

Evaluating the Quality and Utilization of Digital Features of Jordanian Private Hospitals Websites

Ammar Alalawneh ¹, Saleh Al-Omar ¹, Muneer Abbad ², Hebah Hatamlah ³, Nour Alajlouni ¹

¹ Department of Business Administration, Faculty of Business, Yarmouk University, Irbid 21163, Jordan

² Community College of Qatar, Doha 7344, Qatar

³ Philadelphia University, Amman 19392, Jordan

saleh.alomar@yu.edu.jo

Abstract. This study evaluated the content and features of 34 active websites of private hospitals in Jordan using a comprehensive 99-item checklist covering technical aspects, services, external activities, and COVID-19 sections. Three evaluators independently coded the websites in August 2021. Results showed an average score of 38% across the hospitals, indicating major room for improvement. Technical characteristics and social media engagement scored higher than other categories like medical services and COVID-19. The websites are still predominantly used as information repositories rather than channels for interaction. This suggests website quality and utilization remains relatively low and ineffective among Jordanian hospitals. Administrators must regularly update content to boost patient communication and trust.

Keywords: Websites quality, Websites evaluation, Digital features, Evaluation instrument, Web design, Hospitals, Jordan

1. Introduction

In recent years, the internet and its applications have become an essential resource for most organizations, enabling them to gain a competitive advantage. A website is one of the primary and most vital internet applications and has become a core tool for various types of institutions; public or private, large or small. Schneider and Foot (2006, p.20) defined a website as ‘a set of dynamically defined digital resources spanning multiple websites deemed relevant or related to a central event, concept, or theme.’ In fact, without a website, it is difficult for organizations to maximize the benefits of the internet (Meron ~o-Cerdan and Soto-Acosta, 2005). According to Tejedor et al., (2020, p.1) “websites have become the nerve center of the digital ecosystems of media, companies, and all kinds of institutions”.

In the healthcare industry, the internet has increasingly been considered an important source from which to obtain information (Bach and Wenz, 2020; Osei-Asibey et al., 2017), provide services, save cost and time, interact directly with patients, increase efficiency, and enforce competitive positions (Rafe and Monfaredzadeh, 2012). According to Cohen (2017), ‘72% of consumers use the internet to find healthcare information’. In the EU, ‘55% of people aged 16 to 74 searched for health-related information over the internet in the first quarter of 2020’ (Eurostat ICT household survey). Website adoption rates among healthcare institutions have increased rapidly, and more than 70,000 websites specialize in supplying health-related information (Sbaffi and Rowley, 2017). Furthermore, websites have become an advantageous complement to operating practices (Sarantis and Soares, 2017; Synder et al., 2020; Kaur et al., 2017). According to the Accenture 2018 Consumer Survey on Digital Health, the technologies used most often by patients to manage health issues included websites (56%), mobile phones or tablets (46%), electronic health records (38%), and social media (35%). The value of websites for hospitals has increased because they are considered a reliable source of substantial information about their services and how to access them (Snyder et al., 2011). Moreover, they have a significant impact on patient satisfaction and the efficiency of e-health systems (Kampmeijer et al., 2016; Gong et al., 2020).

The Jordanian healthcare system includes public, military, and private hospitals. The country is home of 106 hospitals, of which 67 are private. Furthermore, the Jordanian healthcare system plays a critical role at domestic, regional, and global levels. In addition, the Jordanian healthcare sector market is one of the most important of such sectors in the region and worldwide. Jordan is also considered one of the major destinations for medical tourism in the Middle East and North Africa region (Medical Tourism Association, NA).

The total population of Jordan was 11.32 million in January 2023. In Jordan, telecommunications technology and internet services are advanced and accessible. A global platform report reveals a total of 9.95 million internet users at the start of 2023, accounting for 60.8% of the total population of Jordan. The internet penetration rate has reached 88%, and the number of websites has increased rapidly, indicative of a remarkable growth in use of the internet in recent years. In terms of social media, the report states that there were 6.8 million social media users in Jordan in January 2023, equivalent to 61.5% of the total population, 66.4 percent of Jordan’s total internet users base used at least one social media platform in January 2023. 8.61 million cellular mobile connections with this figure equivalent to 76.1 percent of total population in Jordan at the start of 2023 (Datareportal, 2023).

The increasing use of websites has attracted the attention of healthcare organizations (Huerta et al., 2016) as they may represent the initial contact point for patients and visitors, and create a positive impression about the hospital (Kampmeijer et al., 2016; Gong et al., 2020). Websites are important in enabling hospitals to utilize technology applications, become aware of patients’ needs, and build, retain, engage, and develop positive relationships with their patients (De Song et al., 2015; Huerta et al., 2016).

Additionally, websites have played an extraordinary role during the past two years due to the COVID-19 pandemic and its consequences (Hantrais et al., 2021). Undoubtedly, during the lockdown and quarantine, when most people needed to stay at home and obtain health information through online resources, the role of websites escalated, and their presence has become a core and safe tool for

communication between patients and hospitals to impede the direct spread of the virus (Ohannessian et al., 2020; Tejedor et al., 2020; Gong et al., 2020). As reported by Clement (2021), the number of visitors to health and medicine websites reached 581.87 million as of May 2020, representing a notable increase on the 459 million visits as of January 2019. According to Tejedor et al. (2020), during the COVID-19 pandemic, the function of websites was to be informative, interactive, and awareness-raising. In fact, this exceptional pandemic has forced hospitals to reconsider the purpose and content of their websites.

Thus, in the healthcare industry, it is important to devote considerable attention to websites and review their content and design (Raji et al., 2013; Tejedor et al., 2020). Farrahi et al. (2018) claim that a poorly-designed website might present worthless and misleading information to users, reducing the number of visitors. Bach et al. (2019) assert that well-designed websites can enhance the credibility of hospitals, as well as increase confidence among patients and stakeholders. Clearly, a well-designed and attractive website might be a resource through which to achieve a competitive advantage (Bernal Jurado et al., 2018).

Given the increasing function and importance of healthcare websites, their evaluation has emerged as one of the main research areas in the healthcare and information management fields for researchers and practitioners (Tarcan, Balciik and Sapaz, 2020; Sarantis and Soares, 2017; Tejedor et al., 2020; Soares et al., 2021; Bach et al., 2019; Boon-itt, 2019; Farrahi et al 2018). It is extremely useful for hospitals to evaluate and monitor their websites to ensure that they include rich content, valuable information, and are well-designed (Hafezi, Karimi and Tofight, 2014). In addition, websites should reflect ongoing changes and developments, customer needs and expectations, and health regulation matters (Snyder et al., 2020).

Notwithstanding the increasing importance of websites for hospitals, studies remain scarce and most that have been undertaken have focused on public hospitals, while limited attention has been paid to private hospitals (Bach et al., 2019). Furthermore, few studies relate to developing countries where more research on website evaluation is needed in various settings (Tejedor et al., 2020; Osei-Asibey, Agyemang, and Boaky-Dankwah, 2017). Moreover, most studies focusing on website evaluation have ignored social media applications as a primary feature in the website evaluation process (Huerta et al., 2016). Yet social media, used by more than 70% of internet users, is considered an extremely powerful tool that can be used in the healthcare field to generate information for the public and create professional connections and share experiences. Moreover, 80% of users utilize social media to search for doctors, hospitals, and medical news and information (Healthcare Compliance Pros., NA)

These have acquired a good reputation for implementing the highest international and local accreditation standards. The majority of distinguished hospitals are equipped with the latest medical technology (The Private Hospitals Association-Jordan, NA), and the usage of websites has increased rapidly in most hospitals in Jordan in recent years. However, there are few studies and little knowledge about websites in private hospitals and their characteristics. To the best of our knowledge, no studies have been conducted in Jordan. Thus, it will be of immense value to elucidate the content of hospital websites and explore the current status of their features with regard to those which are well represented. Moreover, it is essential to assess their strengths and weaknesses, and present appropriate suggestions and recommendations. This study will also contribute significantly to the relevant literature as an example from developing countries.

