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**Research Article** 



# Patients' Satisfaction on Virtual Clinic in Primary Health Care Centers in Prince Sultan Military Medical City, 2020-2021: A Qualitative Study

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#### Abstract

Settings and background: With technology evolvement and COVID-19 Pandemic Virtual clinics are increasing nowadays, there is no single qualitative study in Saudi Arabia that make us knows patients' opinion about this service, and this is what our study is about. Methods: It is a semi-structured phone interview of 36 participants who attended the virtual clinic in Prince Sultan Military Hospital in 2020, selected purposefully, then the interviews were transcribed then analyzed by thematic analysis. Results: 20 of the participants were males (55.5%) and 16 of them were females (44.4%), 6 were above or equal to 60 years of age (16.6%) and 30 participants were below 60 years of age (83.3%). In Theme 1: (Were the steps taken in the referral process to this service clear?) 75% (n=27) of them answered positively, 22.2% (n=8) answered negatively and one participant was neutral. In Theme 2: (Comparing to previous regular clinic visits, how did you find receiving information about your health in this clinic?) 27.7% (n=10) think it is better than regular clinic, However, 19.4% (n=6) think it is worse than the regular clinic, and the majority 55.5% (n=20) think they are the same. In Theme 3: was (Describe for us your experience in getting the medications form the pharmacy after the clinic) 77.7% (n=28) of participants were satisfied and 2 patients were not satisfied, remaining 6 did not take medicines. Conclusions: Virtual clinic is a good method in reducing costs and time in delivering health care, in patients' opinions. In general, virtual clinic had high satisfaction rate among who benefit from the service. However, there are some concerns need to be addressed like referral or booking process for virtual clinic services.

**Keywords:** Virtual clinic; Phone consultation; Telemedicine; Telehealth; Primary care

# Introduction

With the evolving of technology in our daily life and increase the demand on primary care in our country and worldwide, using technology to deliver health care is becoming essential rather than luxurious, time and money wasting way to deliver medical advice.

On this paper, we will focus on phone consultation as a way to deliver the health care, as it is the service in our institute that we want to study. Phone consultation is a part of Telemedicine which is defined by WHO "The delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities" [1].

The clinic, which provides the telemedicine service in our institute, is Virtual clinic, established in 2018 with limited number of patients to be served and with specific referral form; however, the clinic evolved especially during COVID 19 pandemic, become easily accessible to patients, and can be booked as the first visit or as a follow up appointment. Dr. Abdulmajeed Alshowaer designed an internally validated tool to measure the satisfaction of the patients using the virtual clinic just after every consultation.

One of the tools to measure the quality of any service in health care system is patient satisfaction, its importance come from patient centered care module which are a lot of health institutes adopted recently. Therefore, it is a very effective way to measure the success of any health care service [2] and we will use it here in our study to assess the quality of care provided from the patients' perspective.

A research has been done looking for patients' opinion regarding video counseling service. Donaghy E, et al. conducted a researched titled "Acceptability, benefits, and challenges of video consulting: a qualitative study in primary care", it was a qualitative study done in primary care in Lothian, Scotland, UK. They did a semi-structured phone interview with 21 patients and face-to-face interview with 13 general practitioners, and they concluded that the GPs and patients agreed on a video counseling is superior on phone consultation in regards of building a rapport between the physician and their patients and better communication, However both VC and phone consultation were better choices especially for working people and people with mobility or mental health problems [3].

Another study conducted in Scotland by Mckinstry B, et al. titled "Telephone consulting in primary care: a triangulated qualitative study of patients and providers" using focus groups interview with patients and health care providers and their conclusion that the phone consultation improved the continuity of care and overcome the long distance for patients especially in rural areas, but there are some concerns from the health care providers regarding the safety issues of this service as it lacks the formal physical examination [4].

Pascual-de la Pisa B, et al. did a systematic review titled "Effectiveness of interventions based on telemedicine on health outcomes in patients with multimorbidity in Primary Care: A systematic review" and the conclusion did not prove the effect of telemedicine on the improvement of mortality, number of hospital admissions, emergency department visits, and health-related quality of life, compared to usual care [5].

There is a study done by Wali RM, et al. in Saudi Arabia titled "Patient satisfaction with the implementation of electronic medical Records in the Western Region, Saudi Arabia, 2018." It was a cross-sectional quantitative study on 377 participants attending primary health care on western region of Saudi Arabia and concluded that there is improvement of patients' satisfaction after the implementation of EMR [6].

The reason of conducting our study is to assess the benefit of the virtual clinic (a relatively new service in Prince Sultan Military Medical City, which provide phone consultation for the patient in the setting of primary care) by exploring the patients' satisfaction by interviewing them and looking for any gaps to improve the service or any barriers to avoid in the future or to know their opinion of this service comparing to the general face-to-face clinic.

