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The Use of Social Media in Delivering Rehabilitation Services by healthcare professionals in Sultan Bin Abdelaziz Humanitarian City: Challenges and Benefits

A Research Project

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Research Project Declaration Form

I declare that the research project entitles The Use of Social Media in Delivering Rehabilitation Services by healthcare professionals in Sultan Bin Abdelaziz Humanitarian City: Challenges and Benefits submitted to the Saudi Electronic University is my own original work. I declare that the research project does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing. I declare that the Saudi Electronic University has a right to refuse the research project if contains plagiarism and cancel the research project at any time and the student has the full responsibility regarding any further legal actions.

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LIST OF ABBREVIATIONS

WWW	World Wide Web
CERN	The Conseil European pour la Recherche Nucleaire
HCW	Health care workers
HCP	Health care providers
Apps	Applications
SNS	Social networking sites
SMS	Social media sites
SM	Social media
SMP	Social media platforms
GCC	Gulf Cooperation Council
SBAHC	Prince Sultan Bin Abdulaziz Humanitarian City
CMA	Canadian Medical Association
APTA	The American Physical Therapy Association
MOH	Ministry of Health

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ABSTRACT

Social medias growing popularity has been welcomed by medical professionals. With an increase in the number of studies investigating the use of social media in healthcare. The purpose of this study was to examine the benefits and challenges of using social media to deliver rehabilitation healthcare services in a healthcare facility in Riyadh, Saudi Arabia. The study was carried out at a private institution at Prince Sultan Bin Abdulaziz Humanitarian City. An open web-based questionnaire was developed. The final questionnaire comprised 23 questions and was shared via email to examine the perspective of health care professionals (HCPs) regarding delivering rehabilitation services via social media. A cross-sectional study was carried out in November 2022. The results highlighted the importance of investigating the underlying problems an HCP may face in addition to studying the positive effects of social media. As communicating with patients and disseminating scientific knowledge through several platforms is becoming a trend, it is important to keep abreast of how to provide the best outcomes that consider both ethical and legal concerns.

CHAPTER ONE

Introduction

The development of the World Wide Web (WWW) in 1990 by Tim Berners Lee and other researchers working at the Conseil European pour la Recherche Nucleaire (CERN) in Switzerland has substantially impacted the manner in which people interact. The capacity and motivation for social interaction is an essential component of what it means to be human (Farsi, 2021).

The proliferation of social networking sites (SNSs), commonly referred to as social media sites (SMSs), have significantly impacted millions of people globally and illustrate one of the ways in which the WWW has affected the lives of individuals and societies overall (Knott & Wassif, 2018). Over the course of human history, social communities have flourished, with individuals being empowered by a sense of belonging to share their knowledge, ideas, and experiences with one another. The development of social media coincides with ongoing global technological progress. Social media can be defined as "a group of Internet-based applications (apps) that allow the creation and exchange of user-generated content" and has rapidly become an indispensable component of the lives of billions of people globally. Furthermore, social media has impacted virtually every industry imaginable. The concept of social media, often known as the "read-write web," "Web 2.0," and "social networking," is continuously undergoing definitional shifts (Farsi, 2021).

Alongside the observable increase in the use of social media platforms by individuals, the popularity of social media is growing among those working in the medical field. There has been a considerable increase in the amount of research investigating the use of social media in health and medicine, primarily focused on the role of social media and SNSs in linking patients and health care professionals (HCPs) or using SMSs and SNSs for communication (Vukušić Rukavina et al., 2021).

In the U.S., 18–29 year old's make up 90% of all social media users. In January 2018, approximately 2.07 billion people were using Facebook, around one-third of the world's total population. In Saudi Arabia, the average age of social media users is 18–35, with 83% of individuals in this age group using social media (Alshakhs & Alanzi, 2018). In light of these user numbers, it is becoming increasingly difficult to overlook the potential role that various online social media platforms (SMPs) could play as potential avenues for the promotion of public health. Twitter, Facebook, YouTube, Snapchat, and Instagram have all emerged as popular SMPs for addressing health-related issues. This popularity is in part due to the expense and unpredictable outcomes associated with public media

campaigns. These types of platforms are becoming more widespread in many parts of the world, including countries that are members of the Gulf Cooperation Council (GCC), namely Saudi Arabia, the United Arab Emirates, Kuwait, Oman, Qatar, and Bahrain; it is estimated that over 54 million people live in these countries (AlSadrah, 2021).

The Saudi health care sector wants to enhance the efficacy and quality of preventive and therapeutic health care services by streamlining processes and diversifying communication channels. This is consistent with the steady growth that has occurred in several different sectors, including the health care sector. However, to achieve this, greater emphasis must be placed on patient participation by lowering the obstacles that prevent effective communication by using SMPs (AlSadrah, 2021).

The primary purpose of this study is to examine the challenges and benefits of using social media in delivering rehabilitation healthcare services from the perspective of health care workers at a private institution at the Prince Sultan bin Abdulaziz Humanitarian City. The sub-objectives are to determine the benefits of utilizing social media among health care workers, to identify the challenges of using social media to deliver rehabilitation services among health care workers and to recommend solutions for the identified challenges.

