

# Family physician's perception towards virtual care during COVID-19 pandemic: A cross-sectional study

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## ABSTRACT

**Background:** The COVID-19 pandemic has engendered a significant transition in medical practice towards an online model of care. Although virtual methods of service have been liberally used these past months, the precise level of satisfaction of physicians is important to understand the barriers that the service faced and the future of maintaining these models of patient care. This quantitative study aimed at measuring the satisfaction of family medicine physicians with virtual services while practising in Saudi Arabia during COVID-19 pandemic. **Design and Setting:** A questionnaire was distributed to participating physicians working in Saudi Arabia. Demographic, satisfaction, and thoughts on future applicability of online care was evaluated. **Results:** A total of 118 physicians responded to the questionnaire. Demographic values were mostly evenly distributed whereas mean satisfaction level during the pandemic was  $77.53\% \pm 15.04$ . The only variable impacting levels of satisfaction was overall burden of work in number of different sites worked for on a weekly basis. **Conclusion:** The family medicine physicians who worked during the pandemic using virtual services were generally satisfied with the services. Future studies should evaluate the applicability of using these tools after the end of the pandemic.

**Keywords:** COVID-19, family medicine, telemedicine, Saudi Arabia

## Introduction

The spread of COVID-19 has created an adverse impact on healthcare systems around the world, causing a burden overload on staff, facilities, and equipment.<sup>[1]</sup> This in turn has presented difficulties in service access by patients due to the risk of infection and the increasing unavailability of protective tools required, which are crucial to maintain self-protective measures in place.<sup>[2]</sup> Consequently, several hospitals worldwide have to turn to novel technological solutions and operational platforms to retain their ability to provide healthcare services to patients.<sup>[3]</sup>

One such technology has been the application of virtual platforms on healthcare practices, the practice being globally

termed as "Telemedicine,"<sup>[4]</sup> By making use of these digital technologies and tools, the spread of COVID-19 has to some degree been temporarily lessened, protecting healthcare practitioners from infection as a result of reduced in-situ care.<sup>[5]</sup> Using Telemedicine as a system for communication and diagnosis has therefore been instrumental in increasing patient morale and enabling the physicians to maintain some semblance of care.<sup>[4]</sup>

However, despite the acceptance of these tools on the basis of need and cost-effectiveness, satisfaction of the status-quo is not universal. An increasing number of individuals express a preference for the traditional presential style of medical care,<sup>[6]</sup> with patients reporting a lack of proper training in the use of these tools,<sup>[7]</sup> and healthcare providers being forced to provide service without remuneration, and at increased workloads.<sup>[4,8,9]</sup> This last has triggered a rise in psychological conditions and anxieties, all of which impact the satisfaction of the physicians in the use of virtual tools. In this study, we aim to evaluate the possibility of a shift in Saudi physicians' perceptions and

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acceptance of Telemedicine as a viable form of medical practice during the present pandemic.

## Methodology

This cross-sectional study was conducted in Saudi Arabia. The targeted population were Saudi Arabian physicians of 26 or above years of age.

The tool used for data gathering was a self-assessment questionnaire with questions regarding personal experience, opinion, and perception of virtual care techniques, and suggestions or recommendations on the methods to improve these services, both during and following the COVID-19 pandemic.

## Ethical considerations

Confidentiality was assured to all participants, with sensitive and confidential information being assured by limiting unauthorized access to all data. The research was approved from PSMMC, Riyadh, Saudi Arabia.

## Results

### Physician demographics

One hundred and eighteen family medicine physicians were surveyed during the study period. Regarding these, gender distribution was mostly even for males and females, and the majority (59.8%) were included in the 31–40-year-old age group participants. Regarding professional levels and years of practice, 48.3% were consultants and 53.4% had over 10 years of medical practice expertise [Table 1].

### Degree of participation during the pandemic

Physicians were asked about their working condition during the COVID-19 pandemic. About 72.9% of respondents were working on high-traffic sites, with enrolment in between four and 10 separate clinics per week [Figure 1].

### Satisfaction of physicians during the pandemic with virtual services

Physicians were asked a group of questions to assess their satisfaction towards virtual services during the pandemic. The physicians were asked to choose a standard 5-Likert scale starting from “strongly agree” through to “strongly disagree.”

Results showed that more than one-third of the physicians agreed that virtual services are good for patients and physicians and can save time. Additionally, 54.2% of the participating physicians were generally satisfied with the service [Table 2].

