Medical Science

pISSN 2321–7359; eISSN 2321–7367

Phone consultation during COVID-19 in the outpatient clinic at King Khalid University Hospital: What can we infer from this exciting experience for future practice?

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To Cite:
Alshammari S, Alalshaikh N, Alhosan Z, Alghtani Y, Alkublan K, Alquhidan M. Phone consultation during COVID-19 in the outpatient clinic at King Khalid University Hospital: What can we infer from this exciting experience for future practice?. Medical Science, 2022, 26, ms190e2271.
doi: https://doi.org/10.54905/disssi/v26i123/ms190e2271

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Peer-Review History
Received: 29 April 2022
Reviewed & Revised: 01/May/2022 to 18/May/2022
Accepted: 20 May 2022
Published: 23 May 2022

Peer-review Method
External peer-review was done through double-blind method.

URL: https://www.discoveryjournals.org/medicalscience

ABSTRACT

Objectives: To evaluate patients' satisfaction with phone consultation in KKUH during COVID-19 and to identify the advantages and limitations of phone consultation. *Methods:* Researchers conducted this analytical cross-sectional study between March 2020 and March 2021. Stratified systematic sampling was employed to recruit the patients randomly who had a phone consultation experience in the outpatient clinic at KKUH in Riyadh, Saudi Arabia. In addition, all patients who received at least one phone consultation received an online validated questionnaire. The data collected consisted of demographic characteristics, level of satisfaction, advantages and disadvantages, and future attitudes toward phone consultation. *Results:* Overall, 307 patients completed the questionnaire; 51.8% were male, 79.8% were ≥40 years old, 73.0% were married, and 43.0% had a university degree. The patients' overall satisfaction with virtual clinics was 58.6%. Age group ≥40 years and married status were statistically significant favorable satisfaction with a phone consultation p-value < 0.02 and 0.03 respectively. Most participants 54.7% thought that the best advantage of phone consultation is accessibility. However, the inability to meet the healthcare professional face-to-face was reported by 56.1% as the most important disadvantage. *Conclusion:* The majority of KKUH patients 60% were satisfied with phone consultations. The positive satisfactions were associated with older age group and being married. Therefore, whenever feasible, phone consultation should promote access to health care services, especially for individuals who may find difficulty in a face-to-face consultation. This strategy would save patients time, reduce follow-up time, and allow more patients to be served.

Keywords: Covid-19, phone consultation, patients' satisfaction, advantage of phone consultation, disadvantages of phone consultations.

1. INTRODUCTION

The World Health Organization (WHO) labelled the outbreak of COVID19 as a pandemic on March 16, 2020 (World Health Organization. Director General, 2020). The first case was documented on March 2, 2020, in Saudi Arabia (Kingdom of Saudi Arabia, Ministry of health, 2020). The COVID-19 pandemic significantly impacted the healthcare sector and delivery methods. Concerns over coronavirus transmission among healthcare workers and patients have increased due to this epidemic. The Saudi government has taken strong precautionary action by restricting attendance at most public agencies as a part of its exceptional efforts and steps to combat the pandemic (Saudi Press Agency, 2020a). Citizens and residents have been under lockdown since March 6, 2020 (Saudi Press Agency, 2020b). On March 17, the private sector was directed to work from home, and mosques were restricted from holding Friday prayers and group prayers (Saudi Press Agency, 2020c; Saudi Press Agency, 2020d). The testing and quarantine of people with a history of contacts, as well as self-isolation at home, are also important components of border control.

As a result, the healthcare system explored other options that minimize risks and successfully deliver healthcare services in response. Most notably was telemedicine which the World Health Organization defines as using technology by professionals to deliver health care services and exchange relevant data, about prevention, detection and treatment of disease and injury (World Health Organization Group, 1998). To avoid the higher infection risk associated with traditional face-to-face office visits, The Outpatient clinics at King Khalid University Hospital (KKUH) in Riyadh resorted to phone consultations for remote assessment and treatment of patients (Downes et al., 2017).

