

ORIGINAL ARTICLE

Patients' Satisfaction with Teleconsultations during the COVID-19 Pandemic in the Kingdom of Bahrain

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Abstract

Background: The SARS-CoV-2 pandemic led to the restructuring of traditional clinical activity; hence, globally, 58% of countries implemented the use of telemedicine to meet their healthcare needs.

Objective: To examine patients' satisfaction with telemedicine medical service and experience at the level of primary care in the Kingdom of Bahrain.

Methods: A retrospective cross-sectional study was conducted on 335 patients who used teleconsultations in January 2022 in primary care. A validated questionnaire was modified to assess patients' satisfaction with teleconsultation medical services and experience during the COVID-19 pandemic.

Results: A total of 315 responses were included in the final analysis (response rate 94%). Almost all expressed extreme satisfaction with the medical service as they were able to easily explain their medical problem over the phone and fully understood their illness after the consultation. They were also satisfied with the ability of the doctor to understand their problem, explain their treatment, and provide appropriate management over the phone. Over 90% were satisfied with the consultation time that it does not require transportation and would like to use it in the future. Sharing private or personal information over the phone received the lowest satisfaction rate (77.5%).

Conclusion: The overall satisfaction expressed by respondents of this survey with the teleconsultation medical service and experience is very high. Such a result confirms that patients have a positive attitude towards telemedicine services in primary care and are willing to use it again and, therefore, must be adopted as a proactive strategy to ensure long-term sustainability.

Keywords: COVID-19 Pandemic, Satisfaction, Teleconsultation, Telemedicine.

Introduction

The identification of Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2),

responsible for COVID-19, in December 2019 posed numerous challenges to the healthcare system.¹ The World Health Organization (WHO) defined

telemedicine as the delivery of health care services, diagnosis, treatment, and prevention of disease by healthcare professionals using technologies.^{2,3}

Globally, 58% of countries implemented the service to meet their healthcare needs.⁴ Due to the pandemic, telemedicine was even temporarily approved in Korea, a country where it had formerly been prohibited.⁵

As the disease spread across the Kingdom of Bahrain starting in February 2020, office visits dropped as physicians and patients feared in-person visits may increase their risk of contracting the virus.⁶ Under the circumstances, the Ministry of Health established teleconsultation units in April 2020 across primary healthcare. The services provided are for new complaints, medication refills, laboratory requests, and follow-up through audio/video calls by previously assigned family physicians.

A review of patient satisfaction and experience with telemedicine across 12 different countries found telemedicine to be promising on various measures, such as addressing patients' concerns, communication, usefulness, and reliability.⁷ It demonstrated variable satisfaction scores across secondary care specialties, including surgery, oncology, dermatology, ENT, and neurology.^{8,9,10,11,12}

In literature, satisfaction levels varied; some studies showed high percentages, like 100% in South India, 95% in Bahrain, 90% in Egypt, 82% in Portugal, and 80% in Korea.^{5,8,11,12,13} Whereas, others scored lower rates, such as 43% in Iran, where patients thought teleconsultations were incomparable to face-to-face meetings and were dissatisfied with the quality of care delivered.¹⁴ Another study from Saudi Arabia revealed a 37% satisfaction rate.¹⁵

Earlier studies found it inconvenient to compare satisfaction between face-to-face visits and teleconsultations during a pandemic due to safety concerns which were listed as a barrier.¹⁶ Other restrictions could be related to the patients' literacy levels and internet accessibility.^{5,17,18} Some studies' outcomes were affected by response bias.¹⁵ In Germany, survey dissemination was done via postal mail, which may have had an impact on response rates. A drawback that has been noted in several

studies is the inability to generalize the findings from different subspecialties.¹⁰

Given the unclear effect of teleconsultation on patient care, we performed a retrospective cross-sectional survey study to evaluate patients' satisfaction with the medical service and experience of telemedicine in primary healthcare settings in the Kingdom of Bahrain and measure factors intervening with it.

Materials & Methods

The study design is cross-sectional and conducted within the Kingdom of Bahrain in February 2022 through a phone interview. The interview started by obtaining consent and identifying the aim of the study to the participants.

The inclusion criteria were adults > 18 years, Bahraini and Non-Bahraini, fluent in Arabic and/or English, and have used teleconsultations in the general clinic in primary care during January 2022 in the kingdom of Bahrain. The exclusion criteria were a positive case of COVID-19 consultation as they have their separate hotline, non-communicable disease clinic teleconsultation, language barrier, unreachable by phone, and those with an incomplete questionnaire.

