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RESEARCH ARTICLE

Patient Perceptions with Virtual Family Medicine Clinics in the Eastern Province of Saudi Arabia

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Abstract:

Background:

With the growth of technology and with many people having access to the internet, there has been an increasing trend of many people embracing telemedicine and virtual clinics. In Saudi Arabia, there is limited data and information about the perceptions of the patients regarding virtual clinics, especially for family medicine virtual care.

Objective:

This study was conducted to fill this gap by determining the patients' perceptions of family medicine virtual clinics in Saudi Arabia.

Methods:

The study was a cross-sectional descriptive study. This study employed the use of a survey approach to evaluate the patient's perceptions of family medicine virtual care in the Eastern Province of Saudi Arabia. The targeted population was the adult patients who used family medicine virtual services in 2021.

Results:

The study population was 395 participants. The plurality of respondents (38.50%) had rated their previous use of virtual family medicine as very good, and 44.60% have experienced an improvement in their health, 46.60% received enough information, and 49.10% felt that their privacy was respected.

Conclusion:

In Saudi Arabia, virtual clinics seem to be increasing in terms of popularity, and different approaches have been used in different conditions and specialties. Virtual family medicine services need improvement for enhanced adoption. Home health management, protecting patient privacy, and improvements in technical requirements would enhance patient experience with virtual family medicine services for many patients in the Eastern Province of Saudi Arabia.

Keywords: Patient perceptions, Virtual, Family medicine, E-medicine, Telemedicine, General medicine.

1. INTRODUCTION

Saudi Arabia Vision 2030 is an initiative that the government set up to help guide the country in economic diversification [1]. In addition to economic diversification and reducing Saudi Arabia's overdependence on oil, Vision 2030 also seeks to enhance and develop all of Saudi Arabia's public services by using technology and enabling different sectors, such as the health care sector, to meet the highest quality standards [1]. In line with Vision 2030, the Ministry of Health has launched many initiatives that are aimed at helping the health sector enhance its quality. For instance, the country has taken many steps to digitalize the healthcare system as the country seeks to enhance patient experience, efficiency, and quality of care [2]. By enhancing the care of patients, technology in health care has been found to offer better and more coordinated care and more convenience for physicians and patients [2]. One benefit is the possibility of having virtual clinics.

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As the world population increases over the years, pressure on healthcare systems around the world continues to increase. This increase has been evident in many developed nations, where research has shown that a great part of their gross domestic product (GDP) is spent on health care [3]. This phenomenon is also apparent in many developing nations, which have been experiencing increased costs in treating and managing noncommunicable diseases. Additionally, as the world sees increased financial costs linked to the provision of health care, the world sees the following linked to the provision of health care: the increased time that physicians commit to treating different patients with complex and multiple comorbidities [4]. Therefore, to help address such issues, the use of technology has been identified as key to helping solve the many challenges in the healthcare sector. Virtual clinics have been acknowledged to be at the forefront of many technological innovations in the healthcare sector [4].

Virtual clinics embrace the use of virtual consultation and have also been used interchangeably by different scholars to refer to what is known as telemedicine [5]. Virtual consultation describes the form of nonphysical contact between physicians and patients [5]. Research shows that many countries are adopting the use of virtual clinics due to their many potential benefits, which include decreased travel time to and from the health care centre [6], decreased patient waiting time [7], streamlining of referrals, increased appointment efficiency and increased use of specialist knowledge [8]. However, research also shows that virtual clinics face some valid concerns, especially regarding patient data safety and acceptability [9], all of which affect patient satisfaction. Overall, researchers agree that some of the advantages of the adoption and use of virtual clinics include more time-efficient appointments, higher patient satisfaction, reduced waiting times and increased efficiency in the use of the sector's resources [10].

In 2015, there was an indication of a growing shortage of healthcare providers, an increased number of chronic diseases and a quest for enhanced patient outcomes in Saudi Arabia [11]. As a result, virtual clinics have become an important alternative mode of delivery that has great potential to increase access for all people [11]. Virtual clinics offer an opportunity for both patients and physicians to conduct their appointments to e the risk of communicable diseases and facilitate control of the pandemic. A virtual clinic uses electronic communication technologies to offer health care over long distances [12].

The coronavirus disease 2019 (COVID-19) has urged many governments around the world to maximize the use of digital health and telehealth technologies to help curb the spread of COVID-19. For example, the Ministry of Health set up the Saudi Telehealth Network (STN) to help enhance the quality of healthcare services, enhance access to care, and reduce the cost of care [13]. This initiative is expected to facilitate the use of virtual clinics in Saudi Arabia in services such as family medicine, especially in rural and remote areas. Additionally, many private healthcare facilities in Saudi Arabia and around the world have also enabled the use of virtual clinics and telemedicine services, as was seen during the COVID-19 pandemic [13].