Doctors working from home or office call patients and review them over the phone. During most discussions, doctors utilize the professional judgment to assess patient health requirements. For example, they were counseled on house isolation, social distancing, enhanced hygiene (both personal and in the environment), and actions to take if their condition did not improve, changed, or if they developed new health concerns later on. Patients with persistent symptoms were referred to the flu clinic, while those with red flag symptoms were referred to the emergency services. In addition, the pharmacies began providing home delivery services for their Patients. Calls were documented for legal reasons. And Patients get a follow up appointment through SMS (Karim et al., 2020).

One recent study showed that 80% of patient needs were met with telemedicine services (Hentati et al., 2021). Another study conducted in Riyadh concluded that patient satisfaction with the virtual clinic is 68%, and it was also found that telemedicine services quality and patients' clinical outcomes may be comparable to in-office visits (Alharbi et al., 2021). The outbreak has caused a paradigm shift in telemedicine that aided in the containment of the disease. However, previous studies in Riyadh have not evaluated patient satisfaction with phone consultations. Therefore, the current aim of this study is to evaluate the satisfaction of patients using phone consultation in KKUH during COVID-19 and to identify the advantages and limitations of phone consultation.

2. METHODS

This analytical cross-sectional study was designed to measure the level of satisfaction in outpatients who experienced phone consultations from March 2020 to march 2021 at the primary care clinic at King Khalid University Hospital in Riyadh, Saudi Arabia. Calculator.net estimated the sample size to be 307 based on an average population proportion of 72.5% from the literature (Magadmi et al., 2020; Alharbi et al., 2021; Alshareef et al., 2021; Chesnel et al., 2021; Jannati et al., 2021; Sathiyaraj et al., 2021). The confidence level was set at 95%, while the margin of error was fixed at 5 %. The outpatient clinic provided a list of patients who had phone consultations during the pandemic. Patients were stratified based on gender.

Systematic random sampling is by selecting every third patient who had used phone consultation to select 307 phone consultation participants from March 2020 to march 2021. The patient's contact information was retrieved from the hospital's electronic medical record (Esihi) system. We included female and male patients who are 18 years old and above and had at least one phone consultation experience at KKUH. We excluded patients with communication problems and inpatients. A validated online survey questionnaire (Alharbi et al., 2021) was distributed to the participants by WhatsApp since it is the most common social media app in Saudi Arabia. The questionnaire was originally in English, and it was translated into Arabic. This questionnaire, which uses a Likert scale of 1-5, includes 13 questions about phone consultation experience, a question about trust level, and 11 questions about awareness and experience.

Furthermore, the data collected in the questionnaire included demographic data (gender, age, education level, marital status) and clinical characteristics. The questionnaire was tested on 20 people in a pilot study who were excluded from the final analysis. The double response was avoided by limiting participants to one response. The Statistical Package for Social Science (SPSS) version 24.0 (IBM, Armonk, NY, USA) was used to analyze the data. Descriptive analysis included computing frequencies and percentages

for categorical variables and median for continuous variables. Furthermore, the Mann-Whitney U test and Kruskal Wallis test were used to compare satisfaction levels between groups. All tests were performed with a significance level of 0.05.

3. RESULTS

Three hundred and seven patients participated in this study. Table 1 showed the demographic characteristics of the participants. The participants who are ≥40 years old and above represent 79.8% of the respondents, while the males account for 58.1%. There were 43.0% who had a university degree. The majority of respondents, 73.0%, were married. The overall median level of satisfaction was 4 (range =4, maximum value =5, minimum value=1). The high median level of satisfaction was statistically significant with age group (≥40) with a p-value of 0.017 and being married with a p-value of 0.003. The differences in the median level of satisfaction among gender and educational level did not reach statistical significant.

