Internet

INTRODUCTION

Huge transformations have taken place worldwide due to widespread use of the Internet and new technology. According to the data published by Statistics Poland, 93.3% of Polish households have access to the Internet. [1]. The medical sector has not been immune to those changes, and continuous modifications are having an ever-increasing effect on the way healthcare facilities are operating. To some extent, widespread public interest in the Internet has replaced appointments with the General Practitioner (GP) as the first choice for those seeking medical information [2].

In 2020, the COVID-19 pandemic not only forced both Pts and HCPs to adapt much faster to new standards of digital medicine, but also exposed its shortcomings and weaknesses more clearly, thus enabling preparations for challenges posed by the digitization of health care [3, 4]. The high intensity and dynamics of changes has inevitably led to the necessity for raising awareness of the aspect of communication and the Pt – HCP relationship. The aim of the review was to analyze changes in the Pt-HHCP relationship caused by widespread use of the Internet.

REVIEW METHODS

Inclusion criteria. The following scoping review encompasses research published between 2016–2024. A total of 37 papers were selected that satisfied the review objectives. Particular attention was paid to papers that specifically investigated the relationship between the growth of Internet use and its influence on Pt-provider communication in healthcare. The incorporation of research performed within this time span allowed for inclusion of the most recent advances and understanding of the subject.

Exclusion criteria. The exclusion criteria were defined in a way that guaranteed certain quality and applicability of the research selected. To maintain uniformity in language interpretation and comprehension, research published in languages other than English were excluded. Articles published before 2016 were not taken into consideration. Furthermore, research that did not support the research objectives, namely, investigation of the relationship between a Pt and a health care provider and how it is affected by the extensive use of the Internet, were excluded. Abstracts from conferences and proceedings of conferences were also excluded because of insufficient bases for analysis. Data generated solely from peer reviewed and comprehensive studies were utilised.

Search strategy. Specific search themes were developed by combining the following key words: ‘communication’, ‘patient-doctor/Pt-HCP’, ‘social media’, ‘internet’, ‘online’, ‘medical knowledge’, ‘medical information’, ‘e-health service’, ‘educated patient’, ‘telemedicine’, and ‘examination’. The following databases were used to search for scientific articles: Pubmed, Google Scholar, Elsevier and Scopus. The search was conducted from October 2023 – September 2024.

Study selection. A two-phase procedure was applied. First, papers relevant to the study were identified using key word searches. Important data were then retrieved and carefully

reviewed. At the next stage, full-text papers were subjected to independent review. Prior to the research being included in this evaluation, any disagreements were resolved by discussion and agreement between the authors.

DESCRIPTION OF THE STATE OF KNOWLEDGE

Pt-HCP relationship. Over the years, the continuous development of the Pt – HCP relationship has been observed. This evolution reflects a shift from the traditional paternalistic model in which HCPs were seen as authoritative figures, to a contemporary model that emphasizes a collaborative and informed partnership. Historically, Pts played a passive role, relying on the expertise of the HCP’s for healing [5, 6]. This interaction, however, is further complicated by the complexity of healthcare systems and its bureaucracy. Current challenges include navigating time constraints, defensive medicine, cultural differences, technological barriers and commercialization.

In recent years, one of the most important factors shaping the Pt-HCP relationship has been the access of Pts’ to medical information on the Internet. Unlimited access to medical knowledge can be a very useful tool in communicating with an HCP, but the use of unreliable sources and the inability of Pts to separate the truth from misleading or false information may cause many problems in this area [2,7]. The Internet provides Pts with a wealth of medical knowledge, thereby increasing their engagement and decision-making in healthcare. However, it also creates difficulties, such as misinformation and potential strain in the Pt – HCP relationship, which requires a careful balance between empowerment and professional guidance [5, 8, 9].

Implications for Pts. A study by Cocco (2018) conducted at two tertiary referral centres in Melbourne and Austin, Australia, found that almost half of emergency department Pts regularly search for health news on the Internet, which proves the scale of the phenomenon [10]. Individuals use Internet search engines (e.g. Google, Yahoo and Yandex), direct websites or forums for Pts, as well as Facebook, where they can find health information, quickly, easily and anonymously. privacy, the variety of information available, lower costs, and better communication [11, 12]. Due to this approach, Pts can converse with a HCP more directly, formulate questions about ailments or diagnoses more easily, and also provide more informed consent for medical procedures [7]. This democratization of medical knowledge through the Internet has shifted the dynamics of healthcare, empowering Pts to engage more actively and confidently in their own health decisions and discussions with HCPs.