Access to family medicine services is still a challenge for many people in the Middle East, as family medicine is still in its development phase: the number of specialized family medicine physicians in the region is much less than the number of specialized family medicine physicians in other developed nations [14]. In Saudi Arabia, research shows that there have been increasing rates of non-communicable diseases, such as diabetes and cancers, which have put more pressure on family medicine service providers [15]. Having a high-quality, impartial and inexpensive healthcare system is one of the leading goals of Saudi Arabia Vision 2030, and achieving this goal involves increasing access to healthcare. With the growth of technology and many people having internet access, many people embrace telemedicine and virtual clinics. An increasing number of hospitals are embracing virtual clinics, as seen during COVID-19 [16]. Regardless, Saudi Arabia still faces many challenges caused by, *e.g.*, a shortage of equipment, a shortage of family medicine physicians and a lack of awareness [14]. Additionally, there are still concerns about technical issues, logistic issues and acceptability by both staff and patients [16].

There is limited information and studies about the perceptions of patients in regard to virtual clinics, especially for family medicine virtual care in Saudi Arabia. Therefore, this study was conducted to fill this gap by determining patients' perceptions with family medicine virtual clinics in Saudi Arabia. By filling this gap, the research would meet two other subgoals: to identify the dimensions that contribute to family medicine patient perceptions of virtual clinics; and to conclude with a response on how the patients think that virtual clinics compare to in-person visits. Additionally, virtual clinic perceptions measures should offer very important insight into the process of decision-making in Saudi Arabia.

1.1. Research Objectives

- To describe the patient perceptions with a virtual family medicine clinic in the Eastern Province of Saudi Arabia.
- To compare virtual with in-office family medicine services in terms of patient perceptions.

2. METHODOLOGY

2.1. Study Design

This study was a cross-sectional descriptive study conducted among patients who had experienced virtual clinics family medicine clinics in healthcare centers and hospitals in the Eastern Province of Saudi Arabia. This study employed a survey approach to evaluate patient perceptions of virtual family medicine care in the Eastern Province of Saudi Arabia. A research survey is an approach researchers use to conduct research studies using structured questionnaires that are often sent to a given population to fill in and provide the needed information [17]. Therefore, this study employed the use of a descriptive research design whereby a survey method was used.

2.2. Sample Size

It is estimated that more than 5000 patients have utilized virtual family medicine clinics in the Eastern Province of Saudi Arabia during 2021, according to the personal contact with the first health cluster in the province. For the large, expected population, the convenience sample size of the study was 386 respondents. This number should be a good representative sample size of the population [18].

The inclusion criteria were adult patients who used virtual family medicine services during 2021 and resided in the Eastern Province of Saudi Arabia. The exclusion criteria were individuals who were younger than 18 years old, patients who did not use virtual family medicine services in 2021, and individuals who did not reside in the Eastern Province of Saudi Arabia.

2.3. Research Instrument

In this study, a Google Surveys online questionnaire was used to collect data. Questionnaires were chosen for this study because compared to other research approaches, they offer wide coverage, and it is possible to sample a population over a large region. Additionally, questionnaires are more economical for both the researcher and the respondents in terms of cost, effort, and time. The respondents completed the questionnaires on their own time [17]. The questionnaires included mainly structured closed-ended questions, as using such questions helped save time and costs and facilitated analysis.

The online questionnaire was publicly available *via* social media for two weeks, from 15/10/2022 to 31/10/2022, after obtaining proper approval from the Ethical Research Committee. The questionnaire included four sections: Section A concerns demographic data such as age, gender, education level, and nationality; Section B concerns patient perceptions of virtual family medicine care; Section C compares virtual with in-office family medicine care in terms of patient perceptions, and Section D concerns virtual family medicine clinic accessibility. The questionnaire stemmed from the Telemedicine Satisfaction Questionnaire [19] and the Virtual Care Survey [20]. The total number of questions was 20.

2.4. Data Analysis Methods

After obtaining the questionnaire responses, the data were filtered and coded to improve the statistical analysis. The analysis of the data involved quantitative data analysis, whereby SPSS version 29.0 was used to analyse both descriptive and inferential statistics. Data analysis was presented in descriptive statistics, such as percentages. Tables were developed to ease the presentation of specific statistics.