Table 1 Distribution of demographic characteristics of the participants alongside there satisfaction level using median and p-value to measure significance, N= 307

characteristics		No (%)	Median (rane)	P-value
Gender	male	159(51.8)	4(4)	0.39
	female	148(48.2)	4(4)	
Age	18-39	62(20.2)	3(4)	0.017
	≥40	245(79.8)	4(4)	
Education	Illiterate + primary	75(24.4)	4(4)	0.21
	Intermediate + secondary school	100(32.6)	4(4)	
	Bachelor's masters+PhD	97(31.6) 35(11.4)	4(4) 4(4)	
Marital status	Married	224(73)	4(4)	0.003
	Non-married	83(27)	3(4)	

Overall median =4, range =4, maximum value =5, minimum value=1

Table 2 showed distribution and comparison of the participant's level of satisfaction with phone consultation by demographic characteristics. About 60% of the participants viewed the phone consultation experience as favorable (29% very favorable and 29.6% somewhat favorable). Those who did not like this experience accounted for 18.9% of the subjects. About 58.6% of men compared to 56.8% of women looked at phone consultation as favorable, which was not statistically significant. While 61.6% of ≥40 compared to 45.2% of the age group 18-39 looked at phone consultation as favorable, it was statistically significant with a p-value of 0.028. Those with university degrees and above looked at the phone consultation as more favorable 60.6% than those illiterate or with primary school education who scored 52%, which was not statistically significant. It was found that 53.5% of the married individuals favored phone consultation compared to 48.2% among the unmarried individuals, and it was statistically significant with a p-value of 0.03.

Table 2 Distribution and comparison of the participants' satisfaction with phone consultation in relation to demographic characteristics. N=307

variable Count (%)		Did you have a favourable or unfavourable phone consultation experience?					P-value
		1 Very Unfavorable 28(9.1)	2 somewhat unfavorable 30(9.8)	3 neutural 69(22.5)	4 somewhat favorable 91(29.6)	5 Very favorable 98(29)	
Gender	Male 159(51.8)	11(6.9)	16(10.1)	36 (22.6)	48(30.2)	48(30.2)	0.74
	Female 148(48.2)	17(11.5)	14(9.5)	33 (22.3)	43(29.1)	41(27.7)	
Age	18-39 62(20.2)	12(19.4)	6(24.4)	15(24.2)	15(22.6)	14(22.6)	0.028
	≥40 245(78.8)	16(6.5)	24(9.8)	54(22)	76(31)	75(30.6)	
Education	Illiterate and primary 75(24.4)	7(9.3)	7(9.3)	22(29.3)	22(29.3)	17(22.7)	0.732
	intermediate + secondary school 100(32.6)	10(10)	11(11)	18(18)	27(27)	34(34)	
	University degree and above 132(43)	11(8.3)	12(9.1)	29(22)	42(31.8)	38(28.8)	
Marital status	Married 224 (73)	15(6.7)	19(8.5)	50(22.3)	67(29.9)	73(23.6)	0.03
	Not married 83(27)	13(15.7)	11(13.3.)	19(22.9)	24(28.9)	16(19.3)	

Table 3 showed the participants' opinions about the advantages of phone consultation by their demographic characteristics. Regarding the advantage of phone consultation, 58.5% of men compared to 50.7% of women thought it was more accessible. While 23% of women compared to 20.1% of men, felt that phone consultation can provide them with a provisional diagnosis without being subjected to the hazards of being exposed to infection from others. The age group 18-39, compared to those ≥40, felt the phone consultation clinic is more accessible, 59.7%, 53.5%, respectively. While the age group ≥40, compared to those 18-39, thought that they could easily get their prescription, the individuals with university degrees 59.8%, compared to the lower educational level group 54%, felt that phone consultation clinics are more accessible. The unmarried group, 50.6%, 24.1%, felt that phone consultation is more accessible and has an easy diagnostic facility than the married group 56.3%, 20.5%, respectively, but these differences were not statistically significant.