A list of patients was obtained retrospectively from the registry of all nine teleconsultation clinics in the primary health care morning general clinic during January 2022. The initial list of patients included was 3606 individuals. After applying the exclusion criteria, 2606 patients met the requirements of the study. Using an online sample size calculator [Statulator], a sample size number of 335 patients was obtained.¹⁹ A random sample was generated using Microsoft Excel. A validated questionnaire that assesses patient satisfaction with telephone consultation service during the COVID-19 pandemic was adopted as the data collection tool, and permission was obtained from the original authors.²⁰

The demographic data in the questionnaire was amended to fit the population, availability of services at primary care, and study objective as follows: the exact age was taken instead of age ranges, and nationality was changed to Bahraini and Non-Bahraini instead of Saudi and Non-Saudi.

In question 4, "intermediate" was added to the level of education. Emergency situations and COVID-19 medical issues were removed from the options to question 7, and instead, requested labs and other services were added. In addition, the labs requested were added to question 8, which specifies the outcome of the last consultation, and the option of sending an ambulance was removed as this service is unavailable in the primary care setting within the kingdom of Bahrain. Finally, two questions were added: the presence of comorbidities (cardiovascular disease (CVD), cancers, diabetes (DM), chronic respiratory disease, and others) and the mode of teleconsultation (Audio / Video). These specific comorbidities were chosen based on the four main non-communicable diseases reported in the latest published health statistics of 2019 in the Kingdom of Bahrain.²¹ These changes in no way affect the scoring system.

The final instrument consists of 3 parts (demographic data, patient satisfaction regarding the medical service, and patient satisfaction regarding the experienced service) with a total of 19 items. Participants were asked to use a five-point Likert scale (1, strongly disagree; 5, strongly agree) with a final score of a minimum of five and a maximum of 25. The instrument was made available in English and Arabic.

Participation was deemed voluntary, and they could withdraw at any time during the interview. Moreover, their identity will remain anonymous and be substituted with a serial number.

Data was entered and analyzed using SPSS software version 25. Out of the 335 study subject, 19 did not consent, and one participant was omitted due to missing data measuring a response rate of 94%. Prior to data analysis, data treatment was executed. The age was categorized into four groups: 18 - 29, 30 – 44, 45 – 59, and ≥ 60 . The education level was grouped into secondary (illiterate, elementary, and intermediate), secondary, and university and higher education. The level of satisfaction was combined

into three groups: disagree (strongly disagree and disagree), not sure, and agree (agree and strongly agree). The presence of comorbidities was simplified into present or absent. Other reasons for the use of telemedicine were excluded from the association analysis due to a total number of 6 subjects only.

Frequencies and percentages were computed for categorical variables, while means and standard deviations were computed for quantitative variables. Mann-Whitney test was used to investigate whether there was a significant difference in mean score between the two groups, while the Kruskal-Wallis test was used between more than two groups. The chi-Square test was used to determine whether there is a significant association between two categorical variables. A P-value of 0.05 was considered statistically significant. Qualitative thematic analysis for open-ended questions was used.

Results

A total of 315 answered the questionnaire (Table 1). Participants ages ranged from 18 years to 60 years and above. The majority were between 30 to 44 years (34.9%), followed by 45 to 59 years old (23.8%), ≥ 60 years (22.2%), and 18 to 29 years old (19%). Of all participants, 74.9% were females, and most were Bahraini nationals (94%). The majority of the participants attained a university degree or higher (50.5%), used the service more than once (77.5%), and operated through an audio call (64.1%).

Half of the patients used the service to follow up on their lab results (50.8%). Participants also stated that they used the service for a new complaint (37.5%), medication refill (35.9%), lab requests (30.2%), or other reasons (1.9%).

Regarding the teleconsultation outcome, the most common was medication prescription (56.2%), whereas the least common outcome was booking an appointment in the clinic (9.8%). Of the respondents, 38.1% had no comorbidities. Within those who had comorbidities, the majority were cardiovascular-related (21.6%) and the minority were cancers (1%).

Table 1. Demographic and General Characteristics of the Participants in the Telemedicine Satisfaction Research

Variables	n = 315 n (%)
Age in years	
18 - 29	60 (19)
30 - 44	110 (34.9)
45 - 59	75 (23.8)
60+	70 (22.2)
Sex	
Male	79 (25.1)
Female	236 (74.9)
Nationality	
Bahraini	296 (94)
Non-Bahraini	19 (6)
Education Level	
Below secondary	46 (14.6)
Secondary	110 (34.9)
University and higher	159 (50.5)
Number of times the service was used in the last year	
Once	71 (22.5)
More than once	244 (77.5)
Reason of using the service	
New Complain	118 (37.5)
Follow up lab results	160 (50.8)
Request labs	95 (30.2)
Medication refill	113 (35.9)
Others	6 (1.9)

Outcome of the service

Reassurance and self-management	113 (35.9)
Prescribed drugs	177 (56.2)
Appointment	31 (9.8)
Requested labs	109 (34.6)