The literature shows that online support groups are of great significance for Pts, mainly those suffering from chronic conditions, or cancer. They provide flexibility, anonymity and information, while removing physical barriers. Moreover, Pts can have access to treatment options, clinical trials, and specific stages of cancer. Online support groups are also a useful resource for the parents of children with rare diseases. Active participation in such groups reduces feelings of exclusion and provides valuable information and advice. Overall, online communities offer a valuable alternative for Pts and their families. Thus, the interest of HCPs in these resources can be supportive for their Pts, especially

those confused and admitting to their poor comprehension or information, and communication technology (ICT) skills [13, 14]. Apart from the acquisition of knowledge, the Internet is also a convenient form of Pt-HCP contact within telemedicine. A particular increase in this field began during the COVID-2019 pandemic where it not only helped reduce the spread of the virus, but also ensured the safety and comfort of both Pts and doctors.

Today, this form of providing medical services also meets the needs of Pts wanting to save time they would otherwise have to spend commuting to healthcare facilities. Thanks to new solutions, HCPs can easily apply some diagnostic tools, for instance, mobile application for nurses referred to as *DiagNurse* [37], as well as effectively managing appointments, referrals and prescriptions [13, 15].

However, the versatility of the Internet has its drawbacks which include concerns about anonymity, confidentiality and privacy, and the quality of information. The physical examination of minors may pose a threat to telemedicine because of the increase in online medical appointments, as well as the problem of online child grooming and sexual abuse. Pts may not have access to the full range of information due to unreliable Internet connections, and seniors, hearing-impaired, or less educated Pts may find it more challenging to schedule appointments online [13,16,17].

The performance of a thorough physical examination without a face-to-face meeting between a HCP and patient is impossible. Although telemedicine is currently developing, some elements of the examination, absolutely require palpation, which does not exist in the domain of online meetings [18]. For example, palpitation, which is impossible in online consultations.

Another issue of concern is the growing phenomenon of disinformation. Fake news has the ability to penetrate public awareness with much greater impact than the truth [19]. The scale of the problem can be demonstrated by the fact that in 2020, the World Health Organization (WHO) named the uncontrolled dissemination of disinformation, including those regarding vaccinations, an urgent challenge in the next decade [20]. The Internet is full of false content promoting such dangerous and even lethal 'trends' as drinking bleach as a method of treating COVID-19, treating cancer using only high doses of vitamins or apricot seeds [21,22]. Constant variability, an influx of new content, and a lack of control over its spread, make the fight against disinformation originating from the Internet incredibly uneven and difficult.

Implications for medical practice. The use of eHealth, defined by the European Commission as 'tools and services that use information and communication technologies to improve health and lifestyle management', significantly impacts the work of HCP. eHealth includes Pts' registration, online consultations, and maintenance of records. It also supports health education activities and encourages choices of healthy lifestyles. More information technology is therefore being implemented in the medical field, such as applications and computer systems that help HCPs complete medical records more quickly and efficiently [23, 37].

On the Internet, there is also a clear relationship between online opinions about HCPs and their popularity among Pts. For example, opinions on well-known forums may have an impact on Pt's choice depending on the established interaction, course of the visit, and treatment effectiveness.

Better-rated people reap greater financial rewards since people choose them more frequently because they anticipate receiving better treatment [24, 25].

However, online activity can also cause a lot of damage to be detrimental for HCPs. The online democratization of the Pt-HCP relationship is the possible capacity for Pts to unwittingly or unwarrantedly damage or even destroy the professional reputation of their HCP through online criticism, assessments, and even attacks.

The other side of the coin has been HCPs' uncensored and inappropriate expression of views in online chatrooms, blogs, and social media, which has prompted intervention by disciplinary tribunals to require restraint so that the profession of medicine is not brought into disrepute. HCPs need to exercise restraint in the views and accounts that they post publicly on the Internet so as to maintain a respectful and dignified presence that respects confidentiality [7].

On the other hand, the inappropriate and unprofessional views of HCPs in online social media has resulted in the intervention of medical disciplinary tribunals to prevent the reputation of the medical profession being brought into disrepute. This ensures that HCPs exercise restraint in expressing their views on the Internet in order to maintain the expected dignified and respected stance, while also respecting patient confidentiality [7].