Table 3 The participants' opinions about the advantages of phone consultation by their demographic characteristics

Variable Count (%)		Advantages				P value
		Accessibility 168(54.7)	Prescription 57(18.6)	Diagnosis 66(21.5)	Cost 16(5.2)	
Gender	Male 159(51.8)	93(58.5)	27(17)	32(20.1)	7(4.4)	0.571
	Female 148(48.2)	75(50.7)	30(20.3)	34(23)	9(6.1)	
Age	18-39 62(20.2)	37(59.7)	10(16.1)	13(21)	2(3.2)	0.754
	≥40 245(79.8)	131(53.5)	47(19.2)	53(21.6)	14(5.7)	
Education	Illiterate+ Primary 75(24.4)	35(46.7)	18(24)	17(22.7)	5(6.7)	0.388
	Intermediate + secondary school 100 (32.6)	54(54)	21(21)	22(22)	3(3)	
	University and above 132(43)	79(59.8)	18(13.6)	27(20.5)	8(6.1)	
Marital status	Married 224(73)	126(56.3)	40(17.9)	46(20.5)	12(5.4)	0.809
	Not married 83(27)	42(50.6)	17(20.5)	20(24.1)	4(4.8)	

Table 4 showed participants' opinions about what might deter them from making a future phone consultation appointment. The preference to meet the physician in person may deter patients from using phone consultations. The differences were 57.2% of men compared to 56.1% of women, and 61.3% of the age group (18-39), compared 55.5% to the age group (≥40), 59.8% of individuals with university degrees, compared to 60% of the intermediate and secondary education level group, and 46.7% of illiterate or primary education, 56.3% of the married group, compared to 57.8% of the non-married group. These findings were not statistically significant.

Concerning patients who have had a bad experience with a phone consultation, 13.8% of men compared to 11.5% of women, 9.7% of age group 18-39, compared to 13.5% of those who are ≥40, 21.1% of a university degree, 12% of intermediate and secondary school, and 14.7% for primary and illiterate, the 12.9% married group compared to 12% of the none married group. However, these differences in patients' experience were not statistically significant.

Table 4 participants' opinions about what might deter them from making a future phone consultation appointment

Variable Count (%)		Which of the following might deter you from making a future phone consultation appointment			p-value
		I just prefer to meet physician in person 174(56.1)	I don't mind using phone consultation 94(30.6)	I have had a bad experience with phone consultation 39(12.7)	
Gender	Male 159(51.8)	91(57.2)	46(28.9)	22(13.8)	0.720

	Female 148(48.2)	83(56.1)	48(32.4)	17(11.5)	
Age	18-39 62(20.2)	38(61.3)	18(29)	6(9.7)	0.633
	≥40 245(79.8)	136(55.5)	76(31)	33(13.5)	
Education	Illiterate+ primary 75(24.4)	35(46.7)	29(38.7)	11(14.7)	0.385
	Intermediate+ secondary school 100(32.6)	60(60)	28(28)	12(12)	
	University and higher 132(43)	79(59.8)	37(28)	16(21.1)	
Marital status	Married 224(73)	126(56.3)	69(30.8)	29.12.9()	0.963
	Not married 83(27)	48(57.8)	25(30.1)	10(12)	

Figure 1 shows the main clinical conditions of the participants. Approximately half of the participants had diabetes, hypertension, and dyslipidemia. Figure 2 shows the effect of the pandemic on the level of the willingness to use phone consultation in the future. Overall 43.0% of participants reported their willingness to increase their use of phone consultation in the future. Another 40.7% of the subjects were unsure about their future preference.