2.5. Ethical Considerations

The respondents were first informed of the main aim of the study and what the study intended to achieve; the objectives; and the intent, which in this case was for academic purposes. The respondents were assured that the data would remain confidential and that the respondents' anonymity would be ensured. Furthermore, the respondents were informed in the introduction that they could stop filling out the survey at any point if they felt discomfort when being asked to answer questions about the services given by the hospitals and feared repercussions for speaking ill about a given service. They were assured that the collected data would be secured with a password that the primary researcher only obtained. Ethical approval was obtained from the Saudi Electronic University Ethical Committee, the approval date was 06/10/2022, and the record number was REC Number SEUREC-4409.

3. RESULTS

The sample population was 560 participants; of these, 8 did not agree to participate in the research, 34 were excluded from eligibility because the location was not in the Eastern Province of Saudi Arabia, 122 did not use virtual family medicine clinics in 2021, and one was under 18 years of age. Consequently, the study population was 395 participants who were eligible and included in the analysis.

The study first collected the respondents' demographic characteristics information, which is important to be able to describe the important information regarding the participants for conclusions. Table **1** presents each study respondent's age, gender, education level, and nationality, and the health sector of the respondent's previous family medicine provider.

The age distribution, as shown, shows that the highest age group in the study was between 18 and 29 years (32.40%), and the lowest age group was between 60 years and above (3.30%). Additionally, the data show that most of the respondents were female (62.02%), and the minority of respondents were male (38.00%). The data show that the plurality of respondents (38.20%) had a bachelor's degree, and the minority of respondents (2.50%) were at other levels of study. The research also sought to identify the nationality of the respondents taking part in the survey. As shown in Table **1**, most of the respondents (91.10%) were Saudi nationals, while 8.90% were non-Saudi nationals. Table **1** also shows where the respondents sought virtual family medicine care services. The data show that most of the respondents (67.80%) sought services from a government hospital and that the fewest respondents (9.60%) sought services from other sources.

Then, the study collected the patient experience information, which included information regarding virtual family medicine services, virtual *vs.* in-office family medicine services, and satisfaction with virtual family medicine services. The respondents were asked about their experience with virtual family medicine care. As shown in Table **2**, the plurality of respondents (38.50%) said their experience was very good, and 6.60% said their experience was poor. The respondents were then asked whether the care/treatment received through virtual care helped improve their health status. The plurality of respondents (44.60%) said yes, and 4.30% said the question was not applicable. Additionally, the respondents were asked whether they were provided with enough information on how to manage their health at home during virtual care. The plurality of respondents (46.60%) said yes definitely, and the minority of them (6.30%) said the question was not applicable. Concerning whether their privacy was respected during the virtual family clinic, the plurality of respondents (49.10%) said yes, and the least of them (7.30%) said the question was not applicable. The respondents were also asked to rate the virtual care received. Most of the respondents (50.40%) rated the virtual care received as very good, and 5.80% rated it as very poor.

Table 1. Demographic characteristics (N = 395).

Items	Frequencies	%
Age		
18-29 years	128	32.40%
30-39 years	126	31.90%
40-49 years	90	22.80%
50-59 years	38	9.60%
60 years or older	13	3.30%
Gender		
Male	150	38.00%
Female	245	62.02%
Education Level		
Below Secondary Degree	47	11.90%
Secondary Degree	89	22.50%
Diploma	64	16.20%
Bachelor	151	38.20%
Postgraduate	34	8.60%
Other	10	2.50%
Nationality		
Saudi	360	91.10%
Non-Saudi	35	8.90%
Health Sector Provider of Family Medicine Virtual Services		
Governmental hospital	268	67.80%
Private hospital	89	22.50%
Other	38	9.60%

Table 2. Patient experience (N = 395).

Items	Frequencies	%
Virtual Services of Family Medicine		
How was your experience with family medicine virtual clinic?		
Very good	152	38.50%
Good	95	24.05%
Neutral	105	26.60%
Poor	17	4.30%
Very poor	26	6.60%
Was the care and/or treatment received through virtual care help you to improve your health status?		
Yes, definitely	160	40.50%
Yes, to some extent	176	44.60%
No	32	8.10%
Not applicable	27	6.80%
During receiving the virtual care, were you given enough information about how to manage your health status at home?		
Yes, definitely	184	46.60%
Yes, to some extent	152	38.50%
No	61	15.40%
Not applicable	25	6.30%
Was your privacy respected during your visit to family medicine virtual clinics?		
Yes, definitely	194	49.10%
Yes, to some extent	141	35.70%
No	31	7.80%
Not applicable	29	7.30%
Overall, how would you rate the virtual care you received?		
Very good	199	50.40%
Good	83	21.01%

(Table 2) contd.....

