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STUDY PROTOCOL

How Physicians Tackle Internet-Misinformed Patients: Going Beyond Traditional Patient-Centered Communication – A Study Protocol

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Background: The proliferation of misleading and irrelevant health information on the Internet has become a significant public concern. Inappropriate use of online materials can cause harm to patients' health and quality of life. While close attention has been paid to health campaigns and education programs that aim to disseminate accurate health knowledge, the role of physicians, who directly communicate with patients in medical encounters and provide personalized information, has been overlooked. Therefore, this study focuses on physicians and their communication strategies with internet-misinformed patients (IMPs).

Objective: This study aims to understand the communicative strategies physicians use to tackle IMPs and explore connections between physicians' communicative strategies and patient-centered communication.

Methods: Approximately 10 to 15 physicians from diverse cultural backgrounds, including Ticino (an Italian-speaking region in Switzerland), Milan and China will be interviewed. Interviews will be conducted in-person or online through video conferencing software programs. Physicians will be asked about their experiences with IMPs, communicative strategies for addressing patients' misconceptions, balancing patient preferences, decision-making obstacles, and envisioning an ideal relationship with them. A thematic analysis will be utilized to analyze data, employing a general inductive approach.

Discussion: The results will provide valuable insights into effective clinical communication strategies that address patients' misuse of internet materials and inform policymakers and healthcare providers about the limitations and applicability of patient-centered communication in the current digital era.

Keywords: misleading information, physician–patient relationship, patient-centered communication

Background

Patients often turn to the Internet for health information, but the accuracy and relevance of such information can vary widely.¹ The Internet has become a breeding ground for health-related mis/disinformation, with the widespread Covid-19 conspiracy as a typical example.² Despite the easy access to a vast amount of health information online, this information tends to be generalized and may not apply to a patient's specific condition. Inappropriate use of internet information can lead to harmful and negative impacts on people's health and quality of life. Numerous health campaigns and literacy programs have endeavored to provide the public with accurate health knowledge. Yet, they often fall short in addressing patients who are misinformed by online materials, also known as internet-misinformed patients (IMPs).³ To address this issue, several scholars have proposed that physicians can play a crucial role in combating internet misinformation.⁴ Physicians possess specialized medical knowledge, which is particularly valuable compared to the generalized information provided by public campaigns or education programs. They are also highly trusted compared to other health information sources such as media or governmental health agencies.^{5–7} However, the role of physicians in addressing people's misuse of internet information has rarely been empirically studied, leaving us with limited understanding about

their strategies for tackling patients' misconceptions adopted from online materials and which communication strategies are applicable.

Patients desire to share internet-sourced information with their physicians, seeking their comments and interpretations.⁸ Some patients explicitly introduce their information during consultations by asking questions or making claims, while others seek confirmation of the information's validity without disclosing the source.⁹ Still, some patients withhold internet information, fearing physicians might perceive it as challenging their expertise and react negatively.¹⁰ From the physicians' perspectives, a systematic review of 21 studies on physicians' views on patients' internet searches revealed that only a few physicians viewed internet-informed patients as completely negative, while the majority held balanced views.¹¹ Physicians appreciate patients using the internet to educate themselves as long as they remain open to physicians' suggestions. On the other hand, they consider patients who make health decisions based solely on online materials and disregard physicians' suggestions to be particularly challenging.^{12,13} Physicians are commonly concerned about the quality of internet information and believe online searches can make their patients more confused and worried about their health.¹⁴ Considering the perspectives of the two parties, patients have an interest in receiving physicians' opinions or interpretations of their internet information, while physicians may not be as resistant to engaging with internet-informed patients, provided that the patients are open to their suggestions. The viewpoints of both groups indicate that physicians have the potential to positively contribute to addressing patients' inappropriate use of online material if the patients are willing to share and remain open to physicians' suggestions.

