

Introduction to the special issue on emerging perspectives on health information needs

1. *The significance of health information needs*

The notion of “information needs” is a crucial concept in information behavior research and the broader information science field. It has also been one of the most debated concepts within the information science research community.

The theoretical exploration of this concept started with Taylor’s four levels of information needs (Taylor, 2015). It expanded to relevant concepts, including “anomalous state of knowledge” (Belkin, 1980) and “knowledge gap” (Dervin, 1983a, b). Information researchers have also built conceptual models of people’s information-seeking behaviors to articulate the significant role of information (Bates, 1989; Wilson, 1981, 1999; Cole, 2018). The investigation is still ongoing, as Savolainen (2017, p. 3) states that “even though information need is probably the most widely used construct explaining why people engage in information seeking, this concept is still vague.” While the concept of information needs is still vague, people worldwide face grave challenges to adequately assess and use the omnipresent digital information to meet their information needs.

Research has shown that people’s information needs highly depend on contexts such as time, location and individual persons’ specific situations (Talja *et al.*, 1999; Bouwman and Wijngaert, 2002), which subsequently impact people’s information behaviors to meet their highly contextualized information needs (Courtright, 2007). Hence, it is worthwhile to explore this concept in specific domains to understand how information needs could be manifested in relation to people’s information behaviors in more detailed contexts.

Healthcare is a significant domain where people’s information needs related to health have been substantially investigated from diverse perspectives. The research on health information needs shows its multidisciplinary nature. For example, medical and health science researchers have examined patients’ health information needs with the purpose of improving patient outcomes. Further, health communication researchers have focused on how to effectively communicate health information to meet health information needs and foster positive health behaviors. The multidisciplinary nature of this concept makes it valuable for researchers from different disciplines to exchange their perspectives, which further facilitates the potential synergy across disciplinary boundaries to enrich the concept of health information needs.

This special issue was also inspired by the changing landscape of information technologies (e.g. social media, artificial intelligence (AI)), which have significantly shaped people’s health information needs and their subsequent health information behaviors. According to Johnson and Case (2012, p. 4), “individuals are being empowered to find the answers they need to solve their problems, in part through the explosive growth of health information technology.” Still, it should not be neglected, even if emerging technologies arise, that “[i]nformation relating to health can cover a number of different facets, each of which may be quite complicated in its own right” (Johnson and Case, 2012, p. 14). We believe it is time to reconsider health information needs under the backdrop of a range of emerging technologies and from the perspectives of multiple disciplines. Therefore, we sought submissions that contribute emerging perspectives to enrich the understanding of health information needs under the context of new information technologies.



2. Contributions in this special issue

The six research articles included in this special issue expand the research frontier of health information needs by incorporating perspectives from disciplines beyond information science, including medical science, public health, health communication and education research. This special issue covers a diversity of applied methodologies that comprehensively investigate people's health information needs and related information behaviors, from surveys and experiments to a systematic literature review and machine-learning-based approaches. Many authors have leveraged new datasets made available by emerging technologies in their investigation, such as data from social media platforms and e-health services. The contributions in this special issue are in line with [Julien and Fourie's \(2019, p. 697\)](#) vision on health information behavior research: "the biggest potential for future research lies in appropriate combinations of different methods of data collection and ongoing expansion of the disease conditions, participation groups and contexts we study."

Moreover, articles in this special issue have examined the health information needs of diverse populations around the world, including several high-risk, under-studied or under-represented groups such as hypertension patients, seniors and students with intellectual disabilities. Here, we provide an overview of this special issue by briefly summarizing the findings and contributions of each article.

With the growing number of Internet users worldwide ([The International Telecommunication Union, 2020](#)), people's health information needs may be inferred from their health-related discussions in online communities. Qian and Gui employed text mining methods to analyze health-related topics posted on two Chinese senior online communities for nearly a decade. They identified four major categories of health information needs expressed by Chinese seniors and some interesting patterns between these categories and medicine systems. They also found that the topic distribution stayed stable during the decade, indicating a balanced status of seniors' health information needs. This work is valuable by exploring new methods to understand people's health information needs and focusing on senior citizens in a developing country.