#### Aim

To improve the virtual clinic service in primary health care centers in Prince Sultan Military Medical City.

#### **Objectives**

- 1. To explore the patients' opinions regarding virtual clinic.
- 2. To find out how satisfied the patients about virtual clinic experience.
- 3. To understand the obstacles of virtual clinic from their perspective.

#### **Material and Methods**

#### **Research Question**

What is the opinion of the patients on virtual clinic in Prince Sultan Military Medical City?

#### Design

A qualitative semi-structured phone interviews.

#### **Settings**

The study was conducted at the 3 largest primary health care centers at Prince Sultan Military Medical City (Wazarat PHC, Morooj PHC, Oraija PHC), each center covers one region in Riyadh. Each primary health care center at Prince Sultan Military Medical City consists of several general clinics, pharmacy, laboratory, treatment room and radiology room. The centers provide free primary care services including diagnosis and basic treatment of acute and chronic diseases, maternal and child health, immunization for communicable diseases, screening for healthcare problems, and health education and promotion.

#### Subjects

The study targeted patients who were served by virtual clinic during year 2020, who were willing to participate in the study.

## **Inclusion & Exclusion Criteria**

- Saudi Adults aged 18-65 years who were served by virtual clinic at least twice, Arabic speakers, both genders.
- Patients able to provide a consent to participate in the study.

#### **Sample Size Estimation**

The sample size will be around 25 patients depending on ideas saturation; the size may increase or decrease.

# **Sampling Technique**

Since it is a qualitative study, it will be purposeful convenient sampling. With the help of our colleagues who run the virtual clinic by asking the patients after every call to join the interview and study and informing them the researchers will call you later this week to take form you the verbal consent and to set a time for the interview.

#### **Data Collection and Data Collection Tool**

The data were collected using a semi-structured interview through phone calls. The two main authors involved in this process, one of them ran the interview and was recorded and the

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other author listened to the recording and did the transcription. The interview includes data on socio-demographic characteristics, and questions about the virtual clinic divided into 3 main themes, before virtual clinic, during virtual clinic and after virtual clinic; each theme has its own questions. Themes of the interview and its questions are shown below and a copy of the interview is shown in Appendix II.

#### Socio-demographic characteristics

- Age
- Gender
- Marital status
- Employment status
- Chronic diseases

#### **Theme 1: Before Virtual Clinic**

- What was your impression when the doctor offered to you this service?
- Were the steps taken in the referral process to this service clear?
- What were your expectations once you heard of this service?

#### **Theme 2: During Virtual Clinic**

- How did you find the doctor interaction with you during the clinic?
- Tell us about your experience in this clinic.
- Describe for us your feelings of having health service without seeing the doctor.
- Comparing to previous regular clinic visits, how did you find receiving information about your health in this clinic?
- What is the effect of this service on your privacy as a patient comparing to regular clinic?

#### **Theme 3: After Virtual Clinic**

- Describe for us your experience in getting the medications from pharmacy after the clinic.
- From your point of view, how do you think others will accept this service?
- In the long run, what is the effect of this service on the community?

- What are the advantages of virtual clinic?
- What are the disadvantages of virtual clinic?
- What are your suggestions to improve the service?

#### **Ethical Consideration**

The proposal was approved by the research ethics committee in Prince Sultan Military Medical City before starting data collection. The consents of the patients were verbally through phone call after explaining the objectives of the study and before doing the interview. Before starting the interview, we informed our interviewees about our titles as an interviewers and the title of the study with its objectives. Also, we informed them the interview will be recorded. Acceptance of participation was clearly stated as voluntarily and starting the interview was considered acceptance of participation. The sensitive information of the interviewees as name and contacts were not collected and their identity remained anonymous. No incentives or rewards were given to the participants. The participants had the right to withdraw at any time without any obligation toward the study team and to contact the researcher for any query. The data collected were confidentially kept in a safe place and data were only used for the purposes described in the study objectives.

#### **Data Analysis**

The interviews were analyzed by an expert in qualitative studies, by thematic analysis. First the interview recordings were transcripted. Secondly, the analyst reviewed all the interviews to identify higher-order patterns and variation across the participants. At the end, the research team reviewed and discussed the identified themes to ensure clarity and consensus of all the findings.