The increasing and wide use of the internet by people looking for healthcare information is one of the most rising trends in the current healthcare environment. Therefore, websites may represent the first contact point and has become an essential feature for most healthcare organizations, especially for the private sector, where it is very crucial in the current competitive environment to create a positive impression, increase patients' satisfaction, and enhance the competitive position. On the other hand, simply having a website is not enough. Websites need to be well designed, bring together many features, and reveal valuable content. In Jordan, few studies were conducted on websites evaluations and most of these studies focused on the banking industry (Rafi'I; Abumalloh; & Abu-UIbeh, 2018), universities

(Mustafa and Al-Zoua'bi), and Jordan's e-government (Abu-Shanab and Abu Baker, 2011). Little is known about healthcare organizations' websites. Therefore, this study aims to systematically evaluate the content and features of official websites of private hospitals in Jordan by answering the following question: To what extent do the websites of private hospitals in Jordan reflect appropriate content and features?

2. Literature Review

Studies on the evaluation of hospital websites have been conducted using several approaches and classifications. Based on a comprehensive review, Bach et al. (2019) classified research according to the quality of websites, specific medical issues, communication with patients via various channels, and the country context. In this study, the review of related studies is based on regions: Europe, Asia, the Americas, and the Middle East.

In Europe, Joaquín Mira, Llinás, Tomás and Pérez-Jover (2006) analyzed the readability and accessibility of Spanish public hospital websites. Their results indicated that the quality of readability and accessibility was weak. In another study, Llinás, Iñesta, Mira, Lorenzo, and Aibar (2008) evaluated and compared the readability, accessibility, and quality of the websites of 32 hospitals (12 Spanish, 10 American, and 10 British). The results indicated that most portals experience accessibility problems, and there was a wide variation in terms of website readability with respect to user-oriented content. Patsioura et al. (2009) evaluated 53 Greek public hospital websites. Their assessment covered information, communication, and electronic services. The results revealed that most of the websites did not support essential web-based transactions and did not contain features supporting the provision of information and communication practices. Maifredi et al. (2010) investigated a total of 1265 Italian public and private hospitals. They found that a high percentage of Italian hospitals did not provide an official website, and many had several limitations. In addition, very few hospitals supplied information to increase the credibility of the hospital and user confidence in the institution. The authors concluded that Italian hospital websites are a source of information on admissions and services rather than a means of communication between the user and the hospital. In another study of 100 public hospital websites located in Croatia, Bosnia-and-Herzegovina, and Slovenia by Bach, Seljan, Jaković, Buljan, and Zoroja (2019), it was reported that most hospital websites are a one-way channel of communication and were considered information repositories rather than online communication channels. Finally, Soares, Sarantis, and Carvalho (2021) evaluated the websites of 132 Portuguese hospitals (44 public and 88 private). Their study investigated the content, services, community interaction, and technology features of the websites. The results asserted on the importance of hospital websites and concluded that Portuguese hospitals still need to exert more efforts to improve their websites.

In North American countries, Huerta, Walker, and Ford (2016) analyzed the content of 157 children's hospital websites in the USA. The dimensions covered were the accessibility, marketing, content, technology, and usability of the websites. The results implied that no website scored high on any dimension. During the COVID-19 pandemic, Tejedor et al. (2020) analyzed 58 websites of the best hospitals in Latin America. The results suggested that a quarter of the examined hospitals did not dedicate a specific section to COVID-19. By contrast, the presence of hospitals on social networks (Facebook, YouTube, Twitter, and Instagram) had increased. The authors concluded that hospital websites should be developed and ought to offer and disseminate useful and correct healthcare information. Notably, the results indicated that hospitals occupying top positions in the medical services directory are not necessarily those that have the best website.

Few studies have been conducted in countries in the Asia region. De Song, Du, Zhu, Shen, and Xue (2015) explored the quality of Chinese public hospital websites. The results revealed that the overall quality of websites was rated at 32.92%. They concluded that it is essential for hospitals to use websites to meet the needs of patients, and to cultivate, retain, and improve positive relationships with them. In India, Raj, Sharma, Singh, and Goel (2016) analyzed the quality of 32 global and Indian hospital

websites concerning accessibility, readability, and usability. The results implied that websites had high readability levels and average quality usability and accessibility.

In Iran, a cross-sectional study of 59 public hospitals was undertaken by Salarvand et al. (2016) using the checklist instrument developed by Maifredi et al. (2010). The results suggested that the overall website evaluation score was weak. Interactive online services and external activities criteria had lower scores in comparison to other criteria and, unexpectedly, no significant association was found between the website evaluation score and Google page rank, Alexa global traffic rank, or Alexa traffic rank. Also in Iran, Dastani and Sattari (2017) assessed the quality of 49 Khorasan Razavi hospital websites based on four dimensions: content, performance, management, and how to use the website. The findings indicated that only 59% of hospitals had active websites, and 40.8% of these were in an unfavorable condition. Nematollahi, Fallahnejad, Niknam, Nadri, and Khademian (2016) analyzed the structure of 43 educational hospital websites in Iran. Their results suggested that the overall quality of most of the hospitals was acceptable. In Turkey, Yilmaz and Söyük (2020) evaluated the content of 223 private hospital websites in the Marmara region. The results revealed that most hospitals used their web pages for promotion. However, they were rather weak in providing new, practical, and fast services on their pages. The number of websites with a photo/video gallery and a foreign language option were also lower than expected. Yilmaz and Söyük concluded that the websites were not being used effectively in corporate marketing and public relations. In Kuwait, Alhuwail, Almeraj and Boujarwah (2018) explored the content of nine hospital websites (6 private and 3 public). Their evaluation included accessibility, usability, presence, and content dimensions. The results implied that most websites were deficient in all dimensions, and most hospital websites primarily focused on promoting hospital services rather than engaging and communicating with patients.

Several conclusions can be drawn from the literature. First, it can be inferred that various approaches and elements have been employed to conduct content analysis, depending mainly on the research objective and context. None of the researchers proposed a comprehensive instrument that covers all features and contents of websites. Second, some authors focused on the content of hospital websites (e.g., Llinás et al., 2008; Patsioura et al., 2009; Maifredi et al., 2010; Huerta, Walker, and Ford, 2016; Nematollahi et al., 2016; Alhuwail et al., 2018; Bach et al., 2019; Yilmaz and Söyük, 2020; Tejedor et al., 2020; Sarantis, Soares, and Carvalho, 2020), while others focused on the quality (e.g., Mira et al., 2006; Rafe and Monfaredzadeh; Raj et al., 2016; Salarvand et al., 2016; Dastani and Sattari, 2017). Third, to a certain degree there is common agreement that Maifredi et al.'s (2010) instrument is the most comprehensive and therefore it has been widely adopted (Bach et al., 2019; Salarvand et al., 2016). Fourth, in terms of sectors, the majority of studies focused on public hospitals only, or both public and private; few considered private hospitals only. With respect to types of hospitals, nearly all studies examined hospitals in general, except for Huerta et al. (2016) who focused on children's hospitals. Fifth, few studies considered new IT innovations such as social networking platforms (Bach et al., 2019), and few took into consideration changes in the health environment such as a section on COVID-19 which is expected to become a feature of hospital websites (Tejedor et al., 2020). Finally, the number of examined hospitals ranged from nine to 1265 which indicates a wide diversity in the website samples across studies. In the Middle East, most studies were related to Iran, and only one hospital in Arab countries was examined.