CHAPTER TWO

Literature Review

To conduct a review on the application of social for health purposes, it is vital to first define the scope of social media and health purposes. There are many definitions of social media. Some definitions place emphasis on the technological characteristics that set it apart from more conventional forms of communication. For instance, Kaplan and Haenlein (2010) stated that social media is an internet- and technology-based application similar to Web 2.0. Other definitions center on the communication characteristics that set it apart from traditional media. For instance, McGowan et al. (2012) characterized social media as an online environment in which individuals are able to contribute content and consume content predominantly generated by other users. It is widely acknowledged that social media is one of the most effective communication platforms available in the 21st century. Specifically, social media is evolving into an important tool in the health care field as it enables users to access and share information, connect with HCPs, and communicate with coworkers, patients, or the general public on matters pertaining to health. Social media also encourages patient empowerment by increasing patient knowledge and putting them in a position where they can manage their own health care needs, putting them in control of their own health care (Farsi, 2021). The use of social media not only fosters a culture of participation, but it has been demonstrated to make health promotion and the self-management of chronic conditions easier (De Angelis et al., 2018). However, social media is associated with several issues, in particular regarding the privacy of patient data, low quality of information, and the breach in the relationship between the client and health care provider. (Chou et al., 2018; George et al., 2013; Khan & Loh, 2021).

The number of people using social media is increasing at a steady yearly rate. In the U.S., 18–29 years old's account for 90% of all social media users, although individuals over 65 years old also make use of these platforms (Perrin, 2015). As of January 2018, over 2.07 billion people were actively using Facebook, which is equivalent to approximately one-third of the total global population, while over 500 million tweets are sent out each day by Twitter's active users. Saudi Arabia has the biggest number of active Twitter users in the world, with 330 million users. Users based in Saudi Arabia are responsible for 40% of all tweets sent from the Middle East and North Africa combined. The average age of SMP users in Saudi Arabia is 18–35, with 83% of individuals in this age group using social media. In addition, 93% of Saudi Arabians have a Facebook account (Alshakhs & Alanzi, 2018).

According to the findings of several studies (Erwin et al., 2017; Fox et al., 2003), over 80% of internet users search for health information online, particularly information pertaining to diet and nutrition, physical activity, signs and symptoms, therapy, and public health interventions. Studies have investigated how to enhance health outcomes via social media; however, findings have been inconsistent. It is not yet obvious which components of successful interventions led to their success (Forgie et al., 2021).

Based on the most recent data, the most popular SMPs in the GCC are Facebook, Twitter, and YouTube. The advanced socioeconomic condition of these countries, as well as their highly functional networking and communication infrastructure, have enabled the widespread use of such platforms (AlSadrah, 2021).

SMPs are helpful tools for HCPs that can be utilized for a variety of purposes, including education, professional development, job hunting, health promotion, personal promotion, communication with patients, colleagues, and students, dissemination of health information, discussion of public health policies, and analysis of various issues related to general health topics. Numerous medical sub-specialties, such as pediatrics, radiology, oncology, pathology, cardiology, emergency and critical care, nursing, surgery, dentistry, pharmacy, and health care quality use social media for many of these purposes (Alanzi & Al-Habib, 2020).

Peyman et al. (2018) stated that sedentary lifestyles are becoming more common in modern society for a variety of reasons. Technological development and social changes have resulted in a decrease in physical activity in the workplace, at home, and on public transportation. Working longer hours has also resulted in a decrease in physical activity due to decreased interest in living a more natural lifestyle and increased urbanization. Digital media is a promising tool to improve self-care habits and raise the involvement of individuals in health-related behaviors due to its scalability, inexpensiveness, wide applicability across countries (including those with middle- and low-income levels), and capacity to make real-time changes and adjustments. Globally, health education and promotion researchers are working to find new methods to use the Internet and other digital media to improve the effectiveness of their interventions. A study by Vollum (2014) found that social contact in educational settings can be expanded and enhanced by using social media. There is evidence that social media is already being used in current health and wellness programs.

The application of social media in the medical field has not been extensively studied in Saudi Arabia. According to the findings of a survey carried out in Riyadh, 70.6% of HCPs use social media to enhance their professional development, networking ability, and knowledge exchange. A separate study carried out in Majmaah investigated the attitudes of HCPs toward the utilization of social media in patient care (Alshakhs & Alanzi, 2018) found that the majority of HCPs support the use of social media as an effective tool to provide patient education and public awareness.

The use of social media by physical therapists in the planning and delivery of patient care presents an opportunity to increase the likelihood that patients will engage in the healthy behaviors prescribed to them. Physical therapists have referred to social media as a straightforward channel through which to communicate with patients, address their concerns, and disseminate information. (Knight et al., 2015) A study by Barsky and Giustini (2008) proposed that physical therapists could leverage SMPs to engage in user-generated dialogues with their patient populations, thereby enhancing care delivery models and contributing to the evolution of the physical therapist practice. The treatment of chronic disorders and diseases that are not spread by direct contact is currently the primary focus of most health systems globally. This presents a significant opportunity for physical therapists to engage patients in health promotion and disease management in the coming years. In the business world, there are numerous examples of social media being utilized to engage customers, and research suggests that patients are ready for social media to be integrated into the way health care institutions provide treatment (Knight et al., 2015).

- **Benefits of Social Media**

The use of social media by HCPs for provider-patient contact involves answering questions posed by patients, conducting online consultations, and proactively presenting advice and health information to the users who follow their social media accounts (Chen & Wang, 2021). HCPs have used SMPs to encourage learning, increase the theoretical and practical knowledge of the profession, conduct research, and publish relevant scientific information. Several studies have indicated the significance of social media in knowledge sharing and education continuation, teaching and learning in medical education through participatory models, and clinical research, as well as its possible use as an open-learning resource in medical education (Alshakhs & Alanzi, 2018).

