
Assessing the Quality of Health Content on Arabic Digital Platforms: Insights from Healthcare Professionals and the Public

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Abstract. Fundamentally, human well-being serves as the bedrock upon which individuals can lead enriching lives and contribute positively to their communities and the global society. Most industries across the board employ social media to disseminate their offerings and facilitate customer engagement. This has also found its way into the healthcare sector, with numerous websites and social media platforms. These platforms host a wealth of health-related information and empower the public to seek out health insights that pique their interest. Given the vital nature of the healthcare sector, it becomes imperative to disseminate health information with censorship and ensure continuous monitoring and updates.

This study endeavors to explore the assessment of healthcare sector professionals, encompassing doctors, medical students, nurses, and other healthcare professionals. Additionally, it seeks to gauge the opinions of the public who frequent these online platforms. The evaluation was conducted based on various criteria derived from prior research, employing a questionnaire methodology to gather the necessary feedback. The outcomes of the evaluation yielded positive results in both participant categories. However, it is important to acknowledge that this evaluation does not include all healthcare platforms or all inquiries. This underscores the urgent need to establish controls, as stated in the study's concluding observations.

Keywords: health information, social media, websites, Arabic, GPTchat

Introduction

At its core, human health is the foundation on which individuals can lead fulfilling lives and make positive contributions to their communities and the world at large. Human health is of the highest importance as it directly affects the quality of life and general well-being of individuals. Maintaining good health is essential for several reasons, quality of life, productivity, economic impact, mental well-being, longevity, disease prevention, social connections, health care system, innovation, and creativity, global impact. Nowadays some of the most famous industries go to investment in digital platforms such as Facebook, Instagram, and YouTube as well as websites. Moreover, this trend does not exclude the health sector. The basis of a successful business is client satisfaction. User experience (UX) is a component of website development that influences client satisfaction to evaluate the service or product quality (Aleryani, 2023). Moreover, it can be used for any digital platform that interacts with the public. The customer's opinion is the cornerstone of the success of any content presented to the public. Social media provides an outlet to augment and enhance translational health communication strategies and efficient data spreading, in ways that allow the public to not only exploit relevant health information, but also create and share it (Stellefson et al., 2020).

User involvement has increased and become more quantifiable as a result of substantial advancements in social media platforms' common features today (such as likes, comments, and shares) (Sundar, 2012). According to earlier studies (Fredricks et al., 2004; Pugh et al., 2010), social media involvement is divided into a number of subcomponents, the most common of which are the three parts of cognitive, affective, and behavioral engagement. Affective engagement refers to the emotional reaction to the thing being engaged with, behavioral

engagement refers to the behaviors of engagement, and cognitive engagement refers to concentrated mental activity (Dessart, 2017).

Today's healthcare environment encourages the public to take an active role in managing their health. In this digital age, the public tends to manage their health information through the Internet and consider it a valid source of health advice (Tao et al., 2017). However, the quality of information on health websites is highly variable and dynamic. Little is known about the understandings and perceptions obtained regarding the quality of information on health websites used for health care-related purposes.

Consumer health informatics has always placed a strong emphasis on the critical evaluation of online health information. However, the problem has gained new urgency and dimension as a result of the introduction of new online media platforms and the widespread use of social media. At the same time, many previous studies that aimed to evaluate information quality do not take into account user feedback, target information creators rather than users, and address information characteristics other than content.

In 2023 many social media channels, which provide chances for knowledge-sharing, professional growth, and patient communication, have become crucial in the healthcare industry. However, problems like patient privacy violations and unethical behavior continue to exist. Social media has changed medical education by presenting uncommon chances for networking and professional advancement. Research in healthcare and patient education are both heavily impacted by social media. Patient compliance and outcomes are substantially improved through platforms like WhatsApp. However, there are problems associated with the quick spread of fake information and news on social media sites (Jeyaraman et al., 2023).

The benefits of health websites for health professionals have been listed in the review study done by Rukavina et al. (2022). There are three main benefits of health websites on the e-professionalism of healthcare providers that have been identified; professional communication and collaboration, professional education and training, and patient education and health promotion (Rukavina et al., 2022).

Principles of the Quality of Health Information

There are many evaluation criteria for the quality of information on health websites (Tao et al. 2017; Haghi et al., 2017) for example (1) source credibility where many visitors appreciate health websites associated with recognized health institutions, and universities, or healthcare organizations, (2) information credibility where visitors often appreciate health websites that contain appropriate references or citations, (3) user-friendly presentation, visitors prefer websites that present information in a clear, concise, and easy-to-understand manner, health terms and complex terminology should be explained to enhance user understanding, (4) balanced and comprehensive content where many users appreciate health websites that offer a balanced view of health topics, covering both potential benefits and risks, (5) current and updated information, visitors expect health websites to provide up-to-date information that reflects the latest health developments, research findings, and treatment options, (6) user engagement and interaction, some users appreciate the interactive features such as quizzes, self-assessment tools, and forums where they can interact with experts and fellow users, (7) privacy and data security, visitors are concerned about their privacy and the security of their personal health information, (8) experience and authorship, users value transparency about the qualifications of content authors and contributors, (9) avoid overpromotion or prejudice, users may be wary of websites that overly promote certain products, treatments, or services.

Health Websites & Social Media Platforms

Social media is broad and constantly evolving. The term generally refers to Internet-based tools that allow individuals and communities to gather and communicate; share

information, ideas, personal messages, images, and other content; and, in some cases, to collaborate with other users in real-time (Ventola, 2014; Coletti et al., 2022). They may include blogs, social networks, video and photo-sharing sites, wikis, or other media. Social networking (Facebook, MySpace, Google Plus, Twitter), Professional networking (LinkedIn), and Media sharing (YouTube, Flickr) (Lambert et al., 201). People are seeking ways to retrieve information on their health in an innovative way by looking online for information to decide whether or not to visit a doctor. Searching for health information on the Internet is always easy and convenient. However, the evaluation of the quality of health websites is the main issue since the literature on this topic is not as robust as we would like to see (Boon-itt, 2019).

Health websites and social media provide health care professionals, with tools to share information, debate health care policy and practice issues, promote health behaviors, engage with the public, and educate and interact with patients, caregivers, students, and colleagues (Ventola, 2014; Bernhardt et al., 2014; Sarantis & Sá Soares 2017). In their study, (Farsi et al., 2022) concluded that patients and the public can use social media to increase their knowledge and quality of life. To evaluate the reliability of the information collected and its source, however, due diligence must be used. Healthcare professionals, patients, and the public should be aware of the dangers of using social media. It is important to comprehend the restrictions and drawbacks associated with patient social media use (Farsi et al., 2022).