3. Research Methodology

This research is a descriptive cross-sectional study, which was conducted in 2021. Secondary data was used in this study by referring to the websites of hospitals. The use of secondary data is considered suitable and commonly used in this type of study, as it is more reliable and valid than primary data (Wong and Sulaiman, 2016).

A content analysis method was employed in this study. The population of this study composed of all private hospitals in Jordan and the sample only limited to the hospitals that have active websites.

The hospitals list was identified by referring to the website of the Jordanian Ministry of Health. During the scanning and searching for the 67 private hospitals websites, 33 hospitals were excluded because they do not have active websites. Accordingly, 34 active private hospitals websites were investigated in this study.

With regard to the characteristics of hospital websites, until now there has been no collective agreement in the literature. On the contrary, each study has focused on various attributes (Sarantis et al., 2020). Nevertheless, the checklist used by Maifredi et al. (2010) is one of the most well defined, comprehensive, and covers most of the categories discussed in related studies (Bach et al., 2019). Accordingly, it was used in this study. However, it is important to note that Maifredi et al.'s (2010) checklist has been criticized for not considering social media applications (Bach et al., 2019). To address this, a social media related category was added by adopting items from Tejedor et al. (2020) and Farrahi et al. (2018). Based on the recommendations of specialists, two items adopted from Farrahi et al. (2018) concerning technical characteristics (the use of bright colors and mobile-friendly design) were added to the checklist. Additionally, two items were added to the hospital information and facilities category; one concerning room type, photographs, and description adopted from Wong and Sulaiman (2016), and another regarding the number of visitors adopted from Farrahi et al. (2018). The checklist approach was used to evaluate the websites of hospitals. The checklist that was prepared and developed included 99 items representing technical characteristics (17 items), hospital information and facilities (22 items), hospitalization and medical services (25 items), interactive online services (11 items), external activities (13), social media (7 items), and COVID-19 (4 items).

To ensure the validity of the checklist and its compatibility with the Jordanian context and healthcare system, five specialists with at least five years of experience in designing and administrating hospitals websites were chosen to test the validity. Based on their feedback, recommendations, and suggestions, some items from the original checklist were slightly modified as mentioned above.

The secondary data collected was coded using Microsoft Office Excel (2205 Version). The coding process was conducted in August 2021. Three members of the research team independently evaluated the hospital websites. Items for categories were coded by applying a binomial method (0: item does not exist; 1: item exists). This type of coding is considered effective as it reduces the subjectivity and guessing of evaluators (Tejedor et al., 2020; Patsioura et al., 2009) and increases the agreement level among raters during the assessment process (McHugh, 2012).

Since the study depends on three independent raters, who their subjective assessments might vary significantly from one to another (Gwet, 2012; Vanacore and Pellegrino, 2022), inter-rater reliability was conducted to evaluate the reliability of the checklist. Inter-rater reliability can be defined as *“the degree of agreement among independent observers who rate, code, or assess the same phenomenon”* (Moons and Vandervieren, 2023). Inter-rater reliability can be measured by two common measures: Cohen's and Fleiss' kappa (Moons and Vandervieren, 2023). Kappa was introduced by Cohen (1960) who initially suggested comparing human ratings in a binary, or dichotomous, classification task (Powers, 2012). Fleiss' kappa is one of the most frequently used statistical tests to measure inter-rater reliability (Gwet, 2012). Also, it is widely used in the field of content analysis to determine how well raters agree on the coding of nominal variables (Randolph, 2005). Fleiss' Kappa is a generalization of Cohen's Kappa used when the study includes more than two raters (Zapf et al., 2016). Like most correlation statistics, the kappa can range from -1 to +1.

The level of agreement among raters was analyzed for 5 randomly chosen websites and a high percentage of agreement was observed. Fleiss' kappa statistic calculated for each website, among the three raters, ranged from 0.78 to 0.92 denoting a substantial to almost perfect agreement among the raters (Landis and Koch, 1977).

The second stage of the study concerned analyzing the collected data, descriptive statistics such as frequencies, percentages, and averages were used.

4. Results and Discussion

According to the Jordanian Ministry of Health, there are 69 private hospitals in Jordan offering different types of medical services for patients. Among these, we found that 34 (49%) have an active website. The mean website evaluation score was calculated for the seven study variables (technical items, hospital information and facilities, hospitalization and medical services, interactive online services, external activities, social media, and COVID-19), as presented in Figure 1.

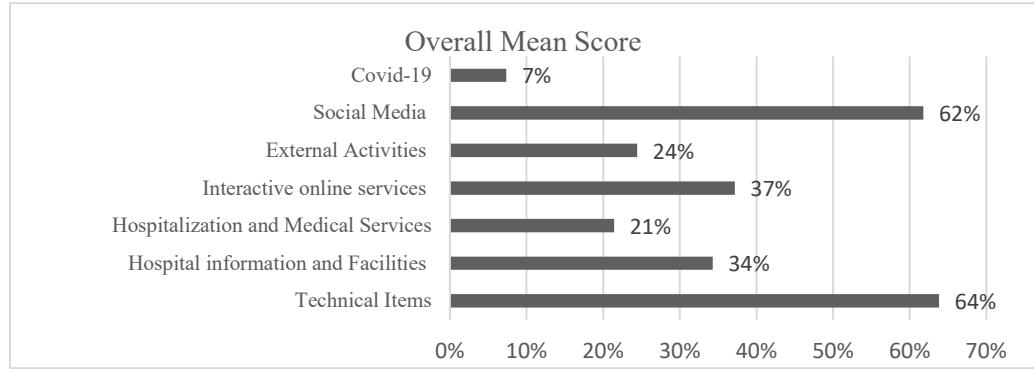


Fig. 1: Mean website evaluation score for each category of the checklist.

4.1. Technical Characteristics

Jordanian private hospitals scored high on items related to the technical characteristics of websites (64%). These are aspects related to the design and usability of websites. Numerous items were used to assess the extent to which hospital websites provide visitors with easy access and smooth navigation between the different sections of the website.

Table 1 presents the percentage of hospital websites reporting technical items. For instance, 100% of the sample scored high on items related to allowing visitors to know the type of website they will be accessing (items 13 and 14). Regarding ease of navigation, the presence of a website search tool was low (47%). Furthermore, 21% of the sample presented a website map. By contrast, 65% of the sample offered a multilingual platform.

In terms of the website design, a high percentage of the sample had a mobile friendly platform (88%) and used bright colors (100%). Finally, the accountability of the website was assessed through the date of the last website update which was reported by 76% of the sample.

The World Wide Web Consortium (W3C) develops web standards to enable the web to reach its full potential and ensure good traffic, accessibility, formatting, and quality. The presence of quality certifications was completely absent on the websites of the sample regarding accessibility to people with disabilities, certification of cascading style sheets validation, and certification of markup validation service. These quality certificates were assessed by identifying the corresponding logo on the home page.

Table 1: Percentage of hospitals presenting technical characteristics.