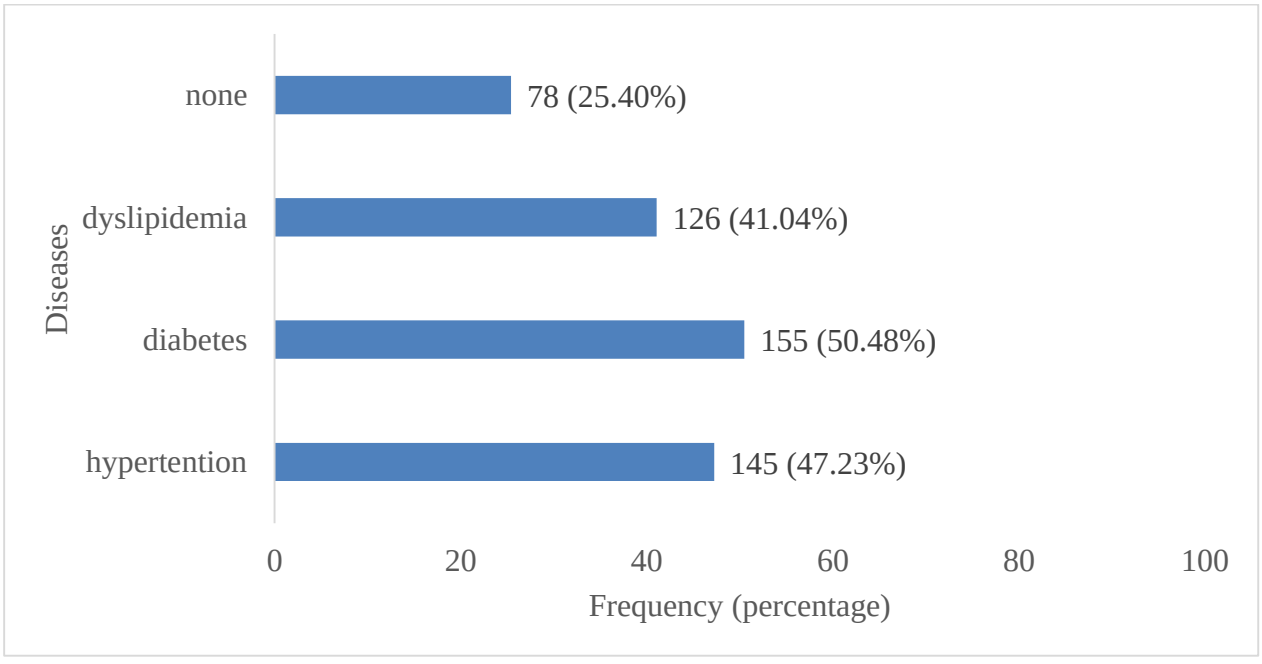

Figure 1 Main clinical condition of the participants.