### Comparison of means for satisfaction in relation to demographic variables

A total score for satisfaction was calculated for each responder, such that responses with “strongly agree” had five points, whereas

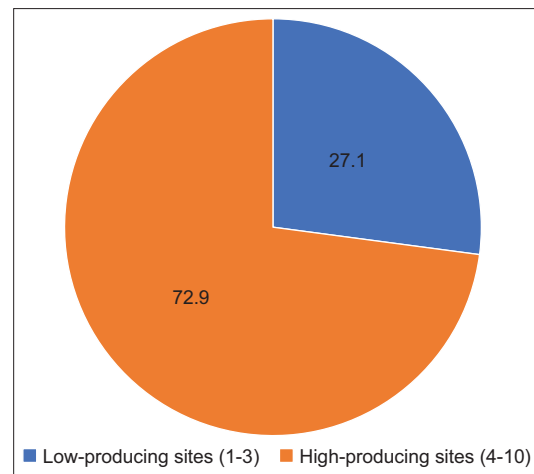


Figure 1: Degree of participation during the pandemic

Table 1: Demographic information of the physicians

	Count	Percent
Gender		
Male	52	44.1
Female	66	55.9
Age category		
20-30	13	11.0
31-40	60	50.8
41-50	21	17.8
51-60	21	17.8
More than 60	3	2.5
Educational degree		
Consultant	57	48.3
Senior registrar	51	43.2
Resident	10	8.5
Years of experience		
Less than or equal to 5 years	22	18.6
6-10 years	33	28.0
>10 years	63	53.4

“strongly disagree” were given one point. Total scores were then calculated and the mean  $\pm$  SD taken, both separately and total.  $M_{tot} = 77.53 \pm 15.04$ , with individual means ranging between  $M = 21$  and  $M = 105$ .

The average scores were then compared over different demographic variables using one-way ANOVA test at level of significance  $P$  value  $< 0.05$ . It was shown that physicians with intermediate years of experience (6–10 years) and those who worked on low-producing sites (1–3 clinics/w) were significantly more satisfied as compared to the remaining ones [Table 3].

## Discussion

COVID-19 pandemic has significantly changed the conventional ways of providing medical care to patients.<sup>[10]</sup> Due to the pandemic situation, face-to-face communication and physical contact has been greatly reduced to protect both clinicians and their patients. Accordingly, most of the services that can be delivered

**Table 2: Satisfaction of physicians during the pandemic with virtual services**

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
<b>Interpersonal manner</b>					
I can get a good understanding of the patient care needed electronically	21.2	57.6	11.9	5.1	4.2
Virtual care can protect patient's privacy	29.7	36.4	16.9	11.9	5.1
Lack of physical contact is acceptable	12.7	33.9	32.2	16.9	4.2
<b>Technical quality of care/competency</b>					
Can monitor patient's condition well	7.6	47.5	19.5	22	3.4
Virtual care will be a standard way of healthcare delivery in the future	27.1	35.6	18.6	12.7	5.9
Virtual care can be an addition to the regular care my patients receive	60.2	30.5	3.4	0.8	5.1
I found the Continuing education program on family medicine topics useful	42.4	39	13.6	2.5	2.5
<b>Accessibility</b>					
Virtual care saves time	39	35.6	9.3	11.9	4.2
Virtual care increases patient access to care	40.7	39.8	12.7	5.1	1.7
Virtual care makes it easier for the patient to contact me	39.8	37.3	11	7.6	4.2
<b>Efficacy</b>					
Believes it improves patient's health	23.7	35.6	27.1	10.2	3.4
I had sufficient dedicated time to do the virtual initial visit (patient history)	12.7	43.2	28.8	9.3	5.9
I found virtual care to be a useful addition to primary care at my clinic	42.4	45.8	5.1	3.4	3.4
<b>Continuity</b>					
I prefer process of telemedicine visit over face-to-face visit.	16.1	25.4	33.1	18.6	6.8
I prefer to provide patient follow-up care by telemedicine rather than face-to-face	20.3	40.7	20.3	10.2	8.5
<b>Physical environment</b>					
Convenient form of healthcare delivery	26.3	55.1	12.7	1.7	4.2
The use of technology does not threaten the confidentiality of my patient's data	28	33.9	26.3	5.1	5.9
I can always trust devices to work (computers, system, etc.)	9.3	32.2	31.4	19.5	7.6
I did not have problems with IT (computer software, access codes, etc.)	14.4	27.1	18.6	25.4	14.4
<b>Equipment availability</b>					
I did not have problems getting equipment (telephone, computer, etc.)	24.6	24.6	28.8	13.6	8.5
Overall, I am satisfied with virtual care	23.7	54.2	13.6	5.1	2.5