Technical Items	Percentage
Site name appears on browser title bar	100%
Active part of the site appears on the browser title bar	100%
Name of the hospital at the head of the website	94%
Hospital logo at the head of the website	100%
Any animation or visual displays can be bypassed (text, audio, video)	62%
Access to the website in foreign languages	65%
Website map available	21%

Website searcher available	47%
Date of last website update	76%
Website has certification of accessibility to people with disabilities (at least W3C WAI-A logo)	0%
Website has certification of Cascading Style Sheets validation (W3C CSS logo)	0%
Website has certification of Markup Validation Service (W3C HTML logo)	0%
Links with other useful websites provided (hospitals, scientific associations, institutions)	44%
Copyright notice	88%
Website pages can be printed	100%
Mobile friendly design	88%
Bright colors	100%

4.2. Hospital Information and Facilities

To assess hospital information and facilities, 22 items were used, as depicted in Table 2. A high percentage of all hospitals gave contact details in terms of telephone/fax number (100%) and email address (94%). However, only 26% provided a postal address.

Items 15-17 concerned the hospital facilities, with 56% of the sample supplying information, photographs, and description regarding room types. The information on the number of hospital visitors (18%, 6 out of 34) and complementary services offered by the hospital (24%, 8 out of 34) were poorly reported.

The presence of a public relations office was assessed using four items: office working hours, location, phone number, and email address. Among the private hospitals that have an active website, less than 15% supplied information concerning the presence of a public relations office.

Two items focused on the transparency of the hospital towards its users, but the results of surveys regarding patient satisfaction (item 20) were poorly reported. In addition, patients' rights and obligations were apparent in only nine hospitals.

Table 2: Percentage of hospitals presenting hospitals information and facilities.

Hospital information and Facilities	Percentage
Hospital history	74%
Contact details on the homepage or available at a click: hospital postal address	26%
Contact details on the homepage or available at a click: telephone and/ or fax number	100%
Contact details on the homepage or available at a click: e-mail address	94%
Statement of purpose	82%
ISO certification	38%
Organization chart	9%
Information regarding patient privacy	26%
Ways of reaching the hospital: car, public transport	88%
Map of the hospital	15%
Virtual visit to the hospital	9%
Public relations office: work hours	6%
Public relations office: location	3%
Public relations office: telephone and/or fax number	9%
Public relations office: e-mail address	12%
Patient's rights and obligations	26%
Results of surveys regarding patient satisfaction are provided	9%

Information for General Practitioners is provided	3%
Information for foreigners is provided	26%
Complementary services: press, cafeteria, television, telephone	24%
Number of visitors	18%
Room types, photos, and description	56%

4.3. Hospitalization and Medical Services

Referring to the literature, various items were employed to assess information related to hospitalization and medical services. With regard to the information available on the websites, few hospitals presented information concerning different types of admission (26%), the rules to be followed before (35%), during (24%), and after admission (24%), and the rules to be followed by visitors (26%). Furthermore, one hospital only supplied information regarding the procedure for obtaining a copy of medical documentation. Table 3 indicates that 31 hospitals gave a complete list of departments or units offering user services. Few hospitals revealed the location (9%) and telephone number (18%) of these departments.

The list of employed doctors by specialization was disclosed in only 59% of hospitals. Doctors' curricula were available on 13 websites only. Half of the sample provided information regarding the number of beds and a detailed list of available outpatient hospital services. Information regarding the waiting list and date on which the waiting list was last monitored was rare. Only one hospital made such information available. Furthermore, information about hospital quality indicators: surgical mortality rate, inpatient mortality rate, and nosocomial infection rate were entirely absent.

Out of the 34 hospitals, only four disclosed the cost of consultations or services available with fees. No major differences were found with regard to information about private consultations or services, but only five hospitals provided this.

Table 3: Percentage of hospitals presenting hospitalization and medical services.

Hospitalization and Medical Services	Percentage
Admission guide: different types of admissions are disclosed	26%
Admission guide: information and rules to be followed on admission	35%
Admission guide: information and rules to be followed during the hospital stay	24%
Admission guide: information and rules to be followed on discharge	24%
Admission guide: information and rules to be followed regarding visits by relatives	26%
Admission guide: information and procedure for obtaining a copy of the medical documentation	3%
Details of how to pay prescription charges or fees	9%
Departments or units providing user services: complete list	94%
Departments or units providing user services: location	9%
Departments or units providing user services: telephone and/or fax number and/or e-mail address	18%
Detailed list of outpatient hospital services available (consultation, diagnostic services)	50%
Number of hospital beds disclosed	50%
Waiting list disclosed	3%
Date of last monitoring of the waiting list disclosed	3%
Hospital report of the number of admissions in the previous year	12%
Doctors' curricula disclosed	38%
Hospital quality indicator: nosocomial infection rate disclosed	0%
Hospital quality indicator: inpatient mortality rate disclosed	0%
Hospital quality indicator: surgical mortality rate disclosed	0%

Hospital quality indicator: others	6%
List of employed doctors in alphabetical order	9%
List of employed doctors by specialization	59%
Information about private consultations/services and fees	15%
List of consultations/services with fees available	12%
Cost of consultations/services with fees available	12%

4.4. Interactive Online Services

This section assesses the extent to which hospitals were found to offer interactive services via the website. Figure 2 shows that 41% of the hospitals allowed users to reserve an appointment for consultation via the internet. Nevertheless, just 29% accepted appointments for services and admission through this method. A high percentage of the websites allowed users to make suggestions and complaints via the internet (85%). By contrast, 10 websites enabled users to ask a specialist a health-related question via the internet or email.

Very few websites contained a frequently asked question section (6 out of 34), with the same percentage found for websites that presented a health-related forum. Overall, 47% of the websites provided an information request form for users, while 29% allowed users to sign up for a newsletter. However, a higher percentage of hospitals offered the possibility of communicating with the hospital via the internet or email (74%).

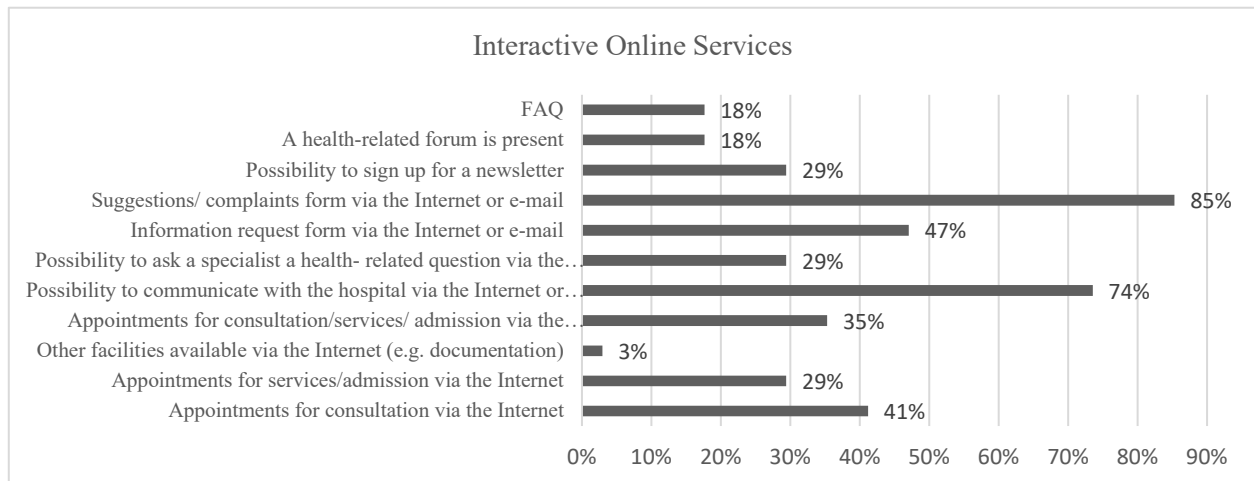


Fig. 2: Percentage of hospitals presenting interactive online services.