Studies have indicated positive professional behaviors and attitudes about the education of patients and the promotion of their health (Alshakhs & Alanzi, 2018). Lim (2016) found that SNSs can improve the quality of care and emergency management when certain concerns, such as those pertaining to privacy and information accuracy, are taken into consideration. George et al. (2014) surveyed the opinions of U.S. medical students regarding the beneficial impact of social media in increasing communication with patients. Overall, 44% indicated that they should and would reply in the event that a patient sought their medical advice over Facebook. In a cross-sectional survey in Saudi Arabia, over half of HCPs felt that SNSs were beneficial to use in health care services as they are an appropriate medium for educating patients and increasing public health awareness (Alharbi, 2015). Research on Saudi Arabian orthopedic doctors indicated they are more inclined to publish basic medical knowledge online as opposed to providing specific treatment suggestions (Duymuş et al., 2017). However, most expressed an openness to the possibility of making greater use of social media for the purposes of teaching, sharing knowledge, and improving patient outcomes. A study by Long et al. (2018) indicated that, in terms of patient communication, 65.4% of urologists believed that social media increased patient education, and 55.1% felt it increased patient communication.

In the context of health promotion, social media could be a beneficial instrument for improving patient-centered care as it is an effective, economic, and widespread means of communication that is sensitive to patient requirements. Patients suffering from arthritis benefit greatly from participating in self-management programs conducted through Facebook. These programs successfully increase patient knowledge levels and self-efficacy. SMPs enable a patient-centered approach that provides emotional support, advice, inspiration, and empowerment for patients, as well as enabling them to connect with other patients. In addition, the use of social media can improve professional networks and growth, encourage collegiality and communities of practice, and contribute to the dissemination of information and research pertaining to public health (Laliberté et al., 2016).

It is possible that social media, if handled in an intelligent manner, could prove to be an important instrument for promoting health care and expanding the expertise of HCPs (Ventola, 2014). Social media can offer significant benefits to the treatment, education, and health programs provided to patients (Alshakhs & Alanzi, 2018).

- **Barriers to Social Media Use**

There are growing issues and difficulties associated with the increased use of social media by researchers and HCPs. Several studies have raised concerns about the implications on patient privacy and confidentiality, as well as a lack of comprehensive social media understanding among HCPs. There are also issues related to securing the intellectual property of content providers and controlling unfavorable comments from patients (Ranschaert et al., 2016). The majority of these publications advocate for the creation of guidelines or regulations that address the ethical, legal, and technological concerns, as well as the provision of training for medical practitioners and researchers on how to make appropriate use of social media (Chen & Wang, 2021). Khan & Loh (2021) recognized several obstacles that must be overcome before the use of social media can become widespread in the medical field. Participants in this study highlighted five impediments to the adoption of social media: (i) inefficiency; (ii) privacy concerns; (iii) poor information quality; (iv) lack of trust; and (v) unclear professional boundaries. According to the findings of Lambert et al. (2012), privacy can be breached when proper precautions are not taken between medical professionals and their patients when using social media.

Many HCPs worry that if they use social media in their practice, they could be subject to lawsuits alleging they have violated patients' privacy (Khan & Loh, 2021). Healthcare workers face a significant challenge regarding the substantial volume of information available online that is not subject to any regulation or censorship. Consumers of health care services frequently accept information found online as being accurate and trustworthy, even if they have not taken the time to verify the information. As a direct consequence of this, inaccurate and perilous information that is either anti-scientific or pseudo-scientific may be found on the Internet (Mohammed, 2012). According to De Martino et al. (2017), this has led to an abundance of poor, informal information-seeking practices online, which has resulted in effects that are catastrophic or even dangerous.

The inability of health education specialists to fully control what, when, and how health information is communicated is directly attributable to the structure of SMPs. Social media can be viewed as the "wild west" of health information. Users can freely engage and interact with health information that may or may not be supported by empirical data or be accurate. Engagement on social media can be enhanced through monitoring misinformation, eliminating agency obstacles to use, measuring audience reach and impact of posted messages and content, and monitoring of emerging trends in social media adoption and use (Stellefson et al., 2020). However, the factors that contribute to the failure of such initiatives, which in turn led to worse health outcomes or increased health disparities,

are not entirely understood. Therefore, while social media has the potential to positively influence patient health, it is not yet clear how it should be utilized to deliver the greatest possible benefits while causing the fewest possible adverse effects (Forgie et al., 2021).

- **Establishing Effective Procedures for Utilizing Social Media**

The Canadian Physiotherapy Association (2012) proposed that the use of social media in professional practice facilitates meaningful connection with patients, colleagues, and researchers, in part by giving physicians an online voice through which the profession can improve its reputation and disseminate credible health information. According to several recent publications (Giordano & Giordano, 2011; White et al., 2013), physical therapy program graduates in the coming years will be well-versed in the application of social media in both their professional and personal life. A report that primarily focused on the principles of how to communicate online also featured insightful contributions from practitioners who are using different SMPs in their practice, research, and teaching as physical therapists (The Canadian Physiotherapy Association, 2012). A recent report from the Canadian Medical Association (CMA) indicates that the process of drafting social media practice standards for physicians in Canada has commenced (Sullivan., 2013).

While the Canadian health landscape may be playing catch-up, American health sector corporations, such as Kaiser Permanente and the Mayo Clinic, have already developed social media policies to guide employee best practices. However, there are still barriers to overcome when it comes to the application of corporate social media policy in clinical practice. The American Physical Therapy Association (APTA) released a set of guidelines for members to follow when engaging in activities on social media (APTA., 2013). It has been suggested that virtual communication by an HCP should mimic the communication in an actual clinical setting. Maintaining patient privacy and confidentiality and best practices for professional conduct are some examples of what might be included in a virtual communication model for HCPs. It has been hypothesized that clinicians may reap several benefits from using SMPs in an ethical manner while using their common sense and maintaining their professional integrity (CPA, 2017). Guidelines for best practices should assist in directing HCPs toward engaging in online conversations in a way that is both ethical and productive (Knight et al., 2015).