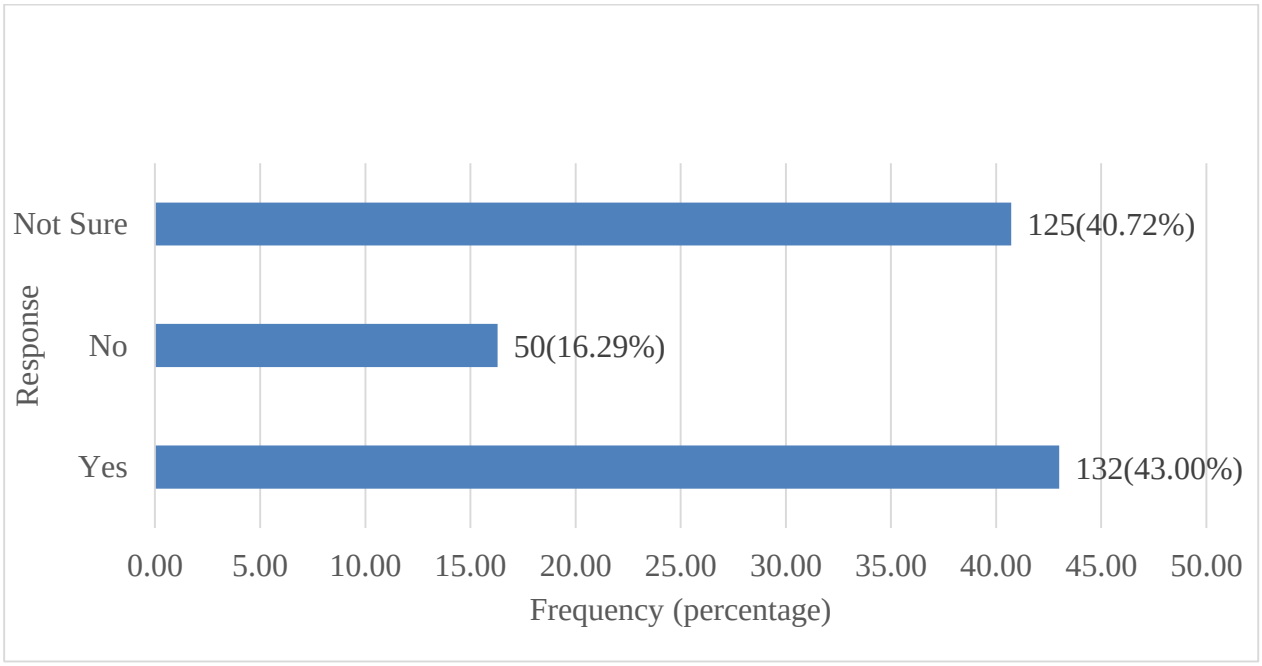

Figure 2 Has COVID-19 pandemic increased your willing less to try virtual clinics in the future?

4. DISCUSSION

Preventing nosocomial infections among patients, healthcare personnel, and visitors to the clinical facility is impossible without prompt identification, appropriate triage, and cohort of potentially infected patients (Chan et al., 2020). The largest academic medical institutes in Saudi Arabia have opted for phone consultations rather than face-to-face encounters in response to the pandemic. Phone consultations are vital when face-to-face meetings with patients are not feasible. It makes it possible for patients and doctors to communicate and exchange information daily or night using their phones. In most consultations, doctors utilize their professional judgment to determine their health needs, even though seeing a patient is an essential management tool for any physician (de Sutter et al., 2020).

The implementation of this system was accelerated to ensure the patients and front-line health care personnel safety and address their concerns and anxieties about their safety (Chaffee, 2009). A huge number of interactive sessions were held using this method. Utilizing the phone to provide patients care was a positive experience for all parties concerned (Karim et al., 2020). The current study showed an overall satisfaction of 58.6% with a phone consultation, which is lower than 68.1% at National Guard Hospital using virtual consultation (Alharbi et al., 2021). While it was higher than 43.43% in another study using Telegram instead (Jannati et al., 2021). These differences may be attributed to different tools used. Furthermore, mobile phones in Saudi Arabia showed a high utilization rate, as 92% of the population use cell phone) (General Authority for Statistics (GAStat), 2018).

Survey subjects indicated that they would use telemedicine again, though it was initially seen as an emergency response to the pandemic. In Addition, most respondents looked at accessibility as the main advantage of phone consultation. Next comes obtaining a medical service without traveling to a clinic or spending time in a waiting area. These findings were confirmed with a study that took place at the National Guard Hospital (Alharbi et al., 2021) and research conducted in the United States (Corporation, 2020). A physician consultation by phone was a safe, timely, and quick alternative to going to the doctor's clinic for many patients. Despite their benefits, virtual clinics are not without shortcomings. The failure to meet the healthcare professional physically is the most frequently mentioned disadvantage of virtual clinics. This concern contrasts with a study conducted in Jeddah (Magadmi et al., 2020), in which more than 80% of participants were satisfied that they did not require a physical meeting with the doctor.