4.5. External Activities

As shown in Figure 6, Jordanian private hospitals with an active website scored low in items related to external activities. A section that presents information regarding press reviews yielded the highest percentage among the 13 items used to assess external activities and was available on 68% of the websites.

Details of job opportunities were disclosed by 20 hospitals. Information regarding the scientific studies that the hospital promotes, or is involved in, was present in 26% of the sample. Information on undergraduate or postgraduate courses held at the hospital was provided by seven hospitals. Similarly, events and activities that occur at the hospital, such as congresses and conferences, were disclosed by nine hospitals only.

Only three hospitals supplied details regarding voluntary associations that work in them. Moreover, details about patient associations and those for the defense of patients' rights were completely absent.

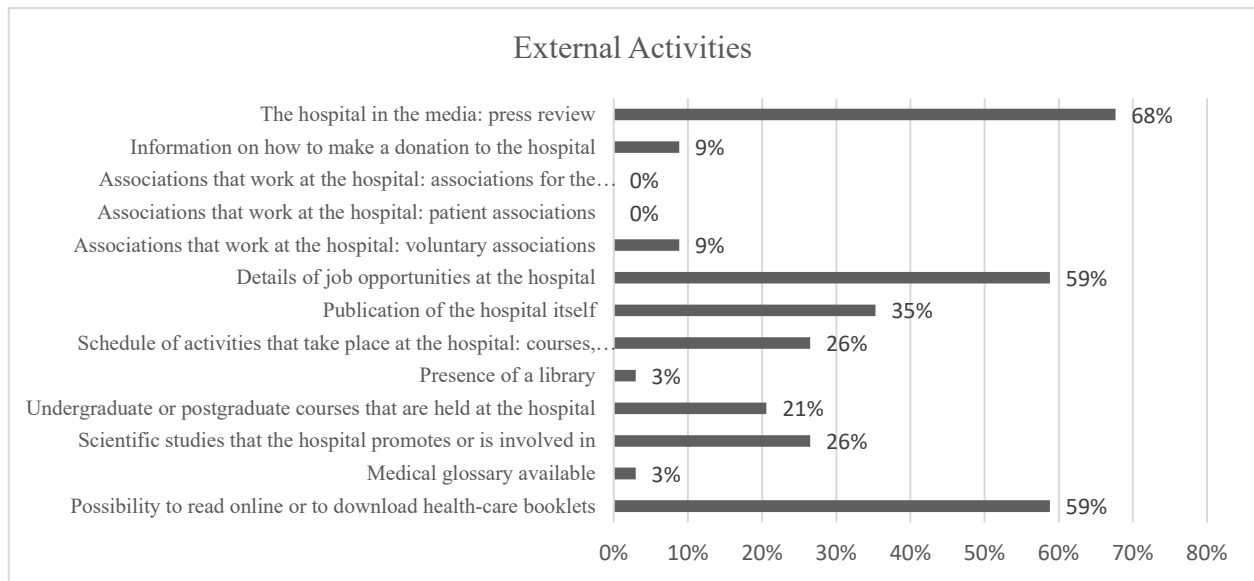


Fig. 3: Percentage of hospitals presenting external activities.

4.6. Social Media

A presence on social media networks was high among the sample. Figure 7 reveals that 91% of the hospitals were present on social media networks, and that these could be directly accessed through their website. Overall, 94% of the sample were active on Facebook, followed by Instagram 79%, Twitter 62%, and YouTube 41%. Additionally, 32% of the sample were active on other social media networks, mainly LinkedIn. Moreover, 11 out of 34 hospitals had a live support message or WhatsApp.

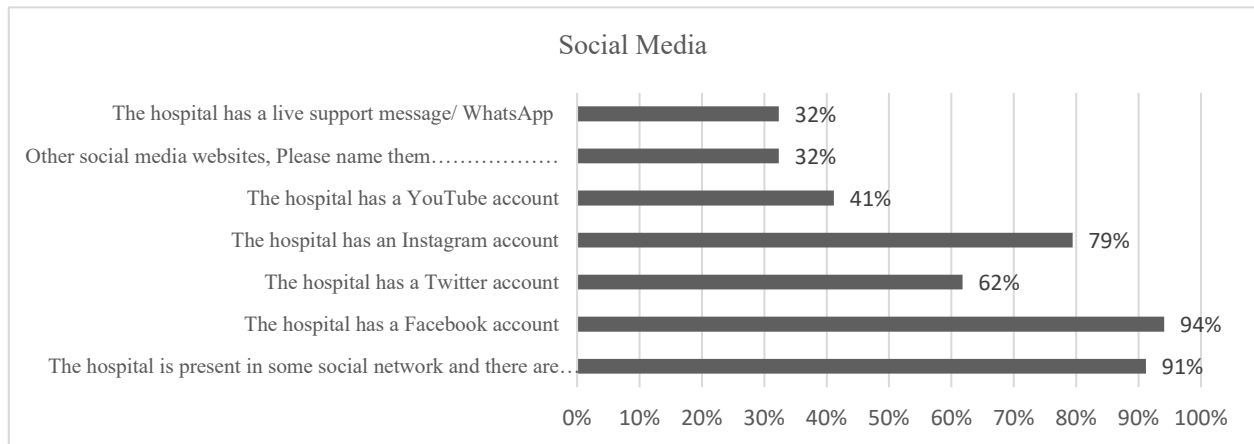


Fig. 4: Percentage of hospitals present on social media.

4.7. COVID-19

Figure 8 demonstrates that four items were used to assess whether hospital websites offered information or dedicated sections concerning the coronavirus pandemic. Surprisingly, none of the hospitals was found to have a dedicated section regarding COVID-19, some of which are top ranked hospitals in Jordan. Nevertheless, 12% of the hospitals had an awareness letter about COVID-19 on their websites, and 15% offered a leaflet/news about this virus. Only one hospital was found to have an application specifically relating to COVID-19.

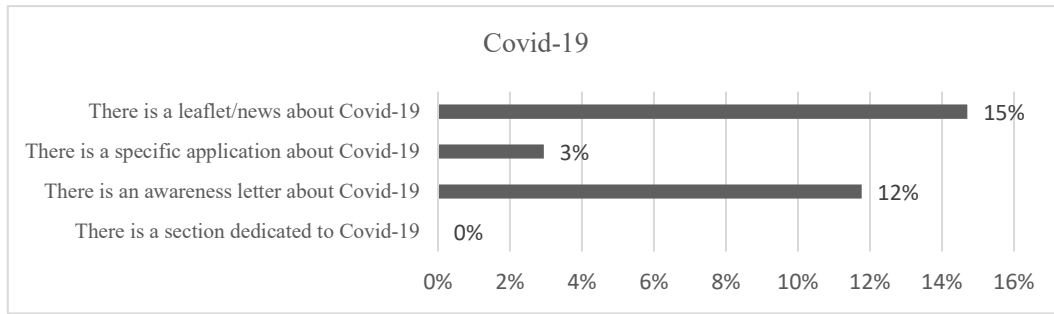


Fig. 5: Percentage of hospitals presenting information on COVID-19.

This study evaluated the websites of Jordanian private hospitals. The evaluation focused on seven categories: technical characteristics, hospital information and facilities, admission and medical services, interactive online services, external activities, social media, and the presence of a dedicated section concerning COVID-19.