Comorbidities

None	120 (38.1)
CVD (Including HTN)	68 (21.6)
DM	64 (20.3)
Asthma	9 (2.9)
Cancers	3 (1)
Others	110 (34.9)

Mode of teleconsultation

Audio	202 (64.1)
Video	113 (35.9)

CVD: cardiovascular disease, HTN: hypertension, DM: diabetes mellitus

The overall satisfaction of the participants with the medical service provided is summarized in table 2. Almost all respondents expressed extreme satisfaction with being able to easily explain their medical problems over the phone, in addition to the doctor's ability to understand their problem (94%). Likewise, 91.1% of the patients were confident that the doctor was competent in providing an appropriate management plan via telephone. The lowest level of satisfaction was seen in the doctors' ability to tell them about their treatment plan and the patient's understanding of their illness after completing the consultation, with a percent of 88.6% and 86.3%, respectively.

Table 2. Patient Satisfaction with Medical Service

	Disagree	Not sure	Agree
	n (%)	n (%)	n (%)
1. I easily explained my medical problem to the doctor on the phone	7 (2.2)	12 (3.8)	296 (94)
2. I believe the doctor understood my medical problem on the phone	9 (2.9)	10 (3.2)	296 (94)
3. I was confident that the doctor could provide an appropriate management plan via phone consultation.	16 (5.1)	12 (3.8)	287 (91.1)
4. The doctor told me everything about my treatment.	16 (5.1)	20 (6.3)	279 (88.6)
5. I understood my illness much better after the phone consultation	16 (5.1)	27 (8.6)	272 (86.3)

Table 3. Patient Satisfaction with the Experienced Service

	Disagree	Not sure	Agree
	n (%)	n (%)	n (%)
1. I was more comfortable to tell the doctor about some private or personal information than face-face appointment.	23 (7.3)	48 (15.2)	244 (77.5)
2. I was satisfied with the consultation time	8 (2.5)	3 (1)	304 (96.5)
3. It provided medical consultations at my preferred time 24/7	8 (2.5)	12 (3.8)	295 (93.7)
4. It provided good medical service that does not require transportation.	1 (0.3)	14 (4.4)	300 (95.2)
5. I would like to use it again in the future after COVID-19 pandemic	13 (4.1)	14 (4.4)	288 (91.4)

Table 3 shows patients' satisfaction with the experienced service. Sharing private or personal information over the phone received the lowest satisfaction rate (77.5%). In contrast, the consultation time received the highest satisfaction rate of 96.5%. Study subjects were highly satisfied with the availability of consultations at their preferred time, without needing transportation, and requested the service to be used after the COVID-19 pandemic, with satisfaction rates of 93.7%, 95.2%, and 91.4%, respectively.

The association between participants' demographic characteristics and willingness to use telemedicine services again in the future is depicted in table 4. A significant association was only found in regard

to the mode of teleconsultation ($p=0.044$), where patients who used video consultations had a higher satisfaction rate than those who used audio calls. The remaining factors were shown to have no statistically significant associations ($p>0.05$).

Mean satisfaction scores with the medical service provided at the primary care general clinic via telemedicine during COVID-19 were determined for all variables (Table 5). Those with higher educational levels had a higher mean satisfaction score compared to the other participants ($p=0.034$). There is a significant relationship between the level of satisfaction and the outcome of teleconsultation. Patients who were prescribed medications were

more satisfied ($p=0.041$), in addition to those who did not need to be booked an appointment ($P=0.006$). Whereby age, gender, nationality, reason for use, presence of comorbidities, and mode of teleconsultation did not correlate with satisfaction ($p>0.05$). In terms of mean satisfaction scores of the experienced service, data from table 5 shows again

a significant correlation among participants with a higher educational level ($p=0.047$) in addition to participants who used the telemedicine service more than once ($p=0.002$). On the other hand, a non-significant difference was found between satisfaction scores and all the other variables ($P>0.05$).

Table 4. Association between participants' demographic characteristics and willingness to use telemedicine services in the future

	I would like to use it again in the future after the COVID-19 pandemic		
	Disagree	Not sure	Agree
	n (%)	n (%)	n (%)
Age in years			
18 - 29	1 (1.7)	3 (5)	56 (93.3)
30 - 44	4 (3.6)	2 (1.8)	104 (94.5)
45 - 59	4 (5.3)	5 (6.7)	66 (88)
60+	4 (5.7)	4 (5.7)	62 (88.6)
<i>P</i> -value	0.573		
Sex			
Male	3 (3.8)	3 (3.8)	73 (92.4)
Female	10 (4.2)	11 (4.7)	215 (91.1)
<i>P</i> -value	0.933		
Nationality			
Bahraini	12 (4.1)	12 (4.1)	272 (91.9)
Non-Bahraini	1 (5.3)	2 (10.5)	16 (84.2)
<i>P</i> -value	0.394		
Educational Level			
Below secondary	2 (4.3)	3 (6.5)	41 (89.1)
Secondary	6 (5.5)	8 (7.3)	96 (87.3)
University and higher	5 (3.1)	3 (1.9)	151 (95)
<i>P</i> -value	0.194		
Number of times the service was used in the last year			
Once	2 (2.8)	6 (8.5)	63 (88.7)
More than once	11 (4.5)	8 (3.3)	225 (92.2)
<i>P</i> -value	0.152		
New Complain			
Yes	6 (5.1)	4 (3.4)	108 (91.5)
No	7 (3.6)	10 (5.1)	180 (91.4)
<i>P</i> -value	0.640		