In Addition, their findings showed that over 70% of participants were unsatisfied with the length of time they had to wait to see a doctor before getting a consultation. According to a study done in the USA (Corporation, 2020) the most significant disadvantage of virtual clinics was the worry about their quality. However, few people, such as the elderly or impaired hearing, may have difficulty using a phone. Therefore, visiting a doctor in person may not be a preferred choice in the future, as patients seek convenient and cost-effective care (Duffy & Lee, 2018). It is worth mentioning that the older age group and the married participants showed a significant association with overall satisfaction. These findings may be attributed to phone consultation saving these

groups the burden of transport and spending time in the waiting area. In Addition, the older age group may be more cautious from being infected. Also, some of these elderly may need a companion to attend with them in the clinic. However, a previous study in Jeddah (Magadmi et al., 2020) showed that only the levels of education were strongly linked to total satisfaction.

In contrast, another study (Jannati et al., 2021) reported no significant relationship between participants' demographics and overall satisfaction. In the present investigation, the young patients stated accessibility as the main advantage. This finding is understandable as the younger generation has more commitment to their jobs. At the same time, a study conducted in the USA (Tenforde et al., 2020), found accessibility as the main advantage by all age groups. Only about 5% of the participants viewed the cost as an advantage. This favorable situation was not the case with another overseas study where in-person visits led to high-cost patients, employers, and the environment due to travel (Tenforde et al., 2020). Such a finding may be attributed to the fact that health services in Saudi Arabia are free of charge to the public regardless of the mode of delivery.

Furthermore, transportation expenses are relatively cheap in the country. The information on management strategies of such challenging situation in the outpatient setting is essential. This new modality highlights the pressing need to improve our knowledge of the reaction of outpatient settings during this pandemic crisis and whether we can utilize the technics in our future practice when the pandemic is over. Telemedicine consultation might become necessary for future doctors both within and outside of a pandemic (Gopal, 2020).

Study limitations

Despite its strengths, including the fact that it is one of the few studies on phone consultation in Saudi Arabia to use stratified systematic random sampling; the current study has some shortcomings. Nonetheless, because the findings are from a single center (KKUH), they may not generalize to other Saudi populations.

5. CONCLUSION

Despite being relatively new, phone consultation had been a convenient experience for most participants (58.6%). Age above 40, being married contributed significantly to the satisfaction level. Participants referred to accessibility to health care as the most important advantage. This finding shows that phone consultation services overrode distances to maintain healthcare delivery acceptable to patients and reduce demands on healthcare services. However, though phone consultation may be favorable to some people, the most common disadvantage is the inability to meet healthcare providers physically by others.

Recommendations

Phone consultation should be utilized to improve availability and accessibility to health care services, particularly for those who may find difficulties with transport. Adopting such a method would also save patients time, shorten the follow-up time length and give opportunities for more patients to be served. Monitoring the services for quality on a regular basis is necessary to detect risks and failures, make the process smoother, and overcome societal and technological barriers. However, the study has important pointers for future studies in this field. We need more studies in different regions (urban and rural) in Saudi Arabia concerning virtual consultation.

Acknowledgments:

We thank the participants who were all contributed samples to the study. We are grateful to doctor Khalid Alharbi, who provided us with the validated questionnaire.

Author Contributions

All authors contributed to the conception, design of study, and approval of this version of the manuscript to be published. NA, ZA, YA, KA, MA: Data collection, analysis, interpretation of data. SA, NA: Data analysis, supervision of work, writing and editing of manuscript. ZA, YA, KA, MA: Data analysis, writing and editing of MS, figure and table preparation and supervision of work.

Ethical approval

The study was approved by the Institutional Review Board of Health Sciences Colleges Research on Human Subjects, King Saud University College of Medicine (IRB Approval of Research Project No. E-21- 6143–CMED-305/B3) 12 September 2021.

Funding

This study has not received any external funding.

Conflicts of interest

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are present in the paper.

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