The Saudi Arabian Ministry of Health (MOH) has noted the rising popularity of social media in the country, and, to stay relevant, have established official Ministry of Health accounts on several SNSs

to interact with Saudi citizens. The MOH was very interested in joining certain SNSs that are well-known for their popularity among Saudi people (El Kheir et al., 2021). Education on the practical use of social media is required to strengthen Saudi Arabians' ability to judge the quality of health information online. Such initiatives, along with appropriate supervision and education for practitioners, are necessary. The risk of receiving misleading information may be reduced if respective governments develop clear policies and guidelines in addition to addressing the accuracy and dependability of information, possibly through the use of new technology (Marar et al., 2019). The Saudi MOH published its Acceptable Use Policy, which was revised in 2020. This policy instructs medical personnel on how to make better use of social media.

CHAPTER THREE

Methodology

This research aims to investigate the benefits and difficulties associated with using social media to deliver rehabilitation services. A cross-sectional study was conducted among rehabilitation department staff working at the Prince Sultan Bin Abdulaziz Humanitarian City in Riyadh, Saudi Arabia. An online web-based questionnaire was developed based on previous studies (Alanzi & Al-Habib, 2020; Alshakhs & Alanzi, 2018; Alsobayel, 2016; Knott & Wassif, 2018; Surani et al., 2017). The survey was distributed to the employees of the rehabilitation department via their work email addresses after being pilot-tested by four HCPs to ensure its clarity and error-free nature. Data collection was carried out in November 2022 after obtaining ethical approval from the Institutional Review Board of Prince Sultan Bin Abdulaziz Humanitarian City (78/SBAHC/MSc/RH/2022, dated 3 November 2022). Participants provided consent to participate voluntarily in the study. Responses were collected using Google Forms, a common tool for conducting online surveys.

- **Questionnaire Description**

The questionnaire consisted of 23 questions designed to study the use of social media for professional development among HCPs and to analyze their perspectives on its effectiveness and consequences. The survey consisted of five sections: (1) eligibility criteria, (2) sociodemographic data, (3) general use of social media, (4) HCP perceptions of social media benefits, and (5) HCP perceptions of social media challenges.

In the first section, the eligibility requirements for employment in the rehabilitation department were outlined. The inclusion criterion was that employees had to work in the rehabilitation department at Sultan Bin Abdulaziz Humanitarian City. Respondents from other departments or those working in other hospitals were excluded.

The second section involved the collection of demographical and professional data. Participants provided information about their age, nationality (Saudi, Non-Saudi), gender (male, female), marital status (single, married, divorced, widow, other), educational level (diploma, bachelors, masters, other), employment status (full-time, part-time), profession (physical therapist, occupational therapist, speech therapist, rehabilitation assistance, other), population served (adult, pediatric, both), number of years

working in the rehabilitation field (< 1 year, 1–5 years, > 5 years), and years at Prince Sultan Bin Abdulaziz Humanitarian City (< 1 year, 1–5 years, > 5 years).

The third section included several questions regarding social media use: 1) what is the purpose of using social media, in your opinion? (education, networking, job hunting, communication with patients, online consultations, other); how many years since you started using social media in general? (< 1 year, 1–5 years, > 5 years); have you used social media to deliver rehabilitation services?; how many years since you started using social media with patients? (< 1 year, 1–5 years, > 5 years); and which of the following social media networks do you use in the rehabilitation field? (Facebook, Twitter, Instagram, Snapchat, YouTube, TikTok, Other).

The fourth section involved participants answering questions related to their perceptions of the benefits of social media for rehabilitation care delivery on a 5-point Likert scale (strongly agree, agree, neutral, disagree, strongly disagree). Several questions comprised this section: can rehabilitation services be delivered through social media?; is social media a good tool to deliver rehabilitation care?; could social media help in delivering rehabilitation care?; does social media help in improving patients' knowledge?; does social media help patients that live in a rural geographical area?; does social media help provide patients with emotional support?; does social media help improve your knowledge?; does social media help improve communication with your patients?; does social media help improve communication with other healthcare providers?; and do you think social media would help you in your specialty to deliver health information?

The fifth section contained questions regarding the challenges of social media: can social media breach patient privacy?; can social media be used to spread poor quality information?; is social media a potential risk to patient health status?; can social media break the trust between healthcare providers and patients?; could social media damage your professional image?; is social media a potential risk to health care professionals ethically?; is social media a potential risk to health care professionals legally?; and do you think social media can negatively affect patient adoption of some practices related to your specialty?

The target sample was 290 participants. Considering a 95% confidence level with a 5% margin of error, the minimum sample population was determined to be 166 responses. Descriptive statistics were used to present the data in frequencies, percentages, and means. Data are presented in tables.

As indicated by the study code 78/SBAHC/MSc/RH/2022 dated 3 November 2022, approval from the Institutional Review Board of Prince Sultan Bin Abdulaziz Humanitarian City was sought in order to adhere to ethical standards.

CHAPTER FOUR

Results

In total, there were 194 respondents in the current study. However, 24 were disqualified due to ineligibility. A further 62 responses were excluded as the responses were incomplete. Therefore, the final sample size was 108 HCPs at Prince Sultan Bin Abdulaziz Humanitarian City.

Most participants were 20–29 years old (52.78%). The other participants (47.22%) were divided among other age groups (30–39, 40–49, > 50) to analyze the influence of age on the results. No participants were over 60 years old, as reflected in Table 1. Most participants were single (55.56%) and held a bachelor's degree (86.11%). No participants had intermediate or low education levels. Physical therapy was the most prevalent profession (49.07%), followed by occupational therapy (43.52%). Most participants treated adults (62.04%); only 20.37% of participants were involved in pediatrics. Regarding years of experience, most participants had 1–5 years of experience (54.63%), while 44.44% had over five years of experience. Only one participant had one year of experience or less.