Interestingly, access to the Internet may also be a factor that directly affects the improvement of the quality of communication between HCPs and Pts. With the widespread and easy access to information made available by researchers, HCPs can retrain and update their communication skills. There is a wealth of communication models that provide invaluable support for HCPs in establishing contact and communicating with Pts who have various health problems, diseases, personality traits or other special needs. There are also models that facilitate communication with an individual affected by the stigma of obesity, which pay special attention to the appropriate and empathetic choice of words used. Medics also have models at their disposal that can provide support, for example, when breaking bad news, such as the SPIKES model, but also more general models, such as LEARN or SHARE. Each of them can contribute to easier establishment of the Pt-HCP relationship which will then translate positively into the Pt's awareness of health. Thanks to the foreignness remoteness of the Internet, Evidence Based Medicine (EBM) communication models provide an easily accessible communication aid [26].

Social media also play a significant role in online activities by potentially promoting patient health. However, the optimal use of social media to maximize benefits and minimize negative effects remains uncertain. It can be used for health promotion and outcomes, encouraging individuals to engage in positive health activities, e.g. healthy eating, exercise, and vaccinations. Social media can also serve as an indirect communication channel between HCPs and Pts, facilitating the dissemination of health knowledge and translation for health promotion. HCPs can communicate health-promoting behaviours and provide patients with trusted links for further information.

However, news and information of questionable credibility can also be found online, often sponsored by potentially biased entities. Thus, knowledge provided online and the social media by accepted and trusted HCPs should be encouraged [27, 28].

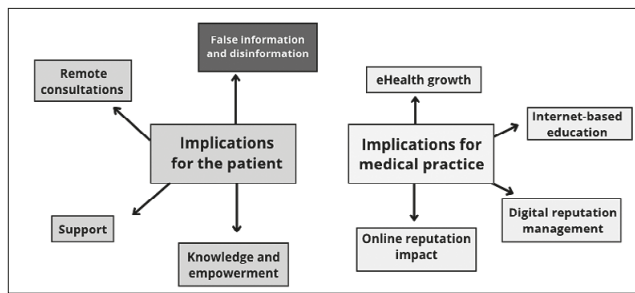


Figure 1. Implications of widespread Internet usage for Pts and HCPs

DISCUSSION

The metamorphosis of the dynamics of the Pt-HCP relationship is not merely a social change, but a biological imperative that directly influences the efficacy of healthcare delivery. Appropriate communication between HCPs and Pts yields a multitude of benefits, including accurate diagnoses, adherence to medical recommendations, and improved health outcomes, as substantiated by research [29, 30]. The progression from a domineering medical approach to one of collaborative trust is a testament to the evolving expectations and roles of both parties within the healthcare system [6].

In recent years, the Internet has emerged as a pivotal factor in shaping the Pt-HCP relationship. The democratization of medical knowledge through online platforms has empowered Pts, equipping them with information that can enhance their consultations. However, the double-edged sword of the Internet also introduces the risk of misinformation, as Pts may struggle to discern credible sources from the unreliable [2, 7]. This underscores the necessity for HCPs to guide their Pts in navigating the digital landscape to identify trustworthy information.

Internet use in China significantly reduces Pts' trust in doctors, as evidenced by the negative relationship found in a study by Meng et al. (2020). Pts who rely more on traditional media sources, such as television, newspapers, magazines and radio, have greater trust in doctors compared to those who spend more time on the Internet. Older and less educated individuals are identified as more vulnerable and may be affected by the negative impact of the Internet use on trust in HCPs, suggesting the need for targeted interventions for these groups. The study highlights the importance of exploring measures to improve patient trust, which is the cornerstone of effective communication [31].

A national cross-sectional study in the USA revealed that patient-centred communication strategies could bolster patient trust in various information sources [25]. This finding implies that when Pts are actively involved in their care and decision-making processes, the credibility of the information provided by their HCPs is enhanced. Furthermore, a study on the impact of a healthy lifestyle during pregnancy, conducted as part of the 'Healthy lifestyle during pregnancy' (HiPP) project, emphasizes the important role of a good relationship between medical staff and Pts. The results showed that despite the Pts' independence, communication support and HCP's involvement proved to be crucial in motivating women to introduce positive lifestyle changes and increasing their self-confidence in the implementation of recommended changes. This close relationship between Pts and HCPs can be a key

factor in determining the Pts' health, whether it is conducted online or offline [32].