<i>Follow up lab results</i>			
Yes	3 (1.9)	6 (3.8)	151 (94.4)
No	10 (6.5)	8 (5.2)	137 (88.4)
<i>P</i> -value	0.097		
<i>Request labs</i>			
Yes	2 (2.1)	3 (3.2)	90 (94.7)
No	11 (5)	11 (5)	198 (90)
<i>P</i> -value	0.365		
<i>Medication refill</i>			
Yes	6 (5.3)	8 (7.1)	99 (87.6)
No	7 (3.5)	6 (3)	189 (93.6)
<i>P</i> -value	0.163		
<i>Reassurance and self management</i>			
Yes	2 (1.8)	6 (5.3)	105 (92.9)
No	11 (5.4)	8 (4)	183 (90.6)
<i>P</i> -value	0.258		
<i>Prescribed drugs</i>			
Yes	9 (5.1)	9 (5.1)	159 (89.8)
No	4 (2.9)	5 (3.6)	129 (93.5)
<i>P</i> -value	0.501		
<i>Appointment</i>			
Yes	2 (6.5)	1 (3.2)	28 (90.3)
No	11 (3.9)	13 (4.6)	260 (91.5)
<i>P</i> -value	0.752		
<i>Requested labs</i>			
Yes	4 (3.7)	5 (4.6)	100 (91.7)
No	9 (4.4)	9 (4.4)	188 (91.3)
<i>P</i> -value	0.954		
<i>Comorbidities</i>			
Yes	11 (5.6)	10 (5.1)	174 (89.2)
No	2 (1.7)	4 (3.3)	114 (95)
<i>P</i> -value	0.161		
<i>Mode of teleconsultation</i>			
Audio	12 (5.9)	11 (5.4)	179 (88.6)
Video	1 (0.9)	3 (2.7)	109 (96.5)
<i>P</i> -value	0.044		

Note: The *P*-value was computed by using the Chi-Square test.

Table 5. The difference in mean scores of participant's satisfaction with the telemedicine medical service and experience according to demographic characteristics

	Medical Services	Experienced Service
	Mean \pm SD	Mean \pm SD
Age in years		
18 - 29	4.5 \pm 0.7	4.6 \pm 0.5
30 - 44	4.6 \pm 0.7	4.7 \pm 0.5
45 - 59	4.6 \pm 0.7	4.6 \pm 0.5
60+	4.4 \pm 0.8	4.6 \pm 0.5
<i>P</i> -value	0.357	0.868
Sex		
Male	4.5 \pm 0.8	4.7 \pm 0.5
Female	4.6 \pm 0.7	4.6 \pm 0.5
<i>P</i> -value	0.918	0.172 [↔]
Nationality		
Bahraini	4.5 \pm 0.7	4.7 \pm 0.5
Non-Bahraini	4.6 \pm 0.5	4.5 \pm 0.6
<i>P</i> -value	0.888	0.194
Educational Level		
Below secondary	4.3 \pm 0.9	4.5 \pm 0.6
Secondary	4.5 \pm 0.7	4.7 \pm 0.5
University and higher	4.6 \pm 0.6	4.7 \pm 0.5
<i>P</i> -value	0.034	0.047
Number of times the service was used in the last year		
Once	4.4 \pm 0.7	4.5 \pm 0.5
More than once	4.6 \pm 0.7	4.7 \pm 0.5
<i>P</i> -value	0.069	0.002
New Complain		
Yes	4.5 \pm 0.7	4.7 \pm 0.5
No	4.5 \pm 0.7	4.6 \pm 0.5
<i>P</i> -value	0.875	0.356
Follow up lab results		
Yes	4.6 \pm 0.7	4.7 \pm 0.5
No	4.5 \pm 0.7	4.6 \pm 0.5
<i>P</i> -value	0.098	0.553
Request labs		
Yes	4.6 \pm 0.7	4.7 \pm 0.5
No	4.5 \pm 0.7	4.6 \pm 0.5
<i>P</i> -value	0.213	0.312