Most participants were Saudi Arabian (72.22%). There was no significant difference in gender, with 53.70% and 46.30% of participants identifying as female and male, respectively.

Table 1. Demographic data for 108 participants (n=108)

Characteristic	n=108(%)
Age (Years)	
20–29	57 (52.78)
30–39	33 (30.56)
40–49	14 (12.96)
> 50	4 (3.70)
Nationality	
Saudi	78 (72.22)
Non-Saudi	30 (27.78)
Gender	
Male	50 (46.30)
Female	58 (53.70)

Marital Status	
Single	60(55.56)
Married	45(41.67)
Divorced	2(2.78)
Widow	0(0)
Other	0(0)
Education Level	
Diploma	3(2.78)
Bachelor	93(86.11)
Post graduate degree	12(11.11)
Other	0(0)
Employment Status	
Full-time	107(99.07)
Part-time	1(0.93)
Profession	
Occupational therapist	47(43.52)
Physical therapist	53(49.07)
Speech therapist	6(5.56)
Rehabilitation assistance	2(1.85)
Other	0(0)
Population Served	
Adult	67(62.04)
Pediatric	22(20.37)
Both	19(17.59)
Years of Experience in the Rehabilitation Field	
< 1 year	1(0.93)
1–5 years	59(54.63)
> 5 years	48(44.44)
Years Working at Prince Sultan Bin Abdulaziz Humanitarian City	
< 1 year	14(12.96)

1–5 years	55(50.93)
> 5 years	39(36.11)
Primary Purpose for Using Social Media	
Communication with patients	24(22.22)
Education	38(35.19)
Networking	33(30.56)
Job hunting	21(19.44)
Online consultations	22(20.37)
Other	11(10.19

Whether the participants generally used social media would have a significant impact on this study. Overall, 77.78% of participants had used social media for over five years. Participants reported using social media for numerous purposes. The majority (35.19%) used it for education purposes, 30.56% used it for networking, and others used it for things such as communication with patients, online consultations, and job hunting. Furthermore, 49.07% of participants were already using social media to deliver rehabilitation services.

Table 2. Social Media Usage

*Percentage of total column of n =108   ** Percentage of total column of n = 53

Social media usage	n = 108
Years since starting using social media*	
< 1 year	2(1.85)
1–5 years	22(20.37)
> 5 years	84(77.78)
Previous utilization of social media for delivering rehabilitation services *	
No	55(30.93)
Yes	53(49.07)
Years of using social media with patients **	n=53
< 1 year	9(16.98)

1–5 years	35(66.04)
> 5 years	9(16.98)

The number of years participants had utilized social media directly affected the degree to which they felt social media had impacted the delivery of rehabilitation healthcare services. The majority of participants had used social media with patients for 1–5 years (66.04%).

Many social media programs and applications are available on the internet; however, there are several that are more commonly used to deliver rehabilitation services. As shown in Table 3, Twitter was the most common social media application used among participants (30.19%), followed by Instagram (26.42%), and then Snapchat and YouTube (both 22.64%).

Table 3 Social media networks used to deliver rehabilitation services n=53

*Percentages of n=53

Which of the following social media networks do you use in the rehabilitation field	n(%)*
Facebook	6(11.32)
Tik Tok	2(3.77)
Twitter	16(30.19)
Instagram	14(26.42)
YouTube	12(22.64)
Snapchat	12(22.64)
All of the above	1(1.89)
Other	6(11.32)

When asked if rehabilitative services could be offered via social media, 50% of participants agreed, while 25.93% strongly agreed. Regarding whether participants felt social media was an effective method for providing rehabilitative care, 44.44% agreed, and 25.93% strongly agreed. Only three participants (2.78%) disagreed.

When asked whether they felt social media could enhance patient knowledge, 49.07% of respondents agreed, and 41.67% strongly agreed. When asked if they felt social media could aid patients living in rural areas, 49.07% of participants agreed, and 34.26% strongly agreed. Regarding whether

they felt social media could provide emotional support to patients, 46.30% of participants agreed, and 38.89% strongly agreed. Regarding their own knowledge, 55.56% of participants agreed that social media helped them improve their knowledge, while 28.70% strongly agreed. Most respondents (44.44%) agreed that improving patient communication was vital for improving patient health, while a significant proportion (22.22%) strongly agreed.

Reflecting upon their relationships with other HCPs, 59.26% of participants agreed that social media improved their communication with other HCPs and 29.63% strongly agreed. Furthermore, 55.56% of respondents agreed that social media helps HCPs disseminate health information pertaining to their specialties and 26.85% strongly agreed. These results indicate that most participants agreed that social media use is associated with benefits. These results were statistically significant, ($p < 0.05$).

In response to the question regarding whether the use of social media violated the privacy of patients, 51.85% of participants agreed and 11.11% strongly agreed. Additionally, 55.56% of participants agreed that information of poor quality could be propagated through social media, with 25.93% strongly agreeing and only 0.93% strongly disagreeing. Regarding social media's risk to patient health statuses, 47.22% agreed that it posed a potential risk and 10.19% strongly agreed. Regarding whether social media could break trust between HCPs and patients, 27.78% agreed, 5.56% strongly agreed, and 1.85% strongly disagreed.

In response to whether they felt social media could damage their professional image, 27.78% if participants agreed, 5.56% strongly agreed, 30.56% disagreed, and 1.85% strongly disagreed. Regarding whether social medial posed an ethical risk to HCPs, 36.11% agreed, 7.41% strongly agreed, 18.52% disagreed, and 2.78% strongly disagreed. Concerning whether social medial posed a legal risk to HCPs, 36.11% agreed, 6.48% strongly agreed, 14.81% disagreed, and 1.85% strongly disagreed.