Using information on health-related websites increasingly develops and some concerns about its quality arise as well. Different factors affect the quality of health website's visual structure is one of the most important factors. Ventola (2014) listed the dangers of information on social media for example, poor quality of information, damage to professional image, breaches of patient privacy, violation of the patient-boundary, licensing and legal issues (Ventola, 2014). Five dimensions of information quality for health websites were identified: completeness of information, understandability of information, relevance of information, depth of information, and accuracy of information (Tao et al., 2017).

Regarding the "gray" trend in social media, most researchers have studied the acceptance status of health-related social media (HRSM) and usage behavior in middle-aged and older people, they explored the role of HRSM in this group. However, the continuous participation of users is the key to the successful operation of HRM and is a prerequisite for the subsequent behavioral habits of HRM of middle-aged and elderly people (Cao et al., 2022).

Haghi et al. (2017) study aims to explain the role of health websites' visual structure in users' views on their quality and reliability as well as its role in obtaining health information by users. Furthermore, the need for a comprehensive guideline for designing such websites is discussed. The review showed that a health website's appearance has an important role in users' view of its credibility (Haghi et al., 2017).

Health Information & Artificial Intelligence

Artificial intelligence (AI) technologies have made significant strides recently and are now pervasive in many aspects of our daily life. Many efforts are being undertaken in the field of healthcare to use AI technology into effective medical therapies. Artificial intelligence (AI) technology is anticipated to play a significant role in the efficient analysis and utilization of significant amounts of health and medical data due to the rapid advancements in machine learning algorithms and increases in hardware performance. However, compared to current healthcare technologies, AI technology has certain distinct features. The current healthcare system must be supplemented in a number of areas in order to employ AI in healthcare more successfully and iteratively. There are numerous worries about the security and dependability of AI technology applications, and both the public and medical professionals are still reluctant to accept AI in healthcare. As a result, the purpose of this essay is to explore the problems that

still need to be resolved while also presenting the state of current AI research and application in the healthcare industry (Park et al., 2020).

The uses of artificial intelligence (AI) in medicine have been growing in many areas, a chatbot consists of two main components: a general-purpose AI system and a chat interface (Lee et al., 2023). A ChatGPT-4 is a system with a chat interface, it is widely available and in active development by OpenAI, an AI research and deployment company. A ChatGPT-4 is a new natural language chatbot utility developed by OpenAI and recently released for research testing.

Literature Review

The previous studies reviewed have been helpful in clarifying how health information is spread in social media, and identifying the positive and negative impacts (Viviani & Pasi, 2017). (Shim & Sug, 2020) study sought to investigate how user satisfaction and perceived advantages are influenced by the information quality, system quality, and service quality of health information sites using the updated DeLone and McLean Model of Information Systems Success. Information quality is one of the three quality components, significantly correlated with each of the three outcome variables—user happiness, intention to return to the site, and perceived advantages of site use in healthcare contexts. Indirect pathways from information quality to perceived advantages also existed; one was mediated by intention, and the other by satisfaction and then intention (Shim, & Sug, 2020).

Aleryani (2020) concluded in her study, that user experience (UX) can play a major role in gaining users' satisfaction by understanding their inquiries and needs when visiting websites including health websites. Their satisfaction depended on easy-to-understand and well-organized as well as trusted content (Aleryani, 2020). On the other hand, Pulido et al. (2020) studied fake news in public health initiatives, their findings provide insights into the way in which public health initiatives can support the presence and interactions of evidence as an effective strategy to combat fake news (Pulido et al., 2020). The purposes of the formative study by Keselman et al. (2019) were to create a methodological framework for analyzing health-related web sites and apply it to a group of pertinent web pages. Their findings demonstrate that the websites about natural diabetes treatment that were examined in this study proposed a number of reversal methods and differed significantly in terms of their alignment with recommendations from the accepted standard of care, promises, levels of certainty, authors' backgrounds, transparency of sources, rhetoric, style, and attitude toward the pharmaceutical and medical establishment (Keselman et al., 2019).

Early study by Marshall and Williams (2006) investigated whether and how health information consumers evaluate the quality of material available in print and online formats as one facet of informational literacy. In the North East of Scotland, a total of 32 members of patient support groups were enlisted to take part in information review groups, a variation on focus groups where discussion centered on a variety of health information resources. Analyses of the data showed that participants evaluated quality in 15 different ways. Organizational authority and the use of simple language were considered to be the two most crucial quality factors. They did not come across many clues to knowledge backed by evidence. Participants lacked confidence in their capacity to choose accurate health information when pre-selected by trustworthy sources (Marshall & Williams, 2006).

Enhanced communication, the freedom to express oneself, staying updated on current trends and news, and promotional opportunities are just a few of the reasons why the majority of individuals utilize social media. Healthcare professionals, including physicians, should leverage these platforms for their professional purposes. Moreover, Barreto and Whitehair (2017) indicated in their study that physicians actively dedicate an average of 2-4 hours per week to engaging with professional networking sites. There exists a wealth of guidelines

tailored for medical practitioners concerning the appropriate use of social media in their profession. These guidelines cover various aspects, such as the timing of posts, the content to be shared, and strategies for managing one's online reputation. Additionally, they explore the benefits and potential challenges of social media use, including techniques for engaging with followers and addressing negative comments and reviews (Barreto & Whitehair, 2017).

According to the findings of Antheunis et al. (2013) study, patients mostly used Facebook (52.3%) and Twitter (59.9%), particularly for social support and advice-exchanging and knowledge-expansion. For networking and marketing purposes, professionals predominantly used Twitter (51.2%) and LinkedIn (70.7%). Privacy issues and the veracity of the material were the biggest deterrents to patient usage of social media. Inefficiency and a lack of expertise were the main obstacles for professionals. If people have the option to select when they use social media, both patients and professionals anticipate future social media usage (Antheunis et al., 2013).

In their study, Jeyaraman et al. (2023) note that social media, utilizing Web 2.0 technology, plays a crucial role in healthcare, medical education, and research by fostering collaboration and facilitating research dissemination. Concerns regarding inaccurate information and content quality persist despite the fact that healthcare practitioners are embracing these platforms to increase public health literacy (Jeyaraman et al., 2023).