Medication refill		
Yes	4.6 ± 0.7	4.6 ± 0.5
No	4.5 ± 0.7	4.6 ± 0.5
P-value	0.941	0.691
Reassurance and self-management		
Yes	4.6 ± 0.7	4.7 ± 0.5
No	4.5 ± 0.7	4.6 ± 0.5
P-value	0.363	0.419
Prescribed drugs		
Yes	4.6 ± 0.6	4.7 ± 0.5
No	4.4 ± 0.8	4.6 ± 0.5
P-value	0.041	0.084
Appointment		
Yes	4.2 ± 1	4.6 ± 0.6
No	4.6 ± 0.7	4.6 ± 0.5
P-value	0.006	0.660
Requested labs		
Yes	4.6 ± 0.6	4.7 ± 0.5
No	4.5 ± 0.8	4.6 ± 0.5
P-value	0.281	0.214
Comorbidities		
Yes	4.5 ± 0.7	4.6 ± 0.5
No	4.5 ± 0.7	4.6 ± 0.5
P-value	0.334	0.732
Mode of teleconsultation		
Audio	4.5 ± 0.8	4.6 ± 0.5
Video	4.6 ± 0.6	4.7 ± 0.5
P-value	0.300	0.790

Note: P-values were computed by using the Mann-Whitney test or the Kruskal-Wallis test.

Qualitative feedback on problems encountered by participants during the teleconsultation is seen in (Figure 1). Participants were asked an open-ended question at the end of the interview to investigate the problems faced. Around 35 participants (11%) had complaints. Most complained about the long waiting time to book an appointment through the hotline (31.4%). Around 29% had technical issues

related to the video call application, which resulted in the termination of the call and/or switching to audio. Some (17%) suggested the option of choosing their own physician instead of the specifically assigned physicians. Other feedback comments were medication prescription errors (11%) and dissatisfied consultation outcomes resulting in the need for physical (11%).

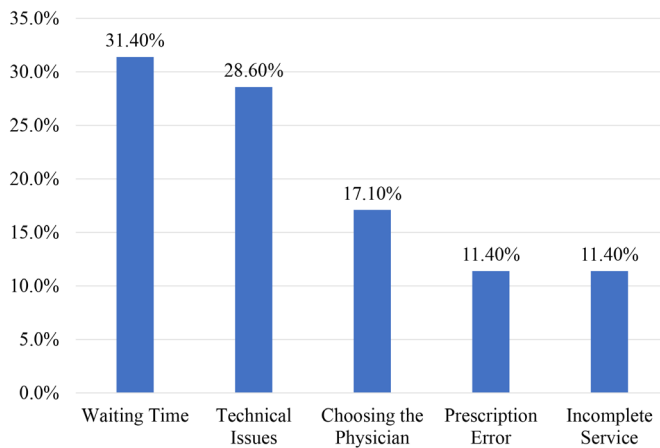


Figure 1: Telemedicine service problems encountered by the participants

Discussion

The COVID-19 pandemic is an exceptional occurrence that has led to major changes in the practice of medicine worldwide. Telemedicine has been implemented formerly; however, the demand for teleconsultations has risen drastically since the implementation of safety measures during the pandemic period.

In this study, participants were highly satisfied with all parameters related to the medical services provided via remote consultation, with an average score of 91%. With regards to patient satisfaction with the experienced service, all parameters have a satisfaction score of above 90% except for the disclosure of private information. This was reminiscent of studies found in South India, the Kingdom of Bahrain, Egypt, Portugal, and Korea across different medical specialties in which satisfaction levels of 100%, 95%, 90%, 81.9%, and 80%, respectively, were recorded.^{5, 8, 11, 12, 13} In addition, Sweden and Spain also reported an overall high level of satisfaction.^{22, 23} This may be attributed to cost and time efficiency, both waiting and travel, and reduced person-to-person interaction. Also, it is more convenient to accommodate appointments according to patients' social or work obligations. This was in sharp contrast to the satisfaction scores of below 60% reported in KSA, 51.3% in Egypt, and 43% in Iran.^{14, 24, 25} This population preferred face-to-face consultation over remote consultation thought to be due to telemedicine being less established as well as the cultural and technical

differences amongst the various societies. Although Portugal reported a high satisfaction rate, concerns regarding non-verbal communication rose as it is a vital aspect of the doctor-patient relationship.¹²

Disclosure of private or personal information over the phone was scored the lowest and given a satisfaction score of 77.5% only. This variable was rated "not sure" by many respondents justifying the lower total satisfaction score. Similarly, users were least satisfied with sharing private or personal information in KSA, with a score of 59.4%, and Iran, with a score of 41.9%.^{14, 20} However, in the USA 91% had no difference or preferred telemedicine when sharing their personal information.⁹ We speculate this to be due to the same reasons mentioned earlier.

