

Patients' Use of Telemedicine Mobile Application During COVID-19 Restrictions

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Abstract. Telemedicine is being used in an increasing number of countries as an alternative to face-to-face traditional healthcare, to reduce the chances of spreading COVID-19. Although the use and benefits of telemedicine have been increasingly demonstrated for a long time, we do not know much about its adoption and use during the COVID-19 pandemic, when the community is confined by the social distancing restrictions. The main aim of this research is to study the factors affecting the adoption and use of telemedicine in patients during the period of COVID-19 restrictions. We also want to investigate the benefits of telemedicine for patients. We used a qualitative approach in this study. We interviewed six patients who used telemedicine during the COVID-19 restrictions. We find that telemedicine applications offered an overall positive experience for patients as a viable alternative way of medical care when physical attendance was restricted.

Keywords. Telemedicine, Telehealth, mobile application, health information systems, adoption, use, COVID-19

1. Introduction

The healthcare sector and its settings were greatly disrupted by the unpredicted outbreak of the corona virus disease (COVID-19). Along with the outbreak came big shifts in modalities of healthcare delivery over a very short period [1-3]. The COVID-19 situation stirred up the use of alternative tools and models for patient care, such as integrated systems for remote care delivery, i.e., telemedicine. Not only were patients remotely monitored but evaluation was also done collaboratively and in a coordinated manner [3]. Although we're still in the process of learning more and enhancing telemedicine, the practice has been widely considered to be safe and effective for delivering patient care during this unusual and challenging time period [4]

Previous studies suggested that implementation and usage of telemedicine has, however, faced several challenges. Financial constraints have hindered small healthcare practices from using it, despite positive efforts made by governments to facilitate its adoption [5]. Sometimes, telemedicine faces operational challenges like patients' inability to perform the required examinations independently and difficulty in providing accurate feedback to physicians in a timely manner [6]. Other times, it is the perceptions

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and attitudes of users which discourage them from using the technology. Low literacy levels, lack of exposure to telemedicine, or failure to achieve proper communication during consultations through the systems may make patients and the physicians reluctant to embrace it [6,7]. Differing regulatory requirements imposed on physicians by State Licensing Bodies also put limitations on the adoption of telemedicine [8,9], among other issues. Video conferencing is becoming the most-used form of telemedicine consultation and remote care delivery [5,10]. The growing usage is partly attributed to the availability of mobile devices and self-operated tools [3]. Despite the above positive findings, there is a lack of knowledge about acceptance and adoption of telemedicine among patients during COVID-19 pandemic [2]. This Paper aims to study the adoption, use and experience of patients with telemedicine mobile applications during the COVID-19 restrictions and lockdown.

2. Methods

The Ministry of Health (MOH) of Kingdom of Saudi Arabia (KSA) designed and developed an online health consultation mobile application for the public sector, known as the *Sehhaty Application* (“*Sehhaty App.*”). The app was operational prior to COVID-19 restrictions. Any person who is living in KSA can have access to this mobile application all the time. This app provides free consultation to its consumers. It offers three forms of delivery of medical consultations: chat, audio, or video call. Consumers can download this app on their smartphone. Till now, this app has been downloaded more than 10 million times. To receive real-time online medical consultation, a consumer is required to open the application and explain her/his medical condition, and then it will be connected with a physician.

To capture patients' perspectives on telemedicine usage during the COVID-19 restrictions, semi-structured interviews were conducted. The set of questions asked were focused on experience with telemedicine during the lockdown period as well as convenience, challenges, and other issues encountered when using the technology. The first author conducted the interview with patients who were recruited from social media networks. Patients who used the telemedicine app during COVID-19 restrictions were invited to participate. 6 out of potentially thousands who read the invitation to participate did participate by giving an interview for about 30 minutes by Zoom. Interviews were not recorded. Instead, notes were made during the interview. Ethics approval was obtained from the MOH in KSA. The data were analyzed using a thematic analysis technique.

3. Results

Six interviews were conducted with patients to learn about their experiences with telemedicine. Patients interviewed were four females and two males. Ages ranged between 22 to 43 years old. Four of the patients used the app for them and their dependents. While two used it for their own needs only. Four major themes emerged, which are the reason for using telemedicine, benefits of using telemedicine, drawbacks of using telemedicine, and suggestions for improvement.

3.1. Theme 1. Reasons for Using Telemedicine

The participants shared their experiences with using telemedicine. Two sub-themes emerged, which are discussed below.

- Usage caused by COVID-19: Most of the participants attributed their use of telemedicine to the COVID-19 outbreak because they could not leave their house due to the fear of getting infected. Telemedicine is the best choice to receive medical service.
- Get medical opinions or assessment remotely: Another reason for participants to choose telemedicine was to get doctor's opinion at home or remotely, which is afforded by the telemedicine application. One of the participants stated that because he lives far away from a hospital or clinic, utilizing the app enabled him to access medical assessment remotely.