The results revealed that 49% of Jordanian private hospitals have active official websites. These findings are close to those of similar studies conducted in different countries. For example, Salarvand et al. (2016) found that the percentage of hospitals with active websites in Iran was 55.1%. In their study, Maifredi et al. (2010) found that 16.3% of Italian hospitals have active websites, while Patsioura et al. (2009) discovered that 43.5% of Greek hospitals do so. Nevertheless, the percentage of private hospitals with active websites in Jordan is considered low, given that the internet penetration rate has reached 88% and that there were 6.8 million social media users in Jordan in January 2023, which is equivalent to 60.8% of the total population. It is clear that most private hospitals in Jordan do not consider the web/internet to be an important contact point with their patients. In addition, it appears as if many hospitals are not aware of the importance of websites in enhancing the visibility of the hospital.

Overall, the average score of all private hospital websites was 38%, which is weak. Thus, it can be inferred that websites are not given high priority and do not equally represent the categories examined in the study. This result is similar to that of Maifredi et al. (2010) who found that the average score for Italian private hospital websites was 30.8%. Similarly, Bach et al., (2019) found that the average score for Croatian hospital websites was 41.1%, for Slovenian hospital websites was 37.8%, and the overall score for Bosnia and Herzegovina hospital websites was 36.6%.

The evaluation revealed that Jordanian private hospitals scored high on the technical characteristics and social media categories. Specifically, the average score for the technical characteristics category was 78%, while the social media category had an average score of 62%. In comparison with other categories, these percentages appear to be extremely good. The results also indicated that the average scores for the remaining categories were low. These were as follows: interactive online services (37%), hospital information and facilities (34%), external activities (24%), hospitalization and medical services (21%), and COVID-19 (7.5%).

Regarding the technical characteristics of websites, Jordanian private hospitals have better standing in comparison with Croatia, Slovenian, and Bosnia and Herzegovina hospitals which scored 37.8%, 41.1%, and 36.6% respectively as reported by Bach et al., (2019). Furthermore, they rank higher than Italian private hospitals that scored 40.4% (Maifredi et al., 2010) and Iranian hospitals which scored 22.11% (Salarvand et al., 2016). For instance, Jordanian private hospitals scored high on items related to design and readability such as bright colors, printable pages, and on being mobile friendly. However, none of the hospitals provided certification of website accessibility to people with disabilities. It was expected that institutions supplying public health services would have websites that are accessible to such people.

Jordan is among the most developed countries in the field of medical tourism and is distinguished by an abundance of internationally recognized doctors (Alsarayreh et al., 2017). Al-Qudah and Al-Talib (2009) highlighted the importance of medical tourism to the Jordanian national economy. Furthermore, Abu-Rumman et al. (2005) investigated medical tourism as a high-revenue type of tourism that supports the Jordanian tourism sector. Less than 65% of the hospital websites were available in a foreign language, mainly English. This percentage appears moderate to good. Yet it was expected to be considerably higher in view of the important role the medical services sector plays in enhancing the national economy.

With reference to items concerning hospital information and facilities, the overall average percentage of Jordanian private hospitals were 34% which is lower than the average score of Croatian (37.7%), Slovenian (53.1%), and Italian hospitals (35.6%) (Bach et al., 2019; Maifredi et al., 2010). However, Jordanian hospitals scored on this category higher than Bosnia and Herzegovina (32.5%) and Iranian hospitals (12.15%) (Bach et al., 2019; Salarvand et al., 2016). The results revealed that contact details and ways of reaching hospitals were supplied by the great majority of the hospitals. Furthermore, a statement of purpose was disclosed by more than 80% of them. Nevertheless, other items in this category were poorly reported. For instance, few hospitals issued information related to the public relations office in terms of contact information (telephone number: 9%, email: 12%), location (3%), and working hours (6%). Furthermore, the findings of this research are congruent with those of Maifredi et al. (2010) and Bach et al., (2019) on items related to the trust-based relationship with website users and hospitals. Patients' rights and obligations as well as the results of surveys regarding patient satisfaction were only reported by 26% of hospitals. Also, 9 hospitals only disclosed information regarding patients' privacy. Failure to disclose such information could have a negative impact on patients' decisions when choosing a service provider, especially in the healthcare industry.

In general, hospitals scored low on items related to hospitalization and medical services. The average score for this category was 21% while the score of Croatian, Slovenian, and Italian hospitals ranged between 30% to 39% (Bach et al., 2019; Maifredi et al., 2010). On the other hand, Jordanian hospitals average score was higher than Bosnia and Herzegovina (20.2%) and Iranian hospitals (7.05%) (Bach et al., 2019; Salarvand et al., 2016). Although 94% of the Jordanian private hospitals supplied a complete list of departments and units providing user services, very few hospitals presented information regarding admission guides on their website. Moreover, none of the hospitals gave information regarding quality indicators, such as nosocomial infection rate, inpatient mortality rate, or surgical mortality rate. This could be due to cultural aspects or the nature of such information. The results also showed that the great majority of the hospitals tended not to disclose or provide information on their website regarding charges and fees. Less than 15% of the hospitals supplied information about private consultations or services with fees. The cost of consultations and services with fees were only reported by 12% of the hospitals.

The possibility of communicating with the hospital via the internet or email was available in 74% of the hospitals. However, hospitals scored low on other interactive online services. Less than half of the sample provided an information request form via the internet or email. The possibility to ask a specialist health-related questions via the internet or e-mail was available in 10 hospitals only. In addition, a health-related forum was present in six hospitals. Few websites offered the option to set an appointment for consultation via the internet. Even fewer provided the option to set an appointment for services or admission via the internet. It is important to note that regarding interactive online services, most hospitals were more concerned with user feedback. In total, 85% of the hospitals allowed users to send suggestions or complaints via the internet or email. Nonetheless, the results suggest that the use of websites as interactive channels was weak.

It is unsurprising that the average score of items related to external activities was low (24%). There is limited cooperation and integration between private hospitals and external associations such as universities, local health institutions, and research health centers. In Jordan, regulations and rules favor

public healthcare providers over private ones. This might be attributed to the fact that public hospitals are larger in size and possess sufficient resources, giving them an advantage over private hospitals which are relatively small in size and lack adequate resources.

With regard to social media, the results are consistent with those of Tejedor et al. (2020) and Perez Escoda (2020). A high percentage of the hospitals were present on some social media networks and their social media pages could be accessed directly from their websites. Among all social media networks, Facebook ranked first with a percentage of 94%, followed by Instagram (79%), Twitter (62%), and YouTube (41%). Furthermore, 11 hospitals used WhatsApp or other live support platforms. The results for this category were expected given the increasing number of social media users in Jordan.

As a consequence of the COVID-19 pandemic, the world has suffered, and the situation has caused collapses in several hospitals around the world. Healthcare providers were expected to have huge responsibilities concerning the provision of information regarding the actions that humans are required to take, prevention procedures, tests, and other related information. Therefore, a seventh category to assess the presence of sections or information regarding the COVID-19 pandemic was added. The average score for this category was very low (7.5%). This indicates that private hospital websites do not reflect current health affairs and healthcare crises such as COVID-19. The results also reveal that none of the private hospital websites contained a section dedicated to COVID-19. Generally, the COVID-19 score was the lowest of all the categories, which might mean that the websites were not updated frequently.

5. Conclusion

In conclusion, this study provides a detailed assessment of Jordanian hospital websites. The evidence reveals poor overall quality and a mismatch between hospital priorities versus patient needs in website usage. By benchmarking against standards in this evaluation framework, hospitals can redesign their websites to address deficiencies and align digital features with strategic service goals for patient-centered care.

The average scores of the websites studied were weak. Accordingly, this study offers the following recommendations that might be useful and appropriate for improving and enhancing the websites of private hospitals. First, hospitals management and website designers should conduct a periodic review of their websites to ensure that they contain recent, up-to-date information and reflect changes and new health developments.