In terms of patient satisfaction with the management plan and information provided by the practitioner about the treatment, users rated the services 91.1% and 88.6%, respectively. Satisfaction scores of more than 70% were reported in the literature.^{11, 12, 26} Whereas, 71.1% found it easy to explain their issue in Iran over the phone compared to 94% reported in our study.¹⁴

No statistically significant difference with regard to age was found. This was in agreement with studies conducted in South India and Portugal, where positive responses were seen amongst all age groups.^{12, 13} Another global study revealed no difference in satisfaction level when comparing age and sex in 12 various countries.⁴ Conversely, studies done in the United States and KSA confirmed that younger age correlated with a higher satisfaction rate.^{15, 17} While the study did not evaluate technological expertise as a factor, this result could reflect the higher digital and technological proficiency seen amongst this age group. In France, Italy, and Sweden, the elderly were found to use telemedicine less than other age groups because they were less likely to apply technology when communicating medical results.^{18, 22} It is tempting to speculate that no association was found in our study because caregivers were using the service on behalf of the elderly.

In agreement with previous studies, no statistical significance was found between satisfaction scores and gender.^{12, 14, 20}

High satisfaction scores were reported in participants with a higher educational level. These findings were in line with a similar study conducted in KSA.²⁰ However, a study conducted in Portugal reported that higher educational levels yielded the lowest satisfaction scores.¹² In Iran and Germany, the level of education and satisfaction did not correlate.^{10, 14}

Our study reported no statistical significance between those with and without comorbidities. Another study conducted in secondary care setting within the Kingdom of Bahrain reported patients without comorbidities had a higher satisfaction score.¹¹ However, in Spain, the mean satisfaction score of patients with comorbidity was higher compared to those without.²³

Half of the patients in this study used the service to obtain lab results. Compared to Sweden and Germany, with follow-up care and medication refills are the most used.^{10, 22}

Only 9.8% booked an in-person appointment in our study compared to 35% in the UK, suggesting that remote consultations can significantly reduce the need for face-to-face consultations. In addition, a higher level of satisfaction is reported in patients who were not booked an appointment (P 0.006).²⁷

The mode (audio or video) of teleconsultation was not associated with a higher satisfaction score (p 0.300 and p 0.790) but was correlated with the willingness to use the service in the future (p 0.044). A higher satisfaction level for those with video compared to phone consultation was reported in France, Italy, the UK, and the USA as they resulted in higher trust in physicians, a closer approximation of a traditional in-person visit, allowing for better non-verbal communication and can be used to demonstrate some physical findings to their physician on camera.^{16, 18, 28}

Data obtained indicate that 91.4% are willing to use remote consultations in the future as they were highly satisfied and consider it to be a convenient substitute to conventional approaches. Patients across Portugal (90.4%) and Korea (86%) expressed their willingness to continue the use of telemedicine in the future.^{5, 12} Since the physical examination is vital in the evaluation of a patient, participants in

some studies reported that given a choice, they prefer in-person consultations rather than virtual ones.^{20, 29} In a comprehensive literature search, the willingness to use the service was affected by diverse variables. In Pakistan, Germany, and KSA, the highly educated users were more willing to use the service again.^{10, 20, 30} Whereas, in other studies, healthy participants and those requiring medication refills were more likely.^{20, 23}

In open-ended feedback, our participants mostly complained about the long waiting time followed by technical issues. This was similarly reported in 13 other studies.⁴ The majority of negative feedback reported in KSA was related to the response and long waiting time.²⁰

The study limitations include a rather small sample size of mostly Bahraini nationals. This population was less racially diverse than the overall population resulting in the underrepresentation of society. Also, older patients tended to have their caregivers use the service on their behalf, affecting the precision of the data collected. One of the strengths of the study was that the interview was conducted within a period of approximately 1 to 4 weeks after the teleconsultation, reducing recall bias. Sampling randomization omitted selection bias, and a response rate of 94% strengthens the credibility of the results. Twenty (6%) participants did not agree to participate; the majority were Bahraini females with an average age of 50 years.

Future studies should aim at a larger sample size, with a stratified random sampling for a more representative sample. A group utilizing conventional consultations can be used to compare with those using teleconsultations.

Conclusion

The survey respondents' overall satisfaction with the teleconsultation medical service and experience is very high. Such a result confirms that patients have a positive attitude towards telemedicine services in primary care and are willing to use them again. We encourage it to be adopted as a proactive strategy to ensure long-term sustainability. On the other hand, the inability to examine physically and the lack of doctor-patient relationships face-to-face might affect applying telemedicine in some specialties.

Source of Funding

No public or commercial funding was needed to conduct this study.

Conflict of Interest

The authors declare that they have no conflicts of interest.

Ethical Approval and Consent to Participate

The study protocol was reviewed and approved by the Ethics Research Committee at the Ministry of health on 17/11/2021. Informed consent was obtained verbally from all patients to participate in the study.