In response to patients' internet information brought to medical consultations, several empirical studies have identified physicians' communicative strategies.¹⁵ Researchers have specifically termed a group of communication actions as the participative strategy, which includes physicians seeking to understand patients' emotional needs, building ongoing relationships with them, instructing patients on appropriate internet use, and jointly examining internet information with patients.^{16,17} A study based on audio recordings of real-life consultations demonstrated that adopting a participative strategy encouraged patients to express their concerns about the information they found and to continue asking for further explanations of their online information.⁹ Although the study did not observe whether patients' beliefs had changed after communication with physicians, the ongoing discussion and information exchange between patients and physicians emerged as a consequence of the participative communication strategy. Notably, the communication actions characterized in the participative strategy are reminiscent of a prior communicative approach - patient-centered communication (PCC) - which also emphasizes understanding patients' emotional needs and encouraging proactive participation in healthcare.^{18,19}

Patient-centered communication, an essential aspect of patient-centered healthcare, has been widely advocated in health sectors over the past two decades. PCC encompasses three core values: 1) understanding patients' perspectives, such as their emotional needs and expectations; 2) providing patients with opportunities to offer input into and participate in healthcare; and 3) establishing a partnership-like relationship between patients and physicians.²⁰ Evidence has shown that PCC contributes to better health outcomes and influences various patient health behaviors, such as seeking health information, adhering to medication, and maintaining a healthy diet and physical exercise.^{21,22} Additionally, PCC promotes patients' trust in their physicians and leads to more satisfying physician-patient relationships.²³ Improved trust and satisfaction in physicians can foster a strong relationship between patients and their physicians.

However, debunking patients' misconceptions can be a complex task. IMPs may not only lack health knowledge but their misbeliefs may also be caused by confirmation bias.²⁴ In such cases, PCC may not be an adequate strategy for physicians to persuade patients to change their beliefs. Moreover, PCC emphasizes shared power and decision-making between physicians and patients. In the case of internet-misinformed patients, striking a balance between considering patients' preferences and protecting them from the harm of their misconception can be particularly challenging for physicians who wish to adopt PCC with IMPs. Therefore, this study aims to understand "Which communicative strategies do physicians use to tackle IMPs?" (RQ1) and explore "How physicians' communicative strategies are related to PCC" (RQ2).

Material and Methods

Sampling

This study's participants will include physicians from various specialties. The sample will comprise approximately 10 to 15 physicians and will be diverse in terms of age, gender, and specialty. We plan to involve physicians from China, Italy and Italian-speaking regions in Switzerland in this study. The interviews will be conducted in English, Chinese, or Italian, depending on the physicians' preferences. The principal investigator, who is a native Chinese speaker and fluent in English, will lead interviews when physicians choose to be interviewed in Chinese or English. Meanwhile, a research assistant who is a native Italian speaker with training and experience in conducting interview studies will lead interviews in Italian if the physician decides to be interviewed in that language. This strategy enables us to gain insightful information from physicians from various cultural and linguistic backgrounds. Recruitment will be conducted through multiple methods, such as contacting acquaintances and requesting healthcare professionals and researchers to disseminate invitations to physicians with whom they have collaborated. Prior to the interviews, a link to a brief survey inquiring about participants' basic information, including their specialties and sociodemographic details, as well as a consent form, will be distributed.

Semi-Structured Interviews

Physicians will be interviewed in person or online using video conferencing software programs such as Zoom or Tencent Meeting (a Chinese program equivalent to Zoom). Each interview is anticipated to last between twenty minutes and one hour, contingent upon the participants' level of engagement. The interviews will be semi-structured, guided by a pre-designed interview outline to facilitate the conversations. Interviews will be recorded using either video or audio. Upon completing the interview, participants will receive a transcript, which they are free to edit or, if they choose, withdraw from the study entirely. The interview guide includes the following questions, prompts, and example follow-up questions, with prompts provided only when participants express uncertainties regarding the question:

Interview warm-up question: Could you describe your typical day as a physician?

Interview questions related to the research topic:

- 1) What are your experiences with patients who seek medical information on the Internet?
 - a. Prompt: Patients seek information about their diseases.
 - b. Example follow-up question: Is it common for patients to bring internet information to you?
- 2) Can you provide a specific example of a medical visit during which a patient presented online information?
 - a. Prompts: Information on social media or websites.
 - b. Example follow-up question: Are there any cases where you found their information misleading and should not be applied to their conditions?
- 3) How did you address patients' misconceptions that they acquired from the Internet?
 - a. Prompts: Your responses/reactions to them.
 - b. Example follow-up question: Are there any strategies you have found most effective in clarifying patients' misconceptions, and why?
- 4) In today's healthcare landscape, considering patients' preferences is advocated. As a physician, however, you may sometimes need to inform patients that their online information is incorrect. How do you balance respecting patients' preferences and correcting their misconceptions?
 - b. Example follow-up question: Have you ever asked them why they seek information online?
- 5) What are the obstacles in making medical decisions with internet-misinformed patients?
 - a. Prompts: Deciding which therapy or treatment to take.
 - b. Example follow-up question: Do you think that physicians should take more control in decision-making when patients are misinformed by internet information?
- 6) Could you describe your vision of an ideal relationship between you as a physician and patients misinformed by online sources?
 - a. Prompts: Trust and communication between you and patients.