Some research has focused on studying the uses of social media by doctors from specific specialties. The study of Salimy et al. (2023) confirmed that the increasing presence of social media in healthcare has provided doctors with new ways to engage with patients. The study singled out orthopedic foot and ankle surgeons, as it was found that they do not use social media platforms adequately, despite their known benefits for patients and surgeons. Therefore, this study sought to investigate the causes of this phenomenon and identify potential barriers to the use of social media in clinical practice. The results of the study showed that the investment of time and concerns about professionalism and confidentiality pose challenges to its use (Salimy et al., 2023).

Moreover, the study of Gantenbein et al. (2020) aims to investigate the patient's motivation, preferences, and unmet needs when searching dermatologists' websites and/or their digital platforms for health information. The results show that patients' top three unmet needs were "Online consultations", "Professional content on YouTube" and "Chat opportunities". Online search for health information is a very important topic for most dermatology patients but it may not be adequately addressed by dermatologists (Gantenbein, et al., 2020).

Arabic Health Content

The study of Alhajj et al. (2020) aimed to evaluate the quality and readability of health information available on health websites regarding denture hygiene. The results of the research were that most of the information related to dental health about dental hygiene available on Arab websites did not have the required level of quality, regardless of being readable and understandable by most of the public (Alhajj et al., 2020).

The study of Ghweeba et al. (2022) aims to understand the attitude of Egyptian internet users toward health websites and to explore the impact of obtained health information on users' behavior. The authors used qualitative study and semi structured interviews were conducted with a total of 49 participants. A thematic analysis approach has been used to explain and demonstrate participants' views. The results showed that the internet has become an important source of health information and is the central theme that has emerged across the thematic analysis. The attitude toward the use of health websites was classified into three main themes: feelings toward web-based health information, motivators to seek health websites, and behavioral changes using health information (Ghweeba et al., 2022).

The purpose of the study of Halboub et al. (2021) was to evaluate the accuracy and usability of Arabic health information found on the COVID-19 website. Almost all of the most widely available Arabic health information on the internet, regardless of how easy it is to read and understand for the majority of Arabic speakers, does not fulfill established quality standards (Halboub et al., 2021).

Ali (2017) aimed in his research to find out the opinions of workers in the Jordanian Ministry of Health about the health information published on social websites such as Facebook. The results showed that the most attractive health subjects on health websites are weight loss, diet, fitness, food benefits, aesthetic medicine, health education, modern medical discoveries, and traditional Arabic medicine. Moreover, the most important subject is the improvement of health awareness (Ali, 2017).

The study of Bakaya (2022) aimed to evaluate the extent to which the Lattakia Hospitals website uses keywords and content compatible with search engines from the point of view of the clients of these hospitals. The study concluded that hospitals do not use keywords on their websites in a way that is compatible with search engines, so the result was different for the content. Therefore, the author recommended that the hospitals subject to the study should use their websites for the many tools provided by the search engine (Bakaya, 2022).

Methodology

This study used the principles of the survey technique to examine the multifaceted effects of the quality of health information found on social media platforms that are written in Arabic, as assessed by both healthcare professionals and the public. Two different question types—closed-ended and open-ended—were used in a structured questionnaire. The online survey questionnaire was structured into two sections. The first section was designed for healthcare experts, some of whom are creators of these websites, with the aim of understanding their perceptions of the quality of the information on health-related websites and their utilization of such websites in their professional careers, moreover, and their suggestions for enhancements. The second section was intended for all website public visitors, focusing on their reasons for visiting these platforms, their opinions on the information presented, and their suggestions for enhancements.

The benefit of a structured questionnaire is that responses will be preconceived in accordance with previously determined categories, resulting in homogeneous data and, as a result, in a well-organized data analysis (Jos & Befani, 2020). The purpose of the closed-ended questions, which allowed participants to select an answer from a limited number of possibilities, was to generate quantitative data. To complement the quantitative data, open-ended questions were used to collect respondents' viewpoints as well as their experiences and suggestions.

Research Problem

Research on the amount and quality of Arab health standards on the internet is scarce. Similar to prior assessments, the authors discovered that there are fewer articles on Arabic metrics than on English metrics. Despite this, it is reassuring to see that the number of publications seems to have been rising gradually over the past ten years (Albawardi et al., 2022). It's crucial to acknowledge that while some health websites receive positive feedback from visitors, there is also a risk of encountering misinformation or unreliable sources online. To make informed health decisions, visitors should exercise critical thinking and verify information from multiple trusted sources, especially for significant healthcare choices. Seeking guidance from healthcare professionals remains a vital component of managing one's health.

Some research studies focused on evaluation criteria of quality of information on health websites (Tao et al., 2017; Haghi et al., 2017). On the other hand, there are many review studies that aim to study the research conducted on evaluating health websites (Rukavina et al., 2022; Haghi et al., 2017).

However, the current research was concerned with knowing the evaluation and feedback of the beneficiaries of these websites that are written in Arabic. The current study targets health workers and the public. Moreover, this research aims to assess the quality, comprehensiveness, and clarity of health information presented to visitors in response to their inquiries. Additionally, through open-ended questions, the research seeks to determine their recommendations for enhancing the quality of these online resources. An open-ended question also investigates the early outcomes experienced by those who used chatGPT for health inquiries.

The research sample is drawn from the Yemeni community, which serves as a representative model for Arabic countries where healthcare services are often limited. This sample encompasses both healthcare professionals and the public from Yemeni society, allowing for an assessment of both groups' perspectives on health-related websites and platforms. This approach aims to gain a comprehensive understanding of the current state of these websites and platforms, ultimately facilitating recommendations for their enhancement and development. Finally, the goal is for these online resources to become effective tools for accessing valuable health information and raising health awareness for a healthy good life.

Data Analysis

Sample Description

The number of respondents in this study is 88 respondents. The percentage of employees of health institutions (doctor, pharmacist, nurse, medical student) is (34%), and the general number of visitors (Patient, Information Seeker) is (66%). The gender was as follows: females 80%, males 20%. A high percentage was for a university qualification and above (59%). Age varied between 35% (15-35 years) and 53% (36-55years), and finally 12%. (over 55 years).

Health Professionals

The category of health professionals in this study includes doctors, physician assistants, technicians, nurses, and medical students and its branches.

General questions

The overarching inquiries seek to determine the percentage of individuals within this group who possess health-related websites, as well as whether they derive advantages from these websites and if they endorse the benefits of using them.