Second, more attention should be given to other categories. Because Jordan is considered a leader in medical tourism in the Middle East region and a major destination for medical tourism (Al-Azzam, 2016), hospitals would greatly benefit by investing in their websites as a means of attracting medical tourists. Categories such as hospital information and facilities and hospitalization and medical services can be enhanced by presenting information relating to the trust-based relationship between hospitals and patients. Additionally, the presence of hospital quality indicators as well as doctors' curricula could have a positive impact on the transparency, efficiency, and effectiveness of hospitals.

According to a newspaper article published in 2021, around 4000 students graduated from medical schools in 2020, and these numbers are increasing annually (Assawsana, 2021). Private hospitals play an important role in employing these graduates. Thus, greater attention needs to be paid by hospitals' managers to the external activities of hospitals, especially hosting and announcing courses to undergraduates and graduates. Furthermore, scientific research conducted by the hospital can also enrich students' knowledge if hospitals publish this on their websites.

Third, as mentioned in the introduction, this study is the first of its kind in Jordan. To the best of the author's knowledge, no previous studies have been conducted on the websites of private hospitals. Consequently, further studies are recommended for which this study can serve as a useful reference. It can be considered as an initial step to guide future research and as a basis on which to compare the

results of other related studies. In particular, a longitudinal study in this domain is strongly recommended and appropriate.

Fourth, in terms of practical implications, the results suggest that private hospitals have substantial scope for improving their websites. In this respect, owners, managers, or website developers can compare their website features against the adopted instrument. This is extremely useful and can provide fruitful feedback to overcome their weaknesses and enhance their strengths. It can also be used as a basis on which to redesign their websites. Hospitals management should give more attention to their websites and consider the significant role of websites in publishing information, content, and accuracy which are very essential in healthcare organizations (Horvath, 2015). More attention should be given by website designers to aspects that have scored low levels or are totally absent to optimize their websites and comply with healthcare websites standards.

In summary, private hospitals should give sufficient consideration to their websites. The opportunity for private hospitals to improve their content and design will certainly increase patient satisfaction, encourage and attract visitors, and enhance their overall performance.

The study contributes significantly to research on website evaluation in the healthcare context. However, there are some limitations that need to be addressed. First, the study was limited to Jordanian private hospitals, thereby restricting generalization of the results to public or other hospitals in the Middle East region. Second, the evaluation of websites was conducted in the months of January and February of 2021. Thus, the findings may not reflect the current status of hospital websites due to rapid developments in the information technology sector and the increase in web use and penetration. Third, it is noted in the related literature that there is no universal instrument with which to evaluate websites. A range of categories and items were therefore selected from various studies. This led to minor overlapping and increased the difficulty of comparing the results with those of other studies. Fourth, since the study is the first of its kind in Jordan, it was descriptive and focused on calculating the average score of each item. Future studies may follow a quantitative approach and conduct statistical analysis to investigate differences in the distribution of the scores calculated between and within hospitals categories. Finally, this research only focused on private hospitals; it did not assess the websites of public hospitals. Public hospitals are under the administration of the Ministry of Health that usually employs a standard website for information related to public hospitals.

Acknowledgments

The Authors would like to express their appreciation for the editor and reviewers' professionalism, comments, and detailed remarks, which were of great importance for enhancing the quality and rigorousness of this article.

References

- Abu-Rumman, A., Salah, D. (2005), Measuring the evaluations of therapeutic services from the point of view of Arab tourists arriving in Jordan for treatment, (a study of private hospitals). *Jordanian Journal of Applied Sciences*, 105, 95-105
- Abu-Shanab, E. A., & Baker, A. A. N. A. (2011). Evaluating Jordan's e-government website: a case study. *Electronic Government, an International Journal*, 8(4), 271-289.
- Al-Azzam, A. F. M. (2016). A study of the impact of marketing mix for attracting medical tourism in Jordan. *International Journal of Marketing Studies*, 8(1), 139-149.
- Alhuwail, D., AlMeraj, Z., & Boujarwah, F. (2018). Evaluating hospital websites in Kuwait to improve consumer engagement and access to health information: a cross-sectional analytical study. *BMC medical informatics and decision making*, 18(1), 1-11.

- Alipour-Hafezi, M., Karimi, M., & Tofighi, S. (2014). Conceptual model to improve portal services of private hospitals in Tehran. *Journal of Health Administration (JHA)*, 17(58).
- Al-Qudah, H., & Al-Talib, G. (2009). Medical tourism and its impact on the Jordanian national economy/field study: From the point of view of workers in some private Jordanian hospitals. *Qadisiyah Journal of Administrative and Economic Sciences*, 11(4).
- Alsarayreh, M. N., Al Nawaiseh, K. H. A., Mahasneh, M. S. M., & Rumman, M. A. R. A. (2017). Medical Tourism and Its Role in Marketing Jordan Abroad. *International Review of Management and Marketing*, 7(4), 180.
- Bach, M. P., Seljan, S., Jaković, B., Buljan, A., & Zoroja, J. (2019). Hospital websites: from the information repository to interactive channel. *Procedia computer science*, 164, 64-71.
- Bach, R. L., & Wenz, A. (2020). Studying health-related internet and mobile device use using web logs and smartphone records. *PloS one*, 15(6), e0234663.
- Bernal Jurado, E., Mozas Moral, A., Medina Viruel, M. J., & Fernández Uclés, D. (2018). Evaluation of corporate websites and their influence on the performance of olive oil companies. *Sustainability*, 10(4), 1274.
- 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(1), 1-18
- Cohen, J. K. (n.d.). 72% of consumers use the internet to find healthcare info: 6 survey findings. *Becker's Hospital Review*. Retrieved May 20, 2022, from <https://www.beckershospitalreview.com/healthcare-information-technology/72-of-consumers-use-the-internet-to-find-healthcare-info-6-survey-findings.html>
- Dastani, M., & Sattari, M. (2017). Assessing the Quality of Hospitals' Websites in Khorasan Razavi Province. *Depiction of Health*, 8(1), 50-56.
- De Song, X., Du, T. Y., Zhou, P., & Xue, D. (2015). Assessing the quality of public hospital websites in China. *International Information Institute (Tokyo). Information*, 18(2), 557.
- Farrahi, R., Gilasi, H., Khademi, S., & Chopannejad, S. (2018). Towards a comprehensive quality evaluation model for hospital websites. *Acta Informatica Medica*, 26(4), 274.
- Gong, K., Xu, Z., Cai, Z., Chen, Y., & Wang, Z. (2020). Internet hospitals help prevent and control the epidemic of COVID-19 in China: multicenter user profiling study. *Journal of medical Internet research*, 22(4), e18908.
- Gwet, K. L. (2014). *Handbook of inter-rater reliability: The definitive guide to measuring the extent of agreement among raters*. Advanced Analytics, LLC.
- Hantrais, L., Allin, P., Kritikos, M., Sogomonjan, M., Anand, P. B., Livingstone, S., ... & Innes, M. (2021). Covid-19 and the digital revolution. *Contemporary Social Science*, 16(2), 256-270.
- Huerta, T. R., Walker, D. M., & Ford, E. W. (2016). An evaluation and ranking of children's hospital websites in the United States. *Journal of medical Internet research*, 18(8), e5799.
- Joaquín Mira, J., Llinás, G., Tomás, O., & Pérez-Jover, V. (2006). Quality of websites in Spanish public hospitals. *Medical informatics and the Internet in Medicine*, 31(1), 23-44.
- Kampmeijer, R., Pavlova, M., Tambor, M., Golinowska, S., & Groot, W. (2016). The use of e-health and m-health tools in health promotion and primary prevention among older adults: a systematic literature review. *BMC Health Services Research*, 16(5), 467-479.