Lastly, when participants were asked if social media could negatively affect patient adoption of practices related to their speciality, 57.41% agreed, 7.41% strongly agreed, and 7.41% disagreed. Therefore, it is evident that the improper usage of social media may result in difficulties for HCPs and their patients ($p < 0.05$).

Table 4. healthcare workers perspective on social media benefits and challenges in delivering rehabilitation services.

Item of measurement	Scale n (%)				
	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Benefits of using social media for delivering rehabilitation services *					
Can rehabilitation services be delivered through social media	0	1(0.93)	25(23.15)	54(50.00)	28(25.93)
Is social media a good tool to deliver rehabilitation care	0	3(2.78)	29(26.85)	48(44.44)	28(25.93)
Could social media be at help in delivering rehabilitation care	0	1(0.93)	21(19.44)	63(58.33)	23(21.30)
Does social media help in improving patients' knowledge	0	0	10(9.26)	53(49.07)	45(41.67)
Does social media help patients living in a rural geographical area	0	2(1.85)	16(14.81)	53(49.07)	37(34.26)
Does social media help patients for emotional support	0	1(0.93)	15(13.89)	50(46.30)	42(38.89)
Did social media helped in improving your knowledge	0	1(0.93)	16(14.81)	60(55.56)	31(28.70)
Did social media helped in improving communication with your patient	0	5(4.63)	31(28.70)	48(44.44)	24(22.22)
Did social media helped in improving communication with other healthcare provider	0	0	12(11.11)	64(59.26)	32(29.63)
Do you think social media would help you in your specialty to deliver health information	0	0	19(17.59)	60(55.56)	29(26.85)
Overall chi-square fit value	$X^2 = 59.9825$, DF = 27, P = 0.000				
Challenges of using social media for delivering rehabilitation services					
Can social media breach patient privacy	0	11(10.19)	29(26.85)	56(51.85)	12(11.11)
Can social media be used to spread poor quality information	1(0.93)	2(1.85)	17(15.74)	60(55.56)	28(25.93)
Is social media a potential risk to patient health status	0	5(4.63)	41(37.96)	51(47.22)	11(10.19)

Can social media break the trust between healthcare provider and patients	2(1.85)	26(24.07)	44(40.74)	30(27.78)	6(5.56)
Could social media damage my professional image	2(1.85)	33(30.56)	37(34.26)	30(27.78)	6(5.56)
Is social media a potential risk to healthcare professionals ethically	3(2.78)	20(18.52)	38(35.19)	39 (36.11)	8(7.41)
Is social media a potential risk to healthcare professionals legally	2(1.85)	16(14.81)	44(40.74)	39(36.11)	7(6.48)
Do you think social media can negatively affect patient adoptions of some practices related to your specialty	0	8(7.41)	30(27.78)	62(57.41)	8(7.41)
Overall chi-square fit value	**X^2 = 138.46, DF = 28, P = 0.000**				

 * Percentage of total raw n = 108

CHAPTER FIVE

Discussion

This chapter will include a summary of the findings, a discussion of the results, recommendations regarding the use of social media for delivering rehabilitation services, and a discussion of future research avenues.

The use of SMPs and the Internet is increasing at a rapid rate globally. The current study found that most participants use social media to deliver rehabilitation services easily and effectively. Furthermore, they feel it has aided in improving their communication with patients and the provision of patient education. These findings align with those of Surani et al. (2017), who concluded that the use of social media in health care settings for community participation, health promotion, and patient education is constantly expanding.

According to the current findings of our survey, the most popular SMPS among HCPs working at the Prince Sultan Bin Abdulaziz Humanitarian City were Twitter, Instagram, YouTube, and Snapchat. These findings are consistent with those of Alshakhs and Alanzi (2018), who reported that Instagram, Snapchat, and YouTube dominated the social media market among health care quality workers in Saudi Arabia.

Regarding age, most participants in the current study who used social media were under 40. This is consistent with the findings of previous studies that have shown that the number of people who use social media declines with increasing age (Duggan & Brenner, 2012). Similarly, Surani et al. (2017) found that health care employees under the age of 40 utilized social media more frequently and spent a significantly greater amount of time on social media compared to workers over the age of 40.

Patients' access to health care information and other educational resources can be improved with social media (Panahi et al., 2020). The use of social media has numerous benefits, including improved decision-making, enhanced experiences, increased disease control through improving patients' personal health care capabilities, and the correction of dangerous health behaviors. The findings of the current study were similar, as most participants agreed that social media could improve patients' understanding and health outcomes. Recent research has indicated that doctors are starting to take an interest in communicating with their patients online (Khan & Loh, 2021). This is in line with the current study results, where a large proportion of participants agreed that social media had enabled better communication with their patients. Househ (2013) reported that approximately 60% of physicians are in

favor of interacting with patients through social media to provide better patient education and health monitoring, stating that these efforts will result in "better education, increased compliance, and better outcomes."

The use of social media in professional practice has been hypothesized to facilitate more meaningful connections with patients, colleagues, and researchers. This is partially attributable to the fact that the use of social media in professional practice gives clinicians an online voice, allowing the profession to enhance its reputation and provide reliable health information (CPA, 2012). The majority of participants in the current study agreed that their communication with other HCPs had improved as a result of using social media. By evaluating the patterns of communications exchanged between users of online health communities, Goh et al. (2016) revealed that SNSs can be instruments of social equity by facilitating the dissemination of health knowledge and the improvement of skills. Correspondingly, in the current study, most participants agreed that using social media had improved the health and knowledge of patients living in rural areas by facilitating better communication.