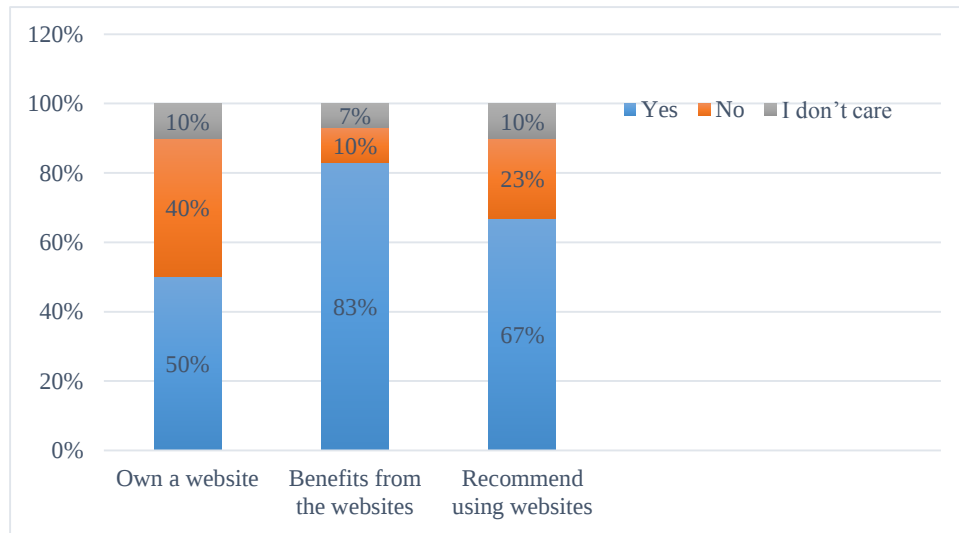


Figure 1. General Questions

Based on the provided chart, it can be observed that among the participants affiliated with health institutions, half of them (50%) possess websites on the Internet this is in line with Barreto and Whitehair (2017). In contrast, 40% of participants do not possess websites, and 10% expressed no interest in owning one. In relation to the question regarding the utility of health websites, a significant majority (83%) of participants responded positively and that is what Rukavina et al. (2022) have recommended in their review study, affirming that they do benefit from such websites. Conversely, a smaller proportion (10%) answered negatively. Additionally, a substantial percentage (67%) of participants indicated that they endorse the utilization of these health websites, while a smaller portion (23%) did not offer a recommendation for their use.

Health Professionals' Evaluations

Healthcare professionals in this study assessed information quality on the internet based on established standards, which were derived from previous research, as detailed in the preceding studies section.

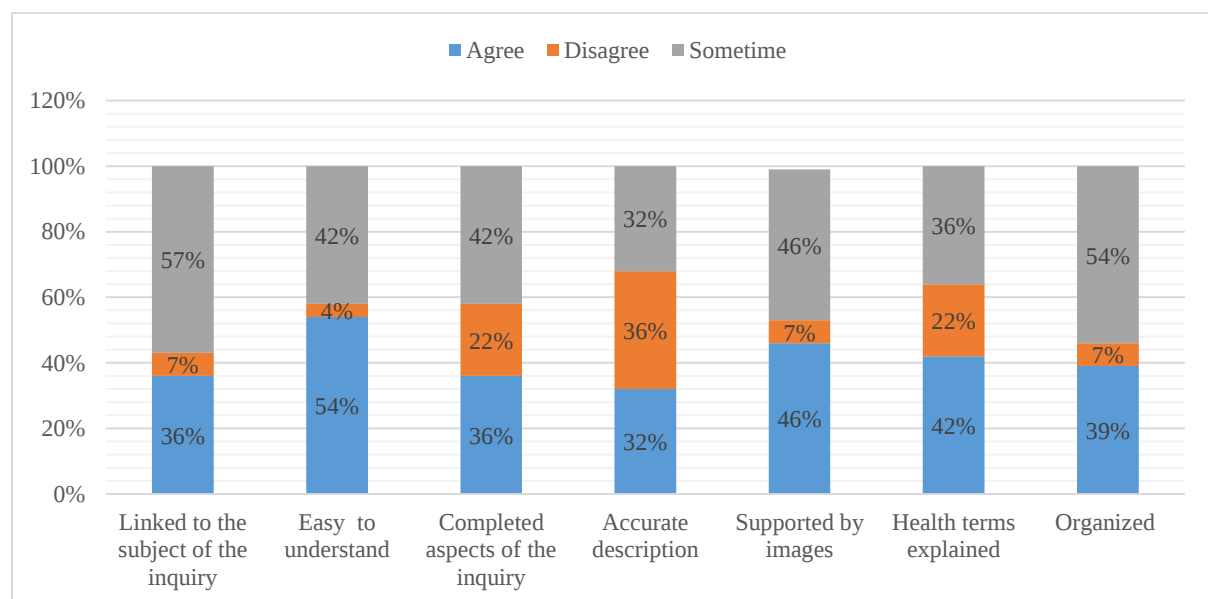


Figure 2. Health professionals' evaluations

Based on the information presented in the graph, it can be concluded that the evaluation of the websites by health professionals was carried out using different criteria such as (linked to the subject of the inquiry, easy to understand, completed aspects of the inquiry, accurate description, supported by images, health terms explained). While all the criteria received more approval than disagreement, a significant portion of the evaluation expressed doubt or uncertainty, with the choice of 'sometimes'. With regard to its relevance to the subject matter of the inquiry, the majority of respondents (57%) chose the word "sometimes" as their choice, indicating that the importance of the information was not always clear. On the other hand, 54% of the participants agreed that the information was easy to understand, but a large percentage, 42%, did not agree with this statement. Regarding completing information related to the aspects of the inquiry, the option "Sometimes" was the most common, as 42% of the respondents chose it. About the accuracy of the information provided, the answers were distributed equally between "I agree" (32%), "Disagree" (36%), and "Sometimes" (32%). When asked about including images to support the information, the choices were split equally between 'I agree' and 'sometimes', each receiving 46% of the answers. In relation to the explanation of terms used to describe diseases or symptoms, 42% of the participants reported that these terms were sufficiently explained, while 22% found them not sufficiently explained. Finally, in terms of organizing the narration of information, the largest percentage (54%) indicated that the organization was not always consistent, as they chose "Sometimes", while 39% agreed that the information was well organized.

The majority of healthcare experts involved in this survey concurred that the quality standards of health information found on these websites are generally satisfactory. However, they emphasized that this assessment doesn't apply uniformly across all websites. This underscores the importance of educating website owners on how to effectively manage and disseminate health information on their platforms while adhering to high-quality health information standards. It also highlights the significance of website owners comprehending the benefits and consequences of their health information on the awareness and well-being of their users. These findings align with the recommendations outlined in the 2022 review study by Rukavina et al. (2021).

Open Ended Questions

Q1: What do you suggest to improve the quality of health websites?