Author Contributions

All authors shared equal effort in contributing towards the design and implementation of the research as well as to the analysis of results and discussion. All authors read & approved the final manuscript. Author 6 supervised the research, helped in critically revising the intellectual content and gave final approval of the manuscript version to be published.

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References

- Xu Z, Ye Y, Wang Y, et al. Primary Care Practitioners' Barriers to and Experience of COVID-19 Epidemic Control in China: a Qualitative Study [Internet]. *Journal of General Internal Medicine*. U.S. National Library of Medicine; 2020. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7458355/>
- WHO. *A health telematics policy in support of WHO's Health-For-All strategy for global health development: report of the WHO group consultation on health telematics, 11–16 December, Geneva, 1997*. Geneva, World Health Organization, 1998
- Baudier P, Kondrateva G, Ammi C, et al. Patients' perceptions of teleconsultation during COVID-19: A cross-national study [Internet]. *Technological Forecasting and Social Change*. North-Holland; 2020. Available from: <https://www.sciencedirect.com/science/article/pii/S0040162520313366>
- World Health Organization. COVID-19 significantly impacts health services for non-communicable diseases. Available at <https://www.who.int/news/item/01-06-2020-covid-19-significantly-impacts-health-services-for-noncommunicable-diseases.com>
- Park, H., Kwon, Y., Jun, H., et al. 2021. Satisfaction Survey of Patients and Medical Staff for Telephone-Based Telemedicine During Hospital Closing Due to COVID-19 Transmission. *Telemedicine and e-Health*, 27(7), pp.724-732. <https://www.liebertpub.com/doi/full/10.1089/tmj.2020.0369>
- Gabriela Weigel ARF@amrutha__ram on T. Opportunities and Barriers for Telemedicine in the U.S. During the COVID-19 Emergency and Beyond [Internet]. KFF. 2020 [cited 2021Jan20]. Available from: <https://www.kff.org/womens-health-policy/issue-brief/opportunities-and-barriers-for-telemedicine-in-the-u-s-during-the-covid-19-emergency-and-beyond/>
- Nanda M, Sharma R. A review of patient satisfaction and experience with telemedicine: A virtual solution during and beyond COVID-19 pandemic. *Telemed J E Health* [Internet]. 2021;27(12):1325–31. Available from: <http://dx.doi.org/10.1089/tmj.2020.0570>
- Ashry AH, Alsawy MF. Doctor-patient distancing: an early experience of telemedicine for postoperative neurosurgical care in the time of COVID-19. *Egypt J Neurol Psychiatr Neurosurg* [Internet]. 2020;56(1):80. Available from: <http://dx.doi.org/10.1186/s41983-020-00212-0>
- Shaverdian N, Gillespie EF, Cha E, et al. Impact of telemedicine on patient satisfaction and perceptions of care quality in radiation oncology. *J Natl Compr Canc Netw* [Internet]. 2021;19(10):1174–80. Available from: <http://europepmc.org/abstract/MED/33395627>