**Table 3: Comparison of mean score for satisfaction over different demographic variables**

	Mean	Standard deviation	P
<b>Gender</b>			
Male	76.52	14.8	0.518
Female	78.33	15.2	
<b>Educational degree</b>			
Resident	70.30	28.8	0.063
Senior registrar	80.84	10.6	
Consultant	75.84	14.7	
<b>Years of experience</b>			
0-5	73.50	20.0	0.036
6-10	79.12	11.0	
>10	78.11	14.9	
<b>Degree of participation</b>			
Low-producing sites (1-3)	78.29	14.8	0.037
High-producing sites (4-10)	75.50	15.7	

electronically were transferred to online modes.<sup>[11]</sup> Although online delivery would seem to be cheaper and time saving, it also has some limitations. Hence, measuring the satisfaction of physicians and patients towards virtual services is essential.<sup>[12]</sup>

The present study examined the satisfaction of family physicians towards using virtual care during the COVID-19 pandemic.

The study illustrated that the vast majority of the responders who used virtual services were females and aging between 31 and 40 years. Furthermore, most of the physicians were consultants, with above 10 years of experience. The physicians showed acceptable level of satisfaction with the provided service, which was demonstrated by an above-average total satisfaction score ( $77.53 \pm 15.04$  out of 105 points). Furthermore, intermediate years of experience ( $P$  value = 0.036) and working on low-producing sites ( $P$  value = 0.037) had more satisfaction rates compared to their peers.

Satisfaction with online and virtual medical services during COVID-19 has been evaluated in different settings. Tenforde *et al.*<sup>[13]</sup> examined the satisfaction of patients towards using telemedicine for virtual visits during the COVID-19 pandemic for rehabilitation services. Of the whole responders, 93.7% of the patients described the service as excellent or very good. Furthermore, Tenforde *et al.*<sup>[13]</sup> showed that females were more satisfied compared to males.

Although the present study did not examine the satisfaction levels of patients, family physicians also showed high overall satisfaction about using the virtual services. However, similar to Tenforde *et al.*,<sup>[13]</sup> most of the responders in the present study were females, which can be correlated to the high satisfaction rate; yet it could not reach the level of statistical significance.

Also, the satisfaction of cancer patients by virtual genetic clinics during COVID-19 pandemic was examined by Norman *et al.*<sup>[14]</sup> The patients were very satisfied by the service. Norman *et al.*<sup>[14]</sup> showed that cancer patients believed that virtual services would prevent their appointments' cancellation and reduce their waiting time.

In the present study, 47.5% of the physicians agreed that they can monitor their patients' conditions well through virtual services, and 39% strongly agreed that it saves time, whereas 40.7% strongly agreed that virtual care increases patient access to medical care. Also, 35.6% of the physicians thought that virtual care can improve patient's health. Hence, 54.2% of the included physicians in the present study were overall satisfied with the virtual care.

Another study in surgical setting by Sorensen *et al.*<sup>[15]</sup> examined the satisfaction of patients with telemedicine surgical consultations during COVID-19 pandemic. Sorensen *et al.*<sup>[15]</sup> illustrated that more than half of the patients preferred the telemedicine consultation compared to conventional consultation clinics and found it more convenient and cheaper. Additionally, most of the patients preferred that these virtual clinics resume after the end of the pandemic.

In the present study, there was a general agreement among 55.1% of the physicians who found virtual services a convenient form of healthcare delivery. Also, 40.7% preferred to provide follow-up for their patients by telemedicine rather than face-to-face clinics. Moreover, 45.8% of the responders found virtual service a useful addition for the primary care provided.

Nevertheless, it should be realized that the present survey analysis suffered from some barriers and limitations. The sample size of the included physicians is small, and the satisfaction of patients was not examined. These limitations could affect the outcomes of the present study. Additionally, the responses to the questions included in this questionnaire are merely subjective and depends on the opinion of the responding physician, which could be a limitation for the reliability of the findings.

## Conclusions

The satisfaction of family medicine physicians who worked during the pandemic in Saudi Arabia using virtual services was generally high and acceptable. Additionally, mid-career physicians and physicians who had low workload were more satisfied compared to their peers. Through these findings, the research team would endorse the applicability of continuing virtual services following the pandemic. Also, future studies are recommended to examine the satisfaction of patients in Saudi Arabia with the use of virtual services for consultations in different specialties during the COVID-19 pandemic or after the end of the pandemic.

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## Conflicts of interest

There are no conflicts of interest.

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