In this study, most recommendations put forth by healthcare professionals settings center around key considerations for enhancing the quality and reliability of health websites. Primarily, there is an emphasis on the imperative of obtaining approval from pertinent regulatory authorities, and this is agreed with the review study (Jia et al., 2021), with a corollary requirement for these websites to attain accreditation from recognized bodies. This accreditation process serves as a means to discern trustworthy platforms from those lacking reliability. Furthermore, an underlying consensus underscores the importance of grounding the information disseminated on these websites within robust research studies. It is strongly advocated that the content be continually updated to reflect the most current medical knowledge. Specifically, a notable recommendation advises against the inclusion of advertisements, particularly those pertaining to unauthorized medical products. In the realm of content focus, a suggestion has been posited to prioritize the dissemination of information related to common and seasonal diseases, thereby fostering greater awareness among society's members.

Q2: Have you used A ChatGPT-4 for health inquiry? If yes, how would you evaluate the responses you got?

This question is divided into two parts, the first is a choice between "yes" and "no", and the second is open for explanation in the case of the "yes" option. Regarding the inquiry

regarding the utilization of ChatGPT for health-related queries, responses have exhibited a range of experiences. Some users have engaged with the system and found the responses to be relatively inaccurate and succinct. Conversely, others have reported highly positive experiences, characterizing their interactions with ChatGPT as exceptional.

Public Visitors

In this study, public visitors mean all members of society who visit these sites, including patients and those searching for health information.

Reasons of visiting health websites

There are several reasons why individuals visit health websites as shown in the figure below.

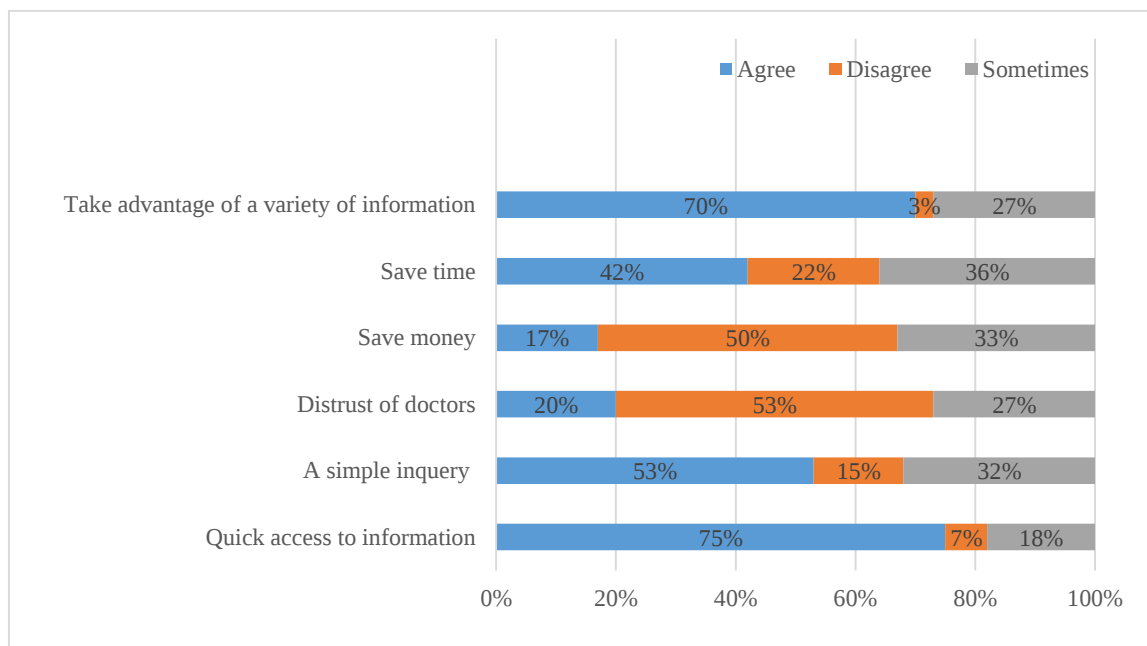


Figure 3. Reasons of visiting health websites

The second segment of the survey targeted a broad spectrum of respondents, encompassing both patients and individuals seeking health information. Our survey was initiated with the primary objective of discerning the motivations behind their visits to health websites, guided by specific criteria derived from prior research. Upon analysis of the data presented in the chart, it becomes evident that the predominant motivations for these visits are multifaceted. Notably, 70% of respondents concurred that they seek such websites primarily to acquire a diverse array of information related to specific health inquiries. Additionally, a substantial 75% of respondents indicated that their principal motivation is the expeditious access to information. Conversely, the factor of "save money" did not appear to be a compelling motive among the respondents, with a noteworthy 50% expressing disagreement. In contrast, 42% of the surveyed individuals acknowledged the motivation to "save time." It is noteworthy to emphasize that the motivation of "distrust of doctors" did not resonate significantly, as 53% of respondents explicitly rejected it as a motivating factor. Instead, a considerable 75% of participants affirmed that their primary objective is to ascertain the underlying causes of health conditions that do not necessarily warrant a physical visit to a healthcare practitioner.

Public visitors' evaluations

Public visitors' ratings also had the same criteria as those for health professionals, and unreliable was added, which was not included in the health professionals' rating as they are more experienced with this information.