10. Stadler P-C, Senner S, Frey S, et al. Teledermatology in times of COVID-19. *J Dermatol* [Internet]. 2021;48(5):620–4. Available from: <http://dx.doi.org/10.1111/1346-8138.15812>
11. Almannai A, Bao B, Alshaikh R, et al. The clinical effectiveness and patient satisfaction of teleconsultation during the period of COVID19 pandemic in the ENT department at KHUH [Internet]. *Bahrainmedicalbulletin.com*. 2021. Available from: https://www.bahrainmedicalbulletin.com/SEPT_2021/BMB-21-86.pdf
12. Dias L, Martins B, Pinto MJ, et al. Headache teleconsultation in the era of COVID-19: Patients' evaluation and future directions. *Eur J Neurol* [Internet]. 2021;28(11):3798–804. Available from: <https://pubmed.ncbi.nlm.nih.gov/33991365/>
13. D'Souza B, Suresh Rao S, Hisham S, et al. Healthcare delivery through telemedicine during the COVID-19 pandemic: Case study from a tertiary care center in south India. *Hosp Top* [Internet]. 2021;99(4):151–60. Available from: <https://pubmed.ncbi.nlm.nih.gov/33528313/>
14. Jannati N, Nakhaee N, Yazdi-Feyzabadi V, et al. A cross-sectional online survey on patients' satisfaction using store-and-forward voice and text messaging teleconsultation service during the COVID 19 pandemic. *Int J Med Inform* [Internet]. 2021;151(104474):104474. Available from: <https://www.ncbi.nlm.nih.gov/labs/pmc/articles/PMC8095037/>
15. Abdel Nasser A, Mohammed Alzahrani R, Aziz Fella C, et al. Measuring the patients' satisfaction about telemedicine used in Saudi Arabia during COVID-19 pandemic. *Cureus* [Internet]. 2021;13(2):e13382. Available from: <https://www.cureus.com/articles/51870-measuring-the-patients-satisfaction-about-telemedicine-used-in-saudi-arabia-during-covid-19-pandemic>
16. Orrange S, Patel A, Mack WJ, et al. Patient satisfaction and trust in telemedicine during the COVID-19 pandemic: Retrospective observational study. *JMIR Hum Factors* [Internet]. 2021;8(2):e28589. Available from: <https://humanfactors.jmir.org/2021/2/e28589>
17. Cho D, Khalil S, Kamath M, et al. Evaluating factors of greater patient satisfaction with outpatient cardiology telehealth visits during the COVID-19 pandemic. *Cardiovasc Digit Health J* [Internet]. 2021;2(6):312–22. Available from: <https://www.sciencedirect.com/science/article/pii/S2666693621001213>
18. Bizot A, Karimi M, Rassy E, et al. Multicenter evaluation of breast cancer patients' satisfaction and experience with oncology telemedicine visits during the COVID-19 pandemic. *Br J Cancer* [Internet]. 2021;125(11):1486–93. Available from: <https://www.nature.com/articles/s41416-021-01555-y>
19. Statulator. Conducts statistical analyses, Interprets the results, gives suggestions for Reporting. Accessed on 2021. <http://statulator.com>
20. Magadmi MM, Kamel FO, Magadmi RM. Patients' Perceptions and Satisfaction Regarding Teleconsultations During the COVID-19 Pandemic in Jeddah, Saudi Arabia. Available from: <https://assets.researchsquare.com/files/rs-51755/v1/2702bc1c-86cf-4d9f-bb23-04216d8841c3.pdf?c=1631853838>
21. Health Statistics of 2019. Ministry of Health, Kingdom of Bahrain Statistics. 2019. Page 12. https://www.moh.gov.bh/Content/Files/Publications/statistics/HS2019/PDF/CH-07-publichealth_2019.pdf
22. Gabrielsson-Järhult F, Kjellström S, Josefsson KA. Telemedicine consultations with physicians in Swedish primary care: a mixed methods study of users' experiences and care patterns. *Scand J Prim Health Care* [Internet]. 2021;39(2):204–13. Available from: <https://pubmed.ncbi.nlm.nih.gov/33974502/>
23. Gomes-de Almeida S, Marabujo T, do Carmo-Gonçalves M. Grado de satisfacción de los pacientes de la Unidad de Salud Familiar

- Vitrius con la teleconsulta durante la pandemia del COVID-19. *Semergen* [Internet]. 2021;47(4):248–55. Available from: <https://medes.com/publication/163339>
24. Thirunavukkarasu A, Alotaibi NH, Al-Hazmi AH, et al. Patients' Perceptions and Satisfaction with the Outpatient Telemedicine Clinics during COVID-19 Era in Saudi Arabia: A Cross-Sectional Study. In *Healthcare 2021* (Vol. 9, No. 12, p. 1739). Multidisciplinary Digital Publishing Institute. Available from: <https://pubmed.ncbi.nlm.nih.gov/34946465/>
 25. Shalash A, Fathy M, Dawood NL, et al. Adopting virtual visits for Parkinson's disease patients during the COVID-19 pandemic in a developing country. *Front Neurol* [Internet]. 2020 ;11:582613. Available from: <http://dx.doi.org/10.3389/fneur.2020.582613>
 26. Bourdon H, Jaillant R, Ballino A, et al. Teleconsultation in primary ophthalmic emergencies during the COVID-19 lockdown in Paris: Patients' point of view. *J Fr Ophtalmol* [Internet]. 2021;44(3):e127–9. Available from: <https://www.scienceopen.com/document?vid=a6af7fc4-11ab-4407-a7a6-21d56086d187>
 27. Anderson J, Walsh J, Anderson M, et al. Patient satisfaction with remote consultations in a primary care setting. *Cureus* [Internet]. 2021;13(9):e17814. Available from: <https://pubmed.ncbi.nlm.nih.gov/34660024/>
 28. Vosburg RW, Robinson KA. Telemedicine in primary care during the COVID-19 pandemic: Provider and patient satisfaction examined. *Telemed J E Health* [Internet]. 2022;28(2):167–75. Available from: <http://dx.doi.org/10.1089/tmj.2021.0174>
 29. Mortezaei M, Lokineni S, Garg M, et al. Rheumatology patient satisfaction with telemedicine during the COVID-19 pandemic in the United States. *J Patient Exp* [Internet]. 2021;8:23743735211008824. Available from: <http://dx.doi.org/10.1177/23743735211008825>
 30. Khan ZA, Zahoor A, Afzal I, et al. Evaluation of patient perception and satisfaction toward the use of telemedicine during pandemic of novel coronavirus in Pakistan. *Telemedicine and e-Health*. 2021 1;27(10):1174-9. Available from: <https://pubmed.ncbi.nlm.nih.gov/>