- Kaur, A., Dani, D., & Agrawal, G. (2017, January). Evaluating the accessibility, usability and security of Hospitals websites: An exploratory study. In 2017 7th international conference on cloud computing, data science & engineering-confluence (pp. 674-680). IEEE.
- Landis, J. R., & Koch, G. G. (1977). An application of hierarchical kappa-type statistics in the assessment of majority agreement among multiple observers. *Biometrics*, 363-374.
- Llinás, G., Rodríguez-Iñesta, D., Mira, J. J., Lorenzo, S., & Aibar, C. (2008). A comparison of websites from Spanish, American and British hospitals. *Methods of Information in Medicine*, 47(02), 124-130.
- Maifredi, G., Orizio, G., Bressanelli, M., Domenighini, S., Gasparotti, C., Perini, E., ... & Gelatti, U. (2010). Italian hospitals on the web: a cross-sectional analysis of official websites. *BMC medical informatics and decision making*, 10(1), 1-13.
- McHugh, M. L. (2012). Interrater reliability: the kappa statistic. *Biochemia medica*, 22(3), 276-282.
- Medical Tourism Association | A Global Platform for the Healthcare Ecosystem. www.medicaltourismassociation.com. <https://www.medicaltourismassociation.com/>
- Meroño-Cerdan, A. L., & Soto-Acosta, P. (2005). Examining e-business impact on firm performance through website analysis. *International journal of electronic business*, 3(6), 583-598.
- Moons, F., & Vandervieren, E. (2023). Measuring agreement among several raters classifying subjects into one-or-more (hierarchical) nominal categories. A generalisation of Fleiss' kappa. *arXiv preprint arXiv:2303.12502*.
- Mustafa, S. H., & Al-Zoua'bi, L. F. (2008, December). Usability of the academic websites of Jordan's universities an evaluation study. In *Proceedings of the 9th International Arab Conference for Information Technology* (pp. 31-40).
- Nematollahi, M., Fallahnejad, E., Niknam, F., Nadri, K., & Khademian, F. (2016). Evaluation of the structure of websites of educational hospitals of Fars province in 2016. *Journal of Health Management & Information Science*, 3(4), 132-137.
- Ohannessian, R., Duong, T. A., & Odone, A. (2020). Global telemedicine implementation and integration within health systems to fight the COVID-19 pandemic: a call to action. *JMIR public health and surveillance*, 6(2), e18810.
- Osei Asibey, B., Agyemang, S., & Boakye Dankwah, A. (2017). The Internet use for health information seeking among Ghanaian university students: A cross-sectional study. *International journal of telemedicine and applications*, 2017.
- Patsioura, F., Kitsiou, S., & Markos, A. I. (2009, July). Evaluation of Greek Public Hospital Websites. In *ICE-B* (pp. 223-229).
- Pérez-Escoda, A., Jiménez-Narros, C., Perlado-Lamo-de-Espinosa, M., & Pedrero-Esteban, L. M. (2020). Social networks' engagement during the COVID-19 pandemic in Spain: health media vs. healthcare professionals. *International journal of environmental research and public health*, 17(14), 5261.
- PHA. phajordan.org. Accessed October 24, 2023. <https://phajordan.org/>
- Posting with Caution: The DO's and DON'Ts of Social Media and HIPAA Compliance | Healthcare Compliance Pros. [Healthcarecompliancepros.com](https://www.healthcarecompliancepros.com/blog/posting-with-caution-the-dos-and-donts-of-social-media-and-hipaa-compliance). Published 2018. <https://www.healthcarecompliancepros.com/blog/posting-with-caution-the-dos-and-donts-of-social-media-and-hipaa-compliance>

- Powers, D. M. W. (2012, April). The problem with kappa. In *Proceedings of the 13th Conference of the European Chapter of the Association for Computational Linguistics* (pp. 345-355).
- Rafe, V., & Monfaredzadeh, M. (2012). A qualitative framework to assess hospital/medical websites. *Journal of medical systems*, 36(5), 2927-2939.
- Raj, S., Sharma, V. L., Singh, A. J., & Goel, S. (2016). Evaluation of quality and readability of health information websites identified through India's major search engines. *Advances in preventive medicine*, 2016.
- Raji, S. O., Mahmud, M., & Abubakr, A. (2013). Evaluation of university teaching hospital websites in nigeria. *Procedia Technology*, 9, 1058-1064.
- Salarvand, S., Samadbeik, M., Tarrahi, M. J., & Salarvand, H. (2016). Quality of public hospitals websites: a cross-sectional analytical study in Iran. *Acta informatica medica*, 24(2), 130.
- Sarantis, D., & Soares, D. S. (2017, September). From a literature review to a conceptual framework for health sector websites' assessment. In *International Conference on Electronic Government* (pp. 128-141). Springer, Cham.
- Sarantis, D., Soares, D., & Carvalho, J. (2020, September). HSWAI: a health sector website assessment instrument. In *Proceedings of the 13th International Conference on Theory and Practice of Electronic Governance* (pp. 359-368).
- Sbaffi, L., & Rowley, J. (2017). Trust and credibility in web-based health information: a review and agenda for future research. *Journal of medical Internet research*, 19(6), e7579.
- Schneider, S.M. and K.A. Foot (2006) *Web Campaigning*. Cambridge, MA: MIT Press
- Snyder, C. F., Wu, A. W., Miller, R. S., Jensen, R. E., Bantug, E. T., & Wolff, A. C. (2011). The role of informatics in promoting patient-centered care. *Cancer Journal (Sudbury, Mass.)*, 17(4), 211.
- Snyder, K., Paulson, P., & Bergen, S. (2020). A website assessment tool for patient engagement: A verification. *International Journal of Healthcare Management*, 13(1), 58-64.
- Soares, D., Sarantis, D., & Carvalho, J. (2021). Assessment of the Portuguese Hospitals Websites using HSWAI.
- Tarcan, G. Y., Yalcin Balcik, P., & Sapaz, B. (2020). Systematic evaluation of the websites: Hospital-based practice. *International Journal of Healthcare Management*, 13(1), 53-57.
- Tejedor, S., Pérez-Escoda, A., Ventín, A., Tusa, F., & Martínez, F. (2020). Tracking websites' digital communication strategies in Latin American Hospitals during the COVID-19 pandemic. *International journal of environmental research and public health*, 17(23), 9145.
- The Number of Medical Graduates Annually in Jordan . Assawsana Jordanian Newspaper . (2021, June 22). Retrieved June 10, 2022, from <https://www.assawsana.com/portal/pages.php?newsid=512919>
- Vanacore, A., & Pellegrino, M. S. (2022). Benchmarking procedures for characterizing the extent of rater agreement: a comparative study. *Quality and Reliability Engineering International*, 38(3), 1404-1415
- Wong, L. Y., & Sulaiman, N. (2016). Content analysis of Medical Tourism websites (MTwebs) in Malaysia.
- Yilmaz, S., & Söyük, S. (2020). Examination of Corporate Websites of Private Hospitals: Example of Marmara Region. *Archives of health science and research (Online)*, 7(3), 257-263.

Zapf, A., Castell, S., Morawietz, L., & Karch, A. (2016). Measuring inter-rater reliability for nominal data—which coefficients and confidence intervals are appropriate?. *BMC medical research methodology*, 16, 1-10.