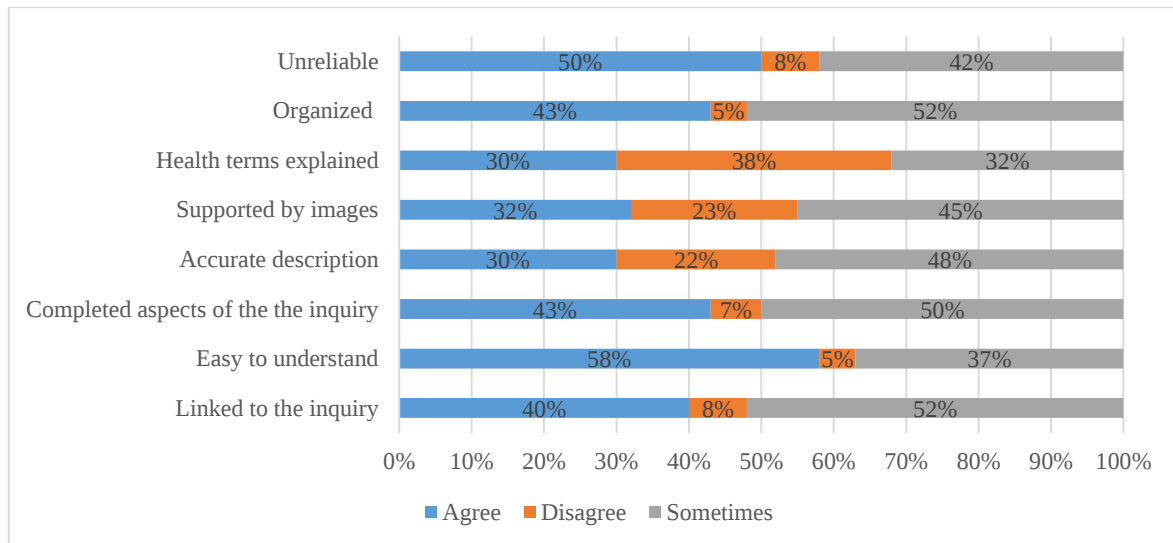


Figure 4. Visitors' evaluations

The assessment of health website visitors' experiences was conducted through a multi-faceted evaluation encompassing various criteria. As depicted in the chart provided, it is observed that respondents perceive the information they obtain in response to their inquiries as being pertinent to the subject matter at a rate of 40%, although a notable majority (52%) indicated that this relevance is achieved only sometimes. Additionally, a significant portion of respondents (58%) find the information relatively comprehensible, while a substantial proportion (50%) believe it is not consistently comprehensible.

Regarding the accuracy of the information, opinions are split, with 30% expressing agreement, 22% dissenting, and 48% occasionally. Notably, a majority of respondents (68%) believe that these websites do not consistently provide visual aids to support their responses, as indicated by the combined responses of "no" (23%) and "sometimes" (45%). A similar distribution is observed concerning the provision of explanations for medical terms, with 30% affirming, 23% denying, and 45% occasionally receiving such clarifications.

In terms of the organization of information received in response to inquiries, 43% of respondents confirm that it is structured, while a larger proportion (52%) find it lacking in organization. Notably, 50% of respondents approach the information with some degree of skepticism, expressing incomplete confidence, while 42% assert that they do not consistently trust the information they receive in response to their inquiries. The results of this chart were consistent with multiple studies (Viviani & Pasi, 2017; Shim & Sug, 2020) indicating that there is a positive evaluation for all evaluation criteria, but this is not the case for all health websites and/or all inquiries.

The Preferred Platform

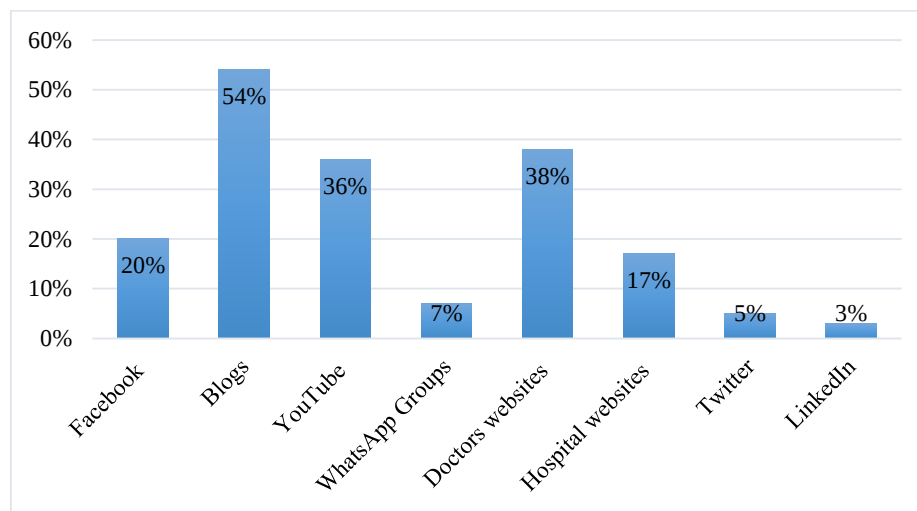


Figure 5. Preferred Platforms

Several platforms were provided to identify participants' preferences, including health pages on Facebook, health blogs, health WhatsApp groups, and websites of doctors and hospitals. It is noted from the respondents' choices that the majority (54%) prefer medical blogs, followed by doctors' websites (38%), and YouTube channels (36%). The respondents did not show interest in health information on Twitter or LinkedIn, and this is contrary to what was stated in the study of Antheunis et al. (2013), whose results showed that users prefer Facebook (52.3%) and Twitter (59.9%), and LinkedIn (70.7%) regarding social support, exchanging health advice, and expanding knowledge.

Open Ended Questions

Q1: Have you ever been affected by information that you followed from medical sites on social media? If yes how?

The question is divided into two parts, the first is a choice between "yes" and "no", and the second is open for explanation in the case of the "yes" option. The specific question about whether the respondent was harmed by the application of some health advice on these sites, the majority reported that he was not actually harmed (95%) however, searching on these sites is a waste of time, in addition to exaggerating the diagnoses of the symptoms whose cause is inquired.

Q2: What do you suggest to improve the quality of health websites?

Visitors to health websites subject to this study made several proposals to improve these websites. Some prefer to be more accurate and summarized, and there is no need for prolongation. Some suggest that it be under medical supervision and from reliable sources so that the information is updated first. Some objected to the presence of advertisements as well as to the scientific narration, which is not easy to understand by the average visitor. Some suggested that these sites contain the possibility of evaluation by visitors by giving a degree of evaluation or opinions so that the new visitor can know the credibility of the site. Some object that the symptoms whose causes are to be known are linked to several diseases, and this causes the visitor to not know the cause of the most likely symptoms.

Q3: Have you used A ChatGPT for health inquiry? If yes, how would you evaluate the responses you got?

The question is divided into two parts, the first is a choice between "yes" and "no", and the second is open for explanation in the case of the "yes" option. The question related to using

the ChatGPT application for health inquiries, (93%) did not use it. As for the small group that used it, their experience was good.

Conclusion & Discussion

In contemporary society, information accessibility has undergone a transformation, with vast amounts of data readily accessible through digital interfaces. This phenomenon has been characterized as the "Information Revolution" or the "Information Age." When examining the realm of health-related information, a cautious and discerning approach becomes imperative, as the accuracy of information reaching individuals varies considerably, contingent upon the nature of their inquiries or health conditions. It is widely acknowledged that symptoms are multifaceted and often necessitate medical examination for a precise diagnosis by qualified healthcare professionals.

Nevertheless, the proliferation of health-related websites on the internet mirrors the trend seen in other domains. These websites encompass diverse types and methodologies, including platforms offering reviews of health information pertaining to specific diseases or symptoms, as well as facilitating online consultations and inquiries with healthcare practitioners.