#### Results

We interviewed a total of 36 patients who were served by the virtual clinic in years 2019 and 2020. 20 of them were males (55.5%) and 16 of them were females (44.4%), 6 were above or equal to 60 years of age (16.6%) and 30 participants were below 60 years of age (83.3%). 26 participants were married (72.2%) and the remaining 10 were single, divorced or widow-er (27.7%). 23 of them are currently employed (63.8%) and 13 of them are either unemployed, retired or student (36.10%). 17 participants have no diseases (47.2%) and the remaining 19 have chronic disease like Type 2 Diabetes, Hypertension, Hypothyroidism, Dyslipidemia and Bronchial Asthma (Table 1). The interview was divided into 3 main themes, before the virtual clinic, during the virtual clinic and after the virtual clinic.

Variables	N	Percentage
Age		
60=<	6	16.60%
60>	30	83.30%
Gender		
Male	20	55.50%
Female	16	44.40%
Marital Status		
Married	26	72.20%
Single/Divorced/Widow-ER	10	27.70%
Employment		
Employed	23	63.80%
Unemployed/Retired/Student	13	36.10%
Chronic Diseases		
No	17	47.20%
Yes	19	52.70%
Diabetes	4	
Hypertension	3	
Hypothyroidism	8	
Dyslipidemia	7	
Bronchial Asthma	6	

**Table 1:** Demographic characteristics and socioeconomic profile.

#### **Theme 1: Before Virtual Clinic**

For the before virtual clinic part, we asked the participants 3 questions, the first question was (What was your impression when the doctor offered to you this service?) 66.6% (n=24) of the participants had positive perception, and negative perception is about 11.1% (n=4) of the participants, and the remaining 22.2% (n=8) were neutral. Second question was (Were the steps taken in the referral process to this service clear?) 75% (n=27) of them answered positively, 22.2% (n=8) answered negatively and one participant was neutral. Last question was (What were your expectations once you heard of this service?) 12 answered (full service like the regular clinic) and 8 of them answered (it will not replace the need of visiting the doctor) 4 expected the service (will decrease the effort of driving to hospital) and 3 said it is expected (to decrease the waiting time in the clinic), (the same as Sehatti from MOH), (I was expected that the service will be explained to me), and (to have delay in the phone call appointment) each was answered once, remaining 6 participants had no expectations (Table 2).

Question	N	Percentage
What was your impression when the doctor offered to you this service?		
Positive perception	24	66.60%
Negative perception	4	11.10%
Neutral	8	22.20%
Were the steps taken in the referral process to this service clear?		
Positive	27	75%
Negative	8	22.20%
Neutral	1	2.70%
What were your expectations once you heard of this service?		
Full service like the regular clinic	12	33.30%
It will not replace the need of visiting the doctor	8	22.20%
To decrease the effort of driving to hospital	4	11.10%
To decrease waiting time in the clinic	3	8.30%
The same as sehatti from MOH	1	2.70%
I was expected that the service will be explained to me	1	2.70%
To have delay in the phone call appointment	1	2.70%
No expectations	6	16.60%

**Table 2:** Before virtual clinic questions.

# **Theme 2: During Virtual Clinic**

In during the virtual clinic part, we asked 5 questions, first one was (How did you find the doctor interaction with you during the clinic?) 94.4% (n=34) answered as expected, 2 participants were neutral, and no one commented negatively at this point. Second one was (Tell us about your experience in the clinic) 94.4% (n=34) had good experience and 2 participants had bad experience. Third question was (Describe for us your feelings of having health service without seeing the doctor) 77.7% (n=28) felt good, 1 participant felt uncomfortable and 7 were neutral. Fourth question was (Comparing to previous regular clinic visits, how did you find receiving information about your health in this clinic?) 27.7% (n=10) think it is better than regular clinic, However, 19.4% (n=6) think it is worse than the regular clinic, and the majority 55.5% (n=20) think they are the same. Last question was about the privacy (What is the effect of this service on your privacy as a patient comparing to regular visits?) 55.5% (n=20) said there was more privacy, 44.4% (n=16) said no difference and nobody saw the virtual clinic has less privacy (Table 3).

Question	N	Percentage
	11	- Tercentage
How did you find the doctor interaction with you during the clinic?		
As expected		94.40%
Interaction of the doctor was not as expected	0	
Neutral	2	5.50%
Tell us about your experience in this clinic		
Positive experience	34	94.40%
Negative experience	2	5.50%
Neutral	0	
Describe for us your feelings of having health service without seeing the doctor?		
Feeling good	28	77.70%
Feeling uncomfortable	1	2.70%
Neutral	7	19.40%
Comparing to previous regular clinic visits, how did you find receiving information about your health in this clinic?		
Better than regular clinic	10	27.70%
The same as regular clinic	20	55.50%
Worse than regular clinic	6	19.40%
What is the effect of this service on your privacy as a patient comparing to regular visits?		
More privacy	20	55.50%
The same	16	44.40%
Less privacy	0	