3.2. Theme 2. Benefits of Using Telemedicine

The participants addressed the benefits of adopting telemedicine and discussed how the app assisted them during the COVID-19 outbreak. Based on their views. Four major benefits emerged from the interviews.

- Ease of use and accessibility: All participants suggested that the most important aspect of using telemedicine at home was its user-friendly interface and quick access to doctors. They reported that the app is simple, easy-to-use, so anyone can use it. They were able to schedule an appointment from home and got examined without leaving the house.
- Consultation at home: According to the participants, the most important aspect of the app was the ability to consult with a credible physician at home. The participants also stated that sometimes the problem is not severe enough to warrant a visit to a doctor, so they would call and discuss their concerns from home. Similarly, when the weather is bad or it is not possible to visit a medical center due to some circumstances, this app has proven to be extremely convenient.
- Secure Storage of data: The most important aspect of the app, according to the participants, is that it is managed by MoH. As a result, the participants stated that they are not concerned about disclosing their personal information.
- Reliable provider: The participants mentioned the services of the doctor. They reported that through the app, they can easily gain access to the services of trustworthy physicians who listen to their issues carefully and provide excellent consultation. In addition, the participants described several additional benefits that can be gained from using the app. One of these benefits is the ability to get a second opinion from multiple doctors, which is something difficult to do in terms of accessibility and practicability.

3.3. Theme 3: Drawbacks of Using Telemedicine

The participants discussed the limitations or drawbacks of using the app. According to the participants, does not provide information about the consulting physician's professional qualification as mentioned by two patients. Absence of this feature caused patients to have difficulty determining the level of experience and area of specialty that the consulting doctor possesses, which can be unsettling for some patients. Another

patient said that doctors do not always pay full attention to the patient. Another patient also mentioned the app's technical flaws. They stated that it typically requires "extra effort" to convey everything to the doctor or to explain every symptom using the text channel. One participant stated that app developers should simplify the login process as it becomes increasingly difficult for users to wait for the code and complete the sign-up procedure. Four patients believe that they have a greater likelihood of obtaining an accurate diagnosis by visiting their doctor in person rather than by using telemedicine. Due to the absence of physical touch, physicians were sometimes unable to make an appropriate diagnosis and had to refer patients to the nearest medical facility. Other important drawbacks included the app's technological challenges and limitations, since apps frequently become unresponsive due to technical errors, causing a significant inconvenience for patients. Concerns were also voiced by patients regarding the absence of critical elements such as a call-back function, patients' medical records, and information about medical providers.

3.4. Theme 4: Suggestions for the Improvement

The participants provided a variety of suggestions for telemedicine improvements. The following discussion will cover all the suggestions.

- **Marketing:** Nearly all the participants recommended that they promote the service on social media and launch marketing campaigns to boost awareness regarding the app.
- **Integration with other apps:** It was also proposed that the currently available app could be integrated with that of other apps to make it more useful. Participants also suggested including a doctor's profile in the app, which would allow patients to learn more about their experiences and specialization before scheduling an appointment. While participants were discussing the user interface of the app, one of them suggested adding more graphics to the app to make it simpler for people who have trouble reading. Additionally, one of them proposed the addition of a rating feature, which would allow users to provide feedback regarding the quality of the consultation they were given.

4. Discussion

Telemedicine has been a vital part of the response to the spread of COVID-19 worldwide. During the imposed restrictions, patients benefited from the availability of the service. Their reasons to adopt telemedicine varies from the mere convenience of getting medical consultation without having to commute to fear of getting infected with COVID-19 virus if they go to a medical center. Patients have reported several benefits to using telemedicine applications during COVID-19 restrictions. As it provides them with quick access to a reliable and trusted source for their medical consultation needs. Patients have reported that after they have experienced telemedicine during COVID-19 restrictions, they desire to use it again. Secure storage of patient's data and trust in the MOH were a factor that leads patients to use telemedicine. On the other hand, patients were not satisfied with the amount of information provided for them about the doctors. As the telemedicine application matches patients with doctors internally. Also, patients deemed text chatting consultations to be inadequate for medical consultations as it may lead to

misunderstanding. Patients have also been critical of two factors authentication, as it takes some time to complete the sign in process.

5. Conclusions

This patient interview study found that the telemedicine system introduced by MoH in KSA is positively viewed by patients, who appreciated the opportunity to receive medical consultation without leaving their homes during the COVID-19 pandemic. Patients see this lack of face-to-face interaction as a strength, which not only reduced the likelihood of contracting the virus, but also reduced the patient load at medical centers. However, due to the absence of physical touch, physicians were sometimes unable to make an appropriate diagnosis and had to refer patients to the nearest medical facility. This was cited as one of the greatest obstacles by patients. However, it was suggested that if the developers paid more attention to the app's technological flaws, it would benefit a large number of individuals in the future.

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