This research endeavor aims to evaluate health websites written in Arabic according to several criteria, soliciting feedback from both healthcare professionals and the public. The findings of this study reveal a significant presence of doctors who operate health-related websites. This phenomenon holds the potential to enhance health awareness, expedite healthcare delivery, and foster the dissemination of medical knowledge. However, there is mounting concern regarding the necessity to establish and enforce standards for these websites to ensure their accuracy and regular updates. This recommendation is reinforced by feedback from visitors to health websites, emphasizing the need for widespread access to these platforms due to their extensive use by healthcare professionals.

Conversely, the survey results indicate that not all health websites meet the expectations of healthcare institution employees, with the "sometimes" option prevailing across most evaluation criteria. This outcome carries significance, as it reflects the perspectives of healthcare professionals, which should be taken into account when formulating measures to enhance and elevate the quality of health websites.

Additionally, the results confirm that individuals visit health websites for a variety of reasons, including information retrieval and rapid responses to health-related concerns. Some believe that these websites can satisfy their knowledge needs in matters that do not necessitate an in-person doctor's visit. Consequently, it is imperative to recognize these websites as knowledge sources deserving significant attention from relevant authorities.

Public evaluations of these websites are not overwhelmingly favorable, despite a majority of respondents agreeing with the evaluation criteria. The majority also expressed skepticism regarding the consistent application of these criteria, suggesting that they may be met only sporadically, perhaps contingent upon specific health inquiries or websites. The respondents did not extend strong support to the extent that would designate these websites as entirely reliable sources of information, underscoring the importance of factors such as confidence levels and other criteria that must garner robust endorsement from respondents.

Both healthcare professionals and the public concur that these websites should be subject to oversight by official authorities, guaranteeing the integrity and currency of the information provided. Furthermore, some individuals emphasize the need for these websites to serve as platforms for disseminating awareness about common diseases in society, promoting the principle of prevention over treatment. In order to monitor and control these vital websites that affect the health of society, each website owner must determine their actual location (the country whose laws belong to it) obtain a license to create and display this content within the website. To handle potential risks and false information in social media and healthcare, quality

management and regulation are essential. Due to examples of mortality brought on by social media trends and the transmission of false and untrue news, stricter rules and monitoring are required (Jeyaraman et al., 2023).

In appreciation of the benefits of health websites, we recommend that health professionals be educated within their studies on how to use these websites to disseminate and share health information, which is consistent with standards of accuracy, updating, and other concepts of information quality, and this is what was recommended in the review study of Rukavina et al. (2022). We highly recommend and agree with Jia et al. (2021) that governments, health organizations, and health platforms should develop workable solutions to foster an open, secure, and vibrant online environment, ensure the accuracy and precision of online health information, and facilitate the easier, more effective, and more accessible search for health information.

Future Studies

Social media and websites related to health information need to play their vital role in supporting and participating with health professionals, as well as taking a serious role in supporting patients and providing accurate and up-to-date information in response to their inquiries. Therefore, further studies are proposed on the quality of health information for specialized fields (cardiology, digestive system, and others) that are written in Arabic, with the aim of improving these sources and providing appropriate mechanisms to enable visitors to benefit from them, as well as spreading health awareness among users. Other recommendations for future studies include verifying the efficiency of health websites that provide the chat service with a doctor and the extent to which the public benefits.

References

- Albawardi, M., Shaikh, Q., Alahaideb, W., Alamas, M., Aljasser, D., Alrasheed, L., Alsulaiman, S., & Alghannam, A. (2022). Development of the Arabic Health Measures database: a bibliometric analysis of Arabic health-related measures. *Health Res Policy Sys*, 20, 87. <https://doi.org/10.1186/s12961-022-00890-7>
- Aleryani, A. (2020). The Impact of the User Experience (UX) on the Quality of the Requirements Elicitation. *International Journal of Digital Information and Wireless Communications (IJDIWC)*, 10(1), 1-9. <http://sdiwc.net/ijdiwc/files/ijdiwc-print-101.pdf>
- Aleryani, A. (2023). The Effect of the Cultural Background on Client Satisfaction in the Context of Universal Website Development. *The International Journal of Business Management and Technology*, 7(1). <https://www.theijbmt.com/archive/0949/933939107.pdf>
- Alhajj, N., Mashyakhy, M., Ariffin, Z., Ab-Ghani, Z., Johari, Y., & Salim, N. S. (2020). Quality and Readability of Web-based Arabic Health Information on Denture Hygiene: An Infodemiology Study. *The Journal of Contemporary Dental Practice*, 21(9), 956–960.
- Ali, M. (2017). *The Role of The Facebook Network in Promoting Health Awareness Among The Public (A Survey From The Viewpoint Of Specialists In The Jordanian Ministry Of Health)*. Master's thesis in Mass Communication, Faculty of Mass Communication / Middle East University.
- Antheunis, M., Tate, K., & Nieboer, T. (2013). Patients' and health professionals' use of social media in health care: motives, barriers and expectations. *Patient Educ Couns.*, 92(3), 426-31. <https://doi.org/10.1016/j.pec.2013.06.020>
- Bakaya, G. (2022). Evaluating of the Optimization of Syrian Health Organizations' Websites in Search Engines (A Field study on Clients of Latakia Hospitals). *Journal of Hama University*, 5(5).