Items	Frequencies	%
Virtual Services of Family Medicine		
Neutral	66	16.70%
Poor	23	5.80%
Very poor	24	6.10%
Virtual *vs.* In-office Family Medicine Services		
Compared with in-office family medicine appointments, how would you describe your experience of virtual care?		
Better	139	35.20%
about the same	146	37.00%
Not as good	83	21.01%
Bad	27	6.80%
Do you agree that family medicine virtual service is more satisfying than in-office family medicine services?		
Strongly agree	102	25.80%
Agree	89	22.50%
Not sure	132	33.40%
Disagree	42	10.60%
Strongly disagree	30	7.60%
If given a choice, would you choose family medicine virtual services or in-office family medicine services?		
Virtual clinics	148	37.50%
About the same	40	10.10%
Not sure	35	8.90%
In-office appointment	172	43.50%
Satisfaction of Virtual Family Medicine Services		
Virtual Services are convenient		
Strongly agree	184	46.60%
Agree	126	31.90%
Not sure	52	13.20%
Disagree	15	3.80%
Strongly disagree	18	4.60%
You have been seen within 15 minutes of your scheduled appointment time		
Strongly agree	79	20.00%
Agree	190	48.10%
Not sure	86	21.80%
Disagree	19	4.80%
Strongly disagree	21	5.30%
You faced difficulties of explaining your medical needs while using virtual clinics		
Strongly agree	59	15.00%
Agree	123	31.10%
Not sure	106	26.80%
Disagree	72	18.20%
Strongly disagree	35	8.90%
You faced technical difficulties while using virtual services		
Strongly agree	48	12.20%
Agree	130	32.90%
Not sure	105	26.60%
Disagree	63	15.90%
Strongly disagree	49	12.40%
You will recommend using family medicine virtual clinics to family members and friends		
Strongly agree	98	24.80%
Agree	156	39.50%
Not sure	90	22.80%
Disagree	20	5.10%
Strongly disagree	31	7.80%

The respondents were also asked to compare their experiences in in-office family medicine appointments with their experience with virtual care. The plurality of respondents (37.00%) noted that the experience was about the same, and the minority of respondents (6.80%) said that their experience was bad. The respondents were also asked whether the virtual family medicine service was more satisfactory than the in-office family medicine service. The plurality of respondents (33.40%) stated they were unsure, and 7.60% stated that they strongly disagreed. In addition, the respondents were asked whether they would choose virtual family medicine services or in-office family medicine services. The plurality of respondents (43.50%) stated that they would choose in-office appointments, and 8.90% noted that they were not sure. Additionally, respondents were asked about their level of agreement with the statement that virtual services are convenient. The plurality of respondents (46.60%) strongly agreed, and the least of them (3.80%) disagreed.

The respondents were asked about their level of agreement with the statement that they had been seen within 15 minutes of their scheduled appointment time. The plurality of respondents (48.10%) agreed, and 4.80% disagreed. The respondents were also asked about their level of agreement with the statement that they faced difficulties in explaining their medical needs while using virtual clinics. The plurality of respondents agreed (31.10%), (8.90%) strongly disagreed, and they asked about the level of agreement on whether they faced technical difficulties while using virtual services. The plurality of respondents (32.90%) agreed, and (12.40%) strongly disagreed. The plurality of respondents (39.50%) agreed they would recommend virtual clinics to family members and friends, and 5.10% disagreed.

4. DISCUSSION

This study started collecting demographic information, and the results show that there was a high percentage of participants between 18 years and 29 years who were female and had a bachelor's level of education because the questionnaire form was sent by data collection e-mail at a selected university. Additionally, most of the participants were of Saudi nationality because the study focus was on the Eastern Province of Saudi Arabia. In addition, most of the participants used virtual family medicine services from government hospitals because most of these participants used virtual clinics during the coronavirus pandemic in 2021, in which most in-office clinics were converted into virtual clinics.

Then, the study describes the patient experience with a virtual family medicine clinic in the Eastern Province of Saudi Arabia by asking the participants about their perceptions of the virtual family medicine services. The finding was that the patients felt that the virtual care was convenient, they had good experiences with the virtual family medicine clinic, they felt comfortable about their privacy, and the quality of virtual care received was of high quality. Hence, these patients would recommend using virtual clinics to their family members and friends. This finding shows the steps taken by the Ministry of Health in Saudi Arabia to enhance quality accord with Vision 2030. The country has taken many steps to digitalize the

healthcare system as the country seeks to enhance the patient experience, efficiency, and quality of care [2]. By enhancing the care of patients, healthcare technology has been found to offer better and more coordinated care and more convenience for physicians and patients [2].