While social media can be used to improve patient care and knowledge, it also poses several risks to patients (Marar et al., 2019). Therefore, to realize the full potential of social media as a positive mediator of health, the effects of inaccurate or misleading content, confirmation bias, and issues related to security and privacy must be overcome (Forgie et al., 2021). The majority of participants in the current study agreed that social media could impact patient privacy. This is consistent with the findings of Langenfeld et al. (2016), who reported that over half of the surveyed Chinese urologists had published information or photographs of patients on social media; however, only 5% had obtained the patients' permission before publishing.

A significant number of participants in the current study agreed that social media could cause ethical issues, including risk awareness, lack of information clarity regarding patient treatment, and the possibile dissolution of professional boundaries (Rivera-Romero et al., 2020). HCPs have several concerns regarding the authenticity of health-related internet content. More than half of the participants in the current study agreed that the distribution of low-quality content could harm patients. Furthermore, a substantial proportion agreed that social media could tarnish their profession's reputation, although some disagreed.

The use of SNSs by medical professionals and their associated ethical risks necessitate usage regulation (Al-Balushi, 2020). Social media use among HCPs has implications for the provider-patient

relationship and public trust in the profession, as well as potential legal challenges. In the current study, some participants agreed that social media could break the trust between HCPs and patients. HCPs must actively contribute to this conversation, as inappropriate use of SNSs (e.g., complaints about patients or a lack of empathy and respect) may result in legal and/or ethical issues that could damage their organization's reputation (Cain, 2011; Ventola, 2014). Studies investigating HCPs whose patients' privacy was breached due to their ignorance of ethical implications have found that these HCPs were uninformed about social media privacy settings (Chretien et al., 2010).

CHAPTER SIX

Recommendations

There are both advantages and disadvantages to disseminating health information through social media (Marar et al., 2019). The use of social media by HCPs may impact the security and confidentiality of patient records, patient agreements, employment practices, medical certification and licensing processes, and could lead to breaches of HCP–patient boundaries, among ethical issues. Therefore, healthcare organizations should develop social media use guidelines for employees (Chauhan B et al., 2012). The majority of studies investigating the use of social media in a heath care setting have advocated for the creation of ethical, legal, and technical guidelines and the formulization of a code of conduct or governing legislation that addresses these concerns (Helm & Jones, 2016; Ranschaert et al., 2016). Furthermore, the creation of such guidelines and legislations will help instruct HCPs and academic researchers in the appropriate use of various SMPs (Kenny & Johnson, 2016; Peluchette et al., 2016). Future studies should investigate research techniques and develop practice recommendations that may address privacy concerns related to the use of social media in health research, intervention, and patient-provider engagements, with the aim of encouraging and enhancing the use of social media in health care practice and research (Knight et al., 2015). In the absence of best practice evidence-based guidelines for the use of social media in rehabilitation delivery, clinicians and researchers should use their judgment to dictate what is and is not appropriate use.

CHAPTER SEVEN

Conclusion

Health care delivery has typically been accessible via specialized healthcare centers, home care, and public facilities. As the world evolves, it is critical that health care delivery evolves as well. Since the introduction of social media in the 1990s, more health care services have begun to utilize this technology to enhance health care outcomes.

This study examined the challenges and benefits of using social media for delivering rehabilitation healthcare services among HCPs working at a specialized rehabilitation health care facility in Riyadh, Saudi Arabia. The study found that HCPs agreed on the benefits that utilizing social media offers, particularly regarding the improvement of communication between HCPs and patients, provision of online consultations, and improved patient education and emotional support. Furthermore, participants agreed that social media helped to expand their knowledge base. However, participants had several concerns regarding the use of social media to deliver rehabilitation services, primarily around patient privacy and confidentiality, the spread of inaccurate information, and legal and ethical considerations.

To overcome these challenges, health care organizations should formulate best practice guidelines for the use of social media and provide HCPs with appropriate training. Furthermore, organizations should create a social media policy that ensures HCPs comply with all applicable laws and regulations.

CHAPTER EIGHT

Limitations and Strengths

One limitation of the current research is that a cross-sectional study design was used that involved a limited number of HCPs from a single rehabilitation hospital. This may limit the generalizability of findings to a wider population, thereby restricting their applicability. In addition, the sample size was smaller than the minimum sample size calculated. However, despite these shortcomings, the research also has certain strengths. As it was conducted at a specialized hospital, the participants had a high level of knowledge and expertise regarding rehabilitation care participants.

This study provides a foundation for future studies. Social media is pervasive in most individuals' daily lives; therefore, investigating its clinical utility is crucial so that the HCPs can develop best practices. Future research should look to develop and provide guidelines for social media use to improve treatment outcomes.

CHAPTER NINE

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CHAPTER TEN

Appendixes

مدينة سلطان بن عبد العزيز للخدمات الإنسانية
SULTAN BIN ABDULAZIZ HUMANITARIAN CITY

مدينة سلطان بن عبد العزيز للخدمات الإنسانية
SULTAN BIN ABDULAZIZ HUMANITARIAN CITY
لجنة أخلاقيات البحوث الطبية
Institutional Review Board (IRB)

Date: **3 November 2022**
IRB No.: **82-2022-IRB**

To: Ms. Ghadah AlDeraibi
        PI: " Challenges and Benefits of Using Social Media in Delivering Rehabilitation
        Health Care Services Among Healthcare Workers in Prince Sultan Bin Abdulaziz
        Humanitarian City"
        Saudi Electronic University
        E-mail: gaderaibi@sbahc.org.sa