- Barreto, J.E. & Whitehair, C.L. (2017). Social Media and Web Presence for Patients and Professionals: Evolving Trends and Implications for Practice. *PM&R*, 9(5S), S98-S105. <https://doi.org/10.1016/j.pmrj.2017.02.012>.
- Bernhardt, J. M., Alber, J., & Gold, R. S. (2014). A social media primer for professionals: digital dos and don'ts. *Health Promotion Practice*, 15(2), 168–172. <https://doi.org/10.1177/1524839913517235>
- Boon-itt, S. (2019). Quality of health websites and their influence on perceived usefulness, trust and intention to use: an analysis from Thailand. *Journal of Innovation and Entrepreneurship*, 8, 4. <https://doi.org/10.1186/s13731-018-0100-9>
- Cao, C., Li, D., Xu, Q., & Shao, X. (2022). Motivational Influences Affecting Middle-Aged and Elderly Users' Participation Intention in Health-Related Social Media. *International Journal of Environmental Research and Public Health*, 19(18), 11240. <https://doi.org/10.3390/ijerph191811240>
- Coletti, A., McGloin, R., Oeldorf-Hirsch, A., & Hamlin, E. (2022). Science communication on social media: Examining cross-platform behavioral engagement. *The Journal of Social Media in Society*, 11(2), 236-263. <https://thejsms.org/index.php/JSMS/article/view/995/601>
- Dessart, L. (2017). Social media engagement: a model of antecedents and relational outcomes. *Journal of Marketing Management*, 33(5-6), 375-399. <https://doi.org/10.1080/0267257X.2017.1302975>
- Farsi, D., Martinez-Menchaca, H. R., Ahmed, M., & Farsi, N. (2022). Social Media and Health Care (Part II): Narrative Review of Social Media Use by Patients. *Journal of medical Internet research*, 24(1), e30379. <https://doi.org/10.2196/30379>
- Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*, 74(1), 59-109. <https://doi.org/10.3102/00346543074001059>
- Gantenbein, L., Navarini, A., Maul, V., Brandt, O., & Mueller, M. (2020). Internet and social media use in dermatology patients: Search behavior and impact on patient-physician relationship. *Dermatol. Ther.*, 33, e14098. <https://doi.org/10.1111/dth.14098>
- Ghweeba, M., Lindenmeyer, A., Shishi, S., Waheed, A., Kofi, M., & Amer, S. (2022). The Attitudes of Egyptian Web-Based Health Information Seekers Toward Health Information Provided Through the Internet: Qualitative Study. *JMIR Formative Research*, 6(2), e30108. <https://doi.org/10.2196/30108>
- Haghi, S., Moghaddasi, H., Rabiei, R., & Asadi, F. (2017). Health websites visual structure: the necessity of developing a comprehensive design guideline. *Journal of Paramedical Sciences (JPS)*, 8(4).
- Halboub, E., Al-Ak'hali, M.S., Al-Mekhlafi, H., & Alhajj, N. (2021). Quality and readability of web-based Arabic health information on COVID-19: an infodemiological study. *BMC Public Health*, 21, 151. <https://doi.org/10.1186/s12889-021-10218-9>
- Jeyaraman, M., Ramasubramanian, S., Kumar, S., Jeyaraman, N., Selvaraj, P., Nallakumarasamy, A., Bondili, S. K., & Yadav, S. (2023). Multifaceted Role of Social Media in Healthcare: Opportunities, Challenges, and the Need for Quality Control. *Cureus*, 15(5), e39111. <https://doi.org/10.7759/cureus.39111>
- Jia, X., Pang, Y., & Liu, L.S. (2021). Online Health Information Seeking Behavior: A Systematic Review. *Healthcare*, 9, 1740. <https://doi.org/10.3390/healthcare9121740>
- Jos, V., Lemire, S., & Befani, B. (2020). *Evaluation of International Development Interventions: An Overview of Approaches and Methods*. Independent Evaluation Group. W. Bank.

- Keselman, A., Arnott Smith, C., Murcko, AC., & Kaufman, DR. (2019). Evaluating the Quality of Health Information in a Changing Digital Ecosystem. *J Med Internet Res*, 21(2), e11129. <https://doi.org/10.2196/11129>
- Lambert, K. M., Barry, P., & Stokes, G. (2012). Risk management and legal issues with the use of social media in the healthcare setting. *Journal of Healthcare Risk Management*, 31(4), 41–47. <https://doi.org/10.1002/jhrm.20103>
- Lee, P., Bubeck, S., & Petro, J. (2023). Benefits, Limits, and Risks of GPT-4 as an AI Chatbot for Medicine. *The New England Journal of Medicine*, 388(13), 1233–1239. <https://doi.org/10.1056/NEJMSr2214184>
- Marshall, L. A., & Williams, D. (2006). Health information: does quality count for the consumer?: How consumers evaluate the quality of health information materials across a variety of media. *Journal of Librarianship and Information Science*, 38(3), 141–156. <https://doi.org/10.1177/0961000606066575>
- Park, C. W., Seo, S. W., Kang, N., Ko, B., Choi, B. W., Park, C. M., ... & Yoon, H. J. (2020). Artificial intelligence in health care: Current applications and issues. *Journal of Korean Medical Science*, 35(42). <https://doi.org/10.3346/jkms.2020.35.e379>
- Pulido, C. M., Ruiz-Eugenio, L., Redondo-Sama, G., & Villarejo-Carballido, B. (2020). A new application of social impact in social media for overcoming fake news in health. *International Journal of Environmental Research and Public Health*, 17(7), 2430. <https://doi.org/10.3390/ijerph17072430>
- Rukavina, T., Viskić, J., Poplašen, L., Relić, D., Marelić, M., Jokic, D., & Sedak, K. (2021). Dangers and Benefits of Social Media on E-Professionalism of Health Care Professionals: Scoping Review. *J Med Internet Res*, 23(11), e25770. <https://doi.org/10.2196/25770>
- Salimy, S., Narain, A. S., Curtin, P. B., Bellinger, E. C., & Patel, A. R. (2023). Perceptions of social media utilization among orthopaedic foot and ankle surgeons. *Journal of Foot and Ankle Research*, 16(1), 58. <https://doi.org/10.1186/s13047-023-00658-4>
- Sarantis, D. & Sá Soares, D. (2017). *Literature on Website Evaluation in Health Sector*. 10th IADIS International Conference Information Systems 2017.
- Shim, M., & Sug Jo, H. (2020). What quality factors matter in enhancing the perceived benefits of online health information sites? Application of the updated DeLone and McLean Information Systems Success Model. *International Journal of Medical Informatics*, 137, 104093. <https://doi.org/10.1016/j.ijmedinf.2020.104093>
- Stellefson, M., Paige, S.R., Chaney, B.H., & Chaney, J.D. (2020). Evolving Role of Social Media in Health Promotion: Updated Responsibilities for Health Education Specialists. *Int. J. Environ. Res. Public Health*, 17, 1153. <https://doi.org/10.3390/ijerph17041153>
- Sundar, S. (2012). *Social psychology of interactivity in human-website interaction*. In *Oxford handbook of internet psychology*. Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780199561803.013.0007>
- Tao, D., LeRouge, C., Smith, K., De Leo, G. (2017). Defining Information Quality into Health Websites: A Conceptual Framework of Health Website Information Quality for Educated Young Adults. *JMIR Hum Factors*, 4(4), e25. <https://doi.org/10.2196/humanfactors.6455>
- Ventola, L. (2014). Social media and health care professionals: benefits, risks, and best practices. *P & T: a peer-reviewed journal for formulary management*, 39(7), 491–520.
- Viviani, M., & Pasi, G. (2017). Credibility in social media: Opinions, news, and health information—a survey. *Wiley Interdiscip. Rev. Data Min. Knowl. Discov.*, 7, 1–25. <https://doi.org/10.1002/widm.1209>