The abundance of information on the Internet, although vast, is not uniformly reliable, and despite the ease of access to digital resources, HCPs retain their status as the primary and most credible source of medical information. This is corroborated by studies indicating that Pts, despite utilizing the Internet, place their utmost trust in their HCPs [33, 34]. Consequently, there is a burgeoning responsibility for HCPs to educate their Pts about discerning accurate information online.

A study by Chang et. al. (2020) found that more than half (60%) of treatment decisions were influenced by online resources. Although some found online information difficult to understand (32%), most (91%) found it useful. However, Pts often discussed information they found online with their doctors, indicating a collaborative approach to decision-making. Clinicians should be aware that Pts rely heavily on online information, which can significantly impact their decision-making process and, in turn, interactions with HCPs [35]. This suggests that patient education should be a focal point in the healthcare journey, facilitating more meaningful and productive interactions. While the Internet can positively impact consultations by fostering patient awareness, it can also introduce significant challenges. Misinformation can interfere with the diagnostic and treatment processes, potentially leading to adverse health outcomes. A study by Drug (2020) on the impact of the Internet on doctor-patient relationships shows increased cooperation between gastroenterologists and patients, as well as the avoidance or cancellation of appointments with GPs [36]. Unfortunately, as a result, the patient's health may suffer because of such behaviour.

In summary, development of the Pt-HCP relationship in the digital age is characterized by a greater emphasis on Pts' engagement, the importance of trust, and the need for accurate information. As healthcare evolves, the role of HCPs as trusted counsellors and health educators becomes increasingly more important, ensuring that Pts benefit from the wealth of information available, while avoiding the pitfalls of misinformation. Additionally, the introduction of the digital age makes Pts feel more responsible for their health, and with the support and guidance of medical staff, become more willing to take active steps to improve their own health.

Directions future research. Future studies could focus on the development and assessment of digital literacy programmes, crucial for enabling both Pts and HCPs to effectively navigate the vast landscape of online health information. The long-term effects of telemedicine on patient outcomes and healthcare efficiency also warrant a closer look, especially as its use becomes more widespread.

Another critical area is the formulation of strategies to combat health-related misinformation online. This includes understanding how misinformation spreads and how it can be countered effectively. The role of online health communities in supporting the well-being of Pts is another domain that calls for investigation, particularly in terms of the psychological and physical health benefits they may offer.

The impact of social media on health behaviours is a multifaceted topic that could reveal insights into how these platforms influence public health and how they can

be effectively utilised for health promotion. Additionally, establishing professional guidelines for the online conduct of HCPs is essential for maintaining their reputation and ensure the confidentiality of Pts in the digital age.

Integration of eHealth tools with traditional healthcare practices poses both challenges and opportunities, thus research in this area could help streamline the adoption of these technologies in a way that enhances patient care. Lastly, the dynamics of patient trust in the digital age, where online health news is abundant, is a critical aspect that requires further understanding.

By addressing these areas, future research can contribute to a more nuanced understanding of how the Internet can be harnessed to improve the Pt-HCP relationship and healthcare outcomes in an increasingly interconnected world.

CONCLUSIONS

In conclusion, the development of the Pt-HCP relationship in the digital age is characterized by a greater emphasis on the involvement of Pts, the significance of trust, and the need for accurate information. As healthcare evolves, the role of HCPs as trustworthy counsellors and health educators becomes increasingly crucial, to ensure that patients benefit from the wealth of information available while avoiding the pitfalls of misinformation. Additionally, the introduction of the digital age makes Pts feel more responsible for their own health and become more willing to take active steps to improve their health with the support and guidance of medical staff. However, this empowerment of the patient's position comes with the challenge of misinformation which can compromise the quality of healthcare and patient safety. The presented review underscores the importance of digital literacy and the need for HCPs to guide Pts in identifying reliable sources of information.

The advent of telemedicine, especially during the COVID-19 pandemic, has demonstrated the potential of the Internet to facilitate remote healthcare delivery, making medical services more accessible while ensuring patient and provider safety, but it is also associated with significant limitations related to the lack of direct contact between HCPs and Pts.

Despite the benefits of the Internet, the review cautions against the potential for Pts to bypass professional medical advice in favour of online information, which can disrupt the diagnostic and treatment processes. It also notes the impact of the Internet on medical practice, including the influence of HCPs' online activities on Pts' selection, and the potential risks to the professional reputations of HCPs from adverse online interactions.

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