Health information needs can also be inferred from patients' consulting patterns. Wu, Xu and Fan analyzed the consultation cases from a major online health community from China. A list of 15 patterns emerged from their content analysis of these cases. For example, about one-quarter of the patients only take online health consultation, and 20% of the patients consult with their family members or friends and approach the online health community later. Also, patients often take multiple online consultations before and after consulting with doctors from medical institutions. Their analysis of the sequences of consulting with different information sources provides insights on how patients' health information needs arise and evolve. This work contributes new research evidence on the interplay between health information needs and health information behaviors in the context of online health consultation.

Investigations into patients' health information needs enable insights into everyday health information behavior and patients' management of chronic clinical conditions. Building on Wilson's macro-model of information-seeking behavior ([1981](#)), [Kostagiolas, Milkas, Kourouthanassis, Dimitriadis, Tsioufis, Tousoulis and Niakas](#) surveyed 111 hypertension patients to investigate if the satisfaction level of their health information needs is associated with successful management of their hypertension conditions. They found that patients whose health information needs were satisfied tend to control their condition better and identified that interpersonal relationships are a key information source that impacts their disease control outcomes. This article innovatively explores the relationship between the satisfaction of health information needs and the actual patient outcomes with concrete clinical data.

How health information is communicated may address people's potential health information needs, which could facilitate health behavior promotion in public health campaigns. Using a quasi-experiment survey design, Yang, Xu, Zhao and Zhu examined the effectiveness of different message framing and evidence type in promoting human papillomavirus (HPV) vaccination in China. They found that loss-framed messages lead to more favorable intentions toward HPV vaccination and the inclusion of statistical evidence leads to more explicit information needs. They also discuss how message framing and evidence types could impact people's health information needs and subsequent health information behavior. By focusing on the intersection of health communication and health information behavior, this article contributes to the undergoing public health research on how to transform abstract health information needs into concrete health practices.

When communicating health information to the general public, it is also important to examine what impacts people's adoption level of the communicated health information, which is a key aspect of consumers' health information behaviors. Wang and Sun leveraged publicly available social media data from the Chinese microblogging platform Sina Weibo and investigated if the specific characteristics of a piece of health information can be used to estimate the adoption level of such health information. They first identified 10 characteristics regarding information quality and source credibility of a selection of health-related posts on Weibo. Then, they trained machine learning models based on these characteristics to accurately predict Weibo users' "like" and "retweet" behaviors, which could indirectly imply the adoption levels of these health-related posts. This work generates practical implications for public health and health communication practitioners on how to structure their social media posts to successfully convey high-quality health information to meet people's health information needs.

Finally, in the investigation of people's health information needs, researchers should pay more attention to the under-represented groups in our society who often have special needs. Kharbat, Alshawabkeh and Woolsey conducted a comprehensive literature review on the use of AI in education settings to support students with intellectual disabilities, who often have chronic and comorbid health conditions. They identified the gaps in the existing literature and current AI-based solutions, upon which they propose an architecture that integrates the capabilities of different existing systems, techniques and tools to better support this student population. This work innovatively tackles students' health information needs with special needs from both education and health perspectives.

3. Acknowledgments

The authors want to thank all the authors who conducted important research in this area and submitted high-quality manuscripts to this special issue, as well as the reviewing team for their constructive feedback that helped the authors improve their manuscripts during the reviewing process. The authors are grateful to Dirk Lewandowski as the editor in chief and the production team of *Aslib Journal of Information Management* to bring these manuscripts into final publications.

The articles included in this special issue represent many emerging, multidisciplinary perspectives in the investigation of health information needs, as well as provide timely updates on both theoretical and applied research in this area in the context of emerging technologies. The authors hope the readers can find inspiration from these research endeavors and potentially develop new research ideas to further contribute to the area of health information needs.

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