The study also focused on finding the difference between virtual and in-office family medicine services in terms of patient perceptions. The study finds comparatively similar levels of satisfaction for both approaches. For example, the findings showed that most of the respondents noted that the experience was about the same, and when asked which was more satisfactory, most of them noted that they were not sure. This finding shows mixed feelings regarding the two options; this finding accords with many studies that have shown no clear preference between in-office visits and virtual appointments [21, 22]. For instance, a previous study showed that some people may be satisfied with virtual clinics but cannot accept the idea of using virtual clinics and telemedicine in place of existing face-to-face consultations [22]. Additionally, the two methods have their benefits, and on many occasions, the patients are in a dilemma about which to use. For example, virtual clinics have many potential benefits, such as decreased travel time to and from the health care centre and decreased patient waiting time [5 - 7].

The study sought to determine the patient's perceptions of family medicine in virtual clinics and the accessibility of health care by asking the participants about their perceptions of virtual family medicine services. The respondents noted that it took them less than 15 minutes to be seen by their doctors virtually and they were provided with enough information. These findings indicate that health care is more accessible through the use of virtual care, which was also supported by the findings in the literature [14], which noted that considering that Saudi Arabia has a shortage of family medicine doctors and most of the available specialists are concentrated in major towns and cities, there tends to be inequality in access to quality care, especially for people in remote areas [16]. This calls for the need for virtual health care. Additionally, one of the guiding key principles of family medicine is access to care and continuity of care [14], which is achieved through virtual clinics. There are still concerns about technical issues, as some respondents noted that they experienced technical difficulties while using virtual services, and others noted that they faced difficulties explaining their medical needs while using virtual clinics [16].

However, this study has limitations. Accessibility is one limitation as this study used an online survey and may not reach patients who don't have internet access to participate. Additionally, this study included elderly patients, some of whom were not proficient at using the internet to fill out forms properly. Lastly, the study recorded and analyzed patients' opinions on how the virtual family medicine services could have been improved, which is expected that most of them were not healthcare providers.

CONCLUSION

With the growth of technology and with many people having access to the internet, increasingly, many people have

embraced telemedicine and virtual clinics. Previous studies have shown that the use of virtual clinics has increased over the years, thus indicating that the use of virtual clinics has been highly successful for both urgent and nonurgent health care around the world. In Saudi Arabia, virtual clinics seem to be increasing in terms of popularity, and different approaches have been used in different conditions and specialties. However, there are still challenges in access to family medicine services for many people in the Eastern Province of Saudi Arabia. Additionally, there are still concerns about technical issues.

This study sought to describe patient experience with a virtual family medicine clinic in the Eastern Province of Saudi Arabia and the difference between virtual and in-office family medicine services in terms of patient perceptions. This study would contribute to managing health care in Saudi Arabia, showing both healthcare providers and patients that virtual family medicine clinics can be a good and sustainable opportunity for managing care and enhancing overall health care in Saudi Arabia. In addition, determining which family medicine options are more satisfying to patients can assist in managing the healthcare sector in Saudi Arabia, and policymakers can invest in what patients most prefer and make improvements to enhance patient perceptions. It is also expected that the findings of this research would be useful to other practitioners in Saudi Arabia and around the world who want to advance their practice in virtual health care. This study focused only on the Eastern Province of Saudi Arabia, thus limiting the generalizability of the results. Therefore, other studies should be conducted in other regions and hospitals in Saudi Arabia.

LIST OF ABBREVIATIONS

GDP	=	Gross Domestic Product
COVID-19	=	Coronavirus Disease 2019
STN	=	Saudi Telehealth Network

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethical approval was obtained from the Saudi Electronic University Ethical Committee, the approval date was 06/10/2022, and the record number was REC Number SEUREC-4409.

HUMAN AND ANIMAL RIGHTS

No animals were used in this research. All procedures performed in studies involving human participants were by the ethical standards of institutional and/or research committees and with the 1975 Declaration of Helsinki, as revised in 2013.

AVAILABILITY OF DATA AND MATERIAL

The data supporting the findings of the article is available on reasonable requests from the corresponding author [B.B].

STANDARDS OF REPORTING

COREQ guidelines were followed.

CONSENT FOR PUBLICATION

Informed consent was obtained from all the participants.

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CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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