Reflexivity

The principal researcher for this study is a second-year Ph.D. student specializing in health communication. With a background in nursing, she has gained valuable experience working as a nurse in a tertiary hospital in China. After completing her master's degree in health communication in Switzerland, she embarked on her Ph.D. program focusing on patient-provider communication. She is well-acquainted with the hospital environment, having worked closely with healthcare professionals and patients. Her social networks with healthcare professionals enable her to access a diverse range of physicians. She underwent comprehensive training in interview techniques and data analysis to address potential bias resulting from the lead researcher's limited experience in qualitative studies. Moreover, experienced senior researchers will provide close supervision throughout the study. The lead researcher's prior work includes studies examining patient-centered healthcare, health information behavior, and the impacts of social capital on health outcomes. Having successfully applied thematic analysis in her previous research, she will utilize this method in the current study.

Analysis

Data will be analyzed using thematic analysis, employing a general inductive approach supported by Atlas.ti software. The thematic analysis will be conducted in six steps to ensure a rigorous and comprehensive examination of the data.²⁵

1. Familiarization: The researchers will transcribe and familiarize themselves with the transcripts, gaining familiarity and a deeper understanding of the content.
2. Initial coding: Potential codes related to the research questions will be identified, serving as the foundation for further theme development.
3. Theme generation: All identified codes will be organized according to their similarities and overlaps, generating potential themes.
4. Theme review: Themes will be reviewed by cross-checking initial codes to ensure appropriate meaning representation. Additionally, the coherence of the overall pattern arising from the data will be checked by comparing the themes against one another.
5. Theme naming: All themes will be assigned names that appropriately convey their meaning and significance within the study.
6. Reporting results: Detailed descriptions of each theme will be provided in the text, supported by relevant quotations, to address the study's research questions.

Throughout the analysis process, an iterative approach will be applied. Intensive discussions among all authors will be conducted to verify the identification and interpretation of codes and themes, ensuring a rigorous analysis.

Patient and Public Involvement

This study does not involve direct participation from patients or the general public. However, the findings will be disseminated through reputable scientific journals. Furthermore, the study results will be presented at academic conferences and to physicians who express interest in gaining a deeper understanding of the research.²⁶

Ethical Considerations

The Università della Svizzera Italiana Ethics Committee granted ethical approval (CE202312) for this multi-center study on May 31, 2023.

Discussion

The inappropriate use of internet information and its impact on public health is of significant concern. Although attention has been closely devoted to media platforms and health campaigns aimed at disseminating health knowledge and clarifying misleading information to the public, the role of physicians in tackling the misuse of online materials has been proposed by scholars but not yet empirically studied. Therefore, the current study focuses on physicians and

identifies the communicative strategies they employ to address patients' misconceptions arising from internet searches and explores the applicability of the patient-centered communication approach.

As a result of the widespread use of online materials among patients, physicians are increasingly encountering patients who bring internet-sourced information to their consultations. Unlike health campaigns or education programs, physician–patient communication involves an interpersonal communication process in which patients' concerns and health beliefs can be expressed. Consequently, physicians can provide information tailored to patient's health conditions and address their unique information needs. Discussing online materials during medical consultations can present a unique opportunity for physicians to detect and address patients' misconceptions acquired online. However, engaging physicians in addressing patients' misconceptions within a clinical setting necessitates effective physician–patient communication. The communicative strategies physicians employ to tackle this issue are the focus of the current study. We aim to identify physicians' specific communication actions to deal with internet-misinformed patients and explore the connection between their communicative strategies and the patient-centered communication approach. This will allow us to observe the limitations and applicability of PCC in addressing the challenges posed by internet-misinformed patients.

The study results will serve as a foundation for future research on this topic, offering valuable insights for researchers to identify further effective clinical communication strategies to address the inappropriate use of internet information by patients. Our study results will also contribute to the growing body of evidence on patient-centered communication, highlighting its applicability and limitations in the era of digitally informed patients, where the internet plays an increasingly important role in shaping people's health beliefs and behaviors. This finding will inform policymakers and healthcare providers in implementing appropriate communication strategies beyond the traditional patient-centered communication approach.

Consent

Participants will only be interviewed after having them assigned the consent form. They reserve the right to withdraw from the study at their discretion at any given time.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors report no conflicts of interest in this work.

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