Subject: Approval for Research No. 78/SBAHC/MSc/RH/2022
Study Title: "Challenges and Benefits of Using Social Media in Delivering
                            Rehabilitation Health Care Services Among Healthcare Workers in
                            Prince Sultan Bin Abdulaziz Humanitarian City"

Study Code: 78/SBAHC/MSc/RH/2022
Date of Approval: 03/11/2022
Date of Expiry: 05/04/2023
Board approval: All members except the absentees

Dear Ms. Ghadah AlDeraibi,

Your Project has been approved and you have the permission to conduct this study following
your submitted documents as follow:

1. Curriculum Vitae for the PI researcher
2. Letter from researcher's affiliating Organization/College
3. Letter from the researcher requesting SBAHC participation in the clinical study
4. Letter from the researcher's supervisor requesting supervision in the clinical study
5. Research proposal according to SBAHC IRB Guidelines
6. SBAHC Informed Consent Template
7. Research Obligatory Agreement. Available upon the completion of the other
   requirements

You are required to obey by the rules and regulations of the Government of Saudi Arabia, the
SBAHC IRB Policies and procedures and the ICH-GCP guidelines. You have to note that this
approval mandate responding to IRB's periodic request and surveillance result. Drawing your
attention to the following:

- Amendment of the project with the required modification to providing Periodical report for this project specially when study extension is required or expiry before study completion
- All unforeseen events that might affect continued ethical acceptability of the project should be reported to the IRB as soon as possible
- Personal identifying data should only be collected when necessary for research.
- Secondary disclosure of personal identifiable data is not allowed.
- Monitoring: projects may be subject to an audit by the IRB at any time.
- The PI is responsible for the storage and retention of original data pertaining to the project for a minimum period of five (5) years.
- Data should be stored securely so that a few authorized users are permitted access to the database.

The IRB registered with the IRB KACST Registration No. H-01-R-090. It is authorized to conduct the ethical review of clinic studies and operates in accordance with ICH-GCP Guidelines and all applicable national/local and institutional regulations and guidelines which govern Good Clinical Practices.

For Future Correspondence, please quote the project number and project title above and you are requested to keep IRB informed about your study progress and submit project progress report every six (6) months. A final report should be provided upon completion of the study.

Wish you a success in your research project.

Yours sincerely,

Prof. Khalid Al-Rubeaan
Chairman-Institutional Review Board
Sultan Bin Abdulaziz Humanitarian City

مدينة سلطان بن عبد العزيز للخدمات الإنسانية
SULTAN BIN ABDULAZIZ HUMANITARIAN CITY
لجنة أخلاقيات البحوث الطبية
Institutional Review Board (IRB)

Eligibility Criteria

1	Are you working in the rehabilitation department in Sultan Bin Abdulaziz Humanitarian city?	☐ Yes ☐ No
If any of the answers was" No", please do not proceed		

Section A. Sociodemographic data

Age ☐ 20-29 ☐ 30-39 ☐ 40-49 ☐ 50-59 ☐ 60+	Nationality ☐ Saudi ☐ Non-Saudi	Gender: ☐ Male ☐ Female	Marital Status: ☐ Single ☐ Married ☐ Other
Educational Level ☐ Diploma ☐ Bachelor ☐ Graduate degree	Status ☐ Part time ☐ Full time	Profession: ☐ Doctor ☐ Therapist ☐ Rehabilitation assistance ☐ Nurses ☐ Other	Sub-specialty: ☐ Physical care ☐ Occupational care ☐ Speech care ☐ Others
Population served: ☐ Adult ☐ Pediatric ☐ Both	Years of experience in rehabilitation field: ☐ < 1 year ☐ 1-5 years ☐ > 5 years	Years in SBAHC ☐ < 1 year ☐ 1-5 years ☐ > 5 years	

Section B. Social media usage questions

1. What is the purpose of using social media in your opinion?

Select all that apply

☐ Education purpose

☐ Networking

☐ Job hunting

☐ Communication with patients

☐ Online consultations

☐ Other

2. Years since you started using social media, in general?

☐ < 1 year

☐ 1-5 years

☐ > 5 years

3. Have you used social media in delivering rehabilitation services?

If you answer No, please skip questions 4 and 5

☐ Yes

☐ No

4. Years since you started using social media with patients?

☐ < 1 year

☐ 1-5 years

☐ > 5 years

5. Which of the following social media networks do you use in the rehabilitation field?

Select all that apply

☐ Facebook

☐ Twitter

☐ Instagram

☐ Snapchat

☐ YouTube

☐ TikTok

☐ All of the above

☐ Other

Section C. Benefits of using social media

In your opinion, do you agree or disagree on the following questions	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Social media 1- Can rehabilitation services be delivered through social media? 2- Is social media a good tool to deliver rehabilitation care? 3- Could social media be at help in delivering rehabilitation care? 4- Does social media help in improving patients' knowledge? 5- Does social media help patients living in a rural geographical area? 6- Does SM help patients for emotional support?					
Profession: 1- Did social media helped in improving your knowledge? 2- Did social media helped in improving communication with your patients? 3- Did social media helped in improving communication with other healthcare provider?					
Subspeciality 1. Do you think social media would help you in your specialty to deliver health information?					

Section D. Challenges

In your opinion, do you agree or disagree on the following questions	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Social Media 1- Can social media breach patient privacy? 2- Can social media be used to spread poor quality information? 3- Is social media a potential risk to patient health status? Can social media break the trust between healthcare provider and patients?					
Profession 1- Could social media damage my professional image? 2- Is social media a potential risk to health-care professionals ethically? 3- Is social media a potential risk to health-care professionals legally?					
Subspecialty 1. Do you think social media can negatively affect patient adoptions of some practices related to your specialty?					