**Table 3:** During the virtual clinic questions.

#### **Theme 3: After Virtual Clinic**

In the last part of the interview, we covered after the virtual clinic experience in addition hearing from the participants their opinions in general, 6 questions as follows, first question was (Describe for us your experience in getting the medications form the pharmacy after the clinic) 77.7% (n=28) of participants were satisfied and 2 patients were not satisfied, remaining 6 did not take medicines. Second question is (From your point of view, how do you think others will accept this service?) 14 person answered (mental and physical convenience) will make the people accept this service, and 7 persons answered (virtual clinic saves time) 5 participants think the public will accept the new service by (increase the public awareness), 4 participants answered (this service is not suitable for elderly), 3 persons said time is enough for the service to get accepted by the community, (help to decrease the contact with sick patients), (more convenient for younger people) and (more convenient for females) each one was answered 2 times, and 1 person answered it is more convenient for elderly and 1 more answer goes with saving money. Third question was (in the long run, what is the effect of this service on the community?) 86.1% (n=31) of the participants said it has positive effect, 1 said negative effect, and 4 remaining were neutral, last part of this interview was about listing the advantages, disadvantages of virtual clinic and suggestions to improve the service. Advantages, 1- Time efficient, mentioned 32 times. 2- less physical effort, mentioned 18 times. 3- no transportation needed, mentioned 16 times. 4- Less mental effort, mentioned 9 times. 5- Less contact with sick patients, mentioned 8 times. 6- Saves more money mentioned 7 times. 7-No leaves form work mentioned 6 times. 8- More privacy, 2 times. 9- Calling on time, once. Disadvantages, 1- The referral process was not clear, mentioned 12 times. 2- Receiving calls at different times form their appointment, mentioned 9 times. 3- Cannot see the doctor, 3 patients mentioned it and 2 mentions for each of the following, 4- No physical examination. 5- Not suitable for urgent complaints. 6- No reminder before the appointment. 6- No enough time for the call. 4 patients did not mention any disadvantage. Last question was about suggestions to improve the service, and they are as follows: 1- Make the referral process easier, 10 times. 2-Allow the patient to evaluate the service after every call, 5 times. 3- Add video calls. 4- To deliver medication to home. 5 -To be followed up by the same doctor, 4 times each. 6- To call on the time of the appointment, 3 times. 7- To put a reminder for the patient before appointment, 2 times. 8- Patient should be given enough time to talk, 2 times. 9 – Adding messages service between the patient and the doctor, once. 10- Develop mobile application for this service, once. 11- to extend the working hours after 4:00 pm, 1 time (Table 4).

Question	N	Percentage
Describe for us your experience in getting the medications form pharmacy after the clinic		
Satisfied	28	77.70%
Not Satisfied	2	5.50%
No Medications prescribed	6	16.60%
From your point of view, how do you think others will accept this service?		
More convenient mentally and physically	14	38.80%
Saves time (clinic waiting time/ traffic jam)	7	19.40%
By increasing the awareness about this service	5	13.80%
Not suitable for elderly	4	11.10%
It needs time only for the community to get familiar with this service	3	8.30%
Help to decrease the contact with sick patients	2	5.50%
More convenient for younger people	2	5.50%
More convenient for females	2	5.50%
More convenient for elderly	1	2.70%
Saves money (less transportation)	1	2.70%
In the long run, what is the effect of this service on the community?		
Positive effect	31	86.10%
Negative effect	1	2.70%
Neutral	4	11.10%
What are the advantages of virtual clinic?		
Time efficient	32	88.80%
Less physical effort	18	50%
No transportation needed	16	44.40%
Less mental effort	9	25%
Less contact with sick patients	8	22.20%
Saves more money	7	19.40%
No leaves from work	6	16.60%
More privacy	2	5.50%
Calling on time	1	2.70%
What are the disadvantages of virtual clinic?		
Referral process was not clear	12	33.30%
Receiving the call at different time from the appointment	9	25%

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Cannot see the doctor	3	8.30%
No physical examination	2	5.50%
Not suitable for urgent complaints	2	5.50%
No reminder before the appointment	2	5.50%
No enough time for the call	2	5.50%
No disadvantages	4	11.10%
What are your suggestions to improve this service?		
Make the referral or booking process easier	10	27.70%
Allow the patient to evaluate the service after every call	5	13.80%
Add video calls	4	11.10%
To deliver the medications to home	4	11.10%
Follow up with the same doctor	4	11.10%
To call on the time of the appointment	3	8.30%
Put a reminder for the patient before appointment	2	5.50%
Patient should be given enough time to talk	2	5.50%
Add messages service between the patient and the doctor	1	2.70%
Develop a phone application for this service	1	2.70%
To extend the working hours after 4:00 pm	1	2.70%

Table 4: After virtual clinic questions.

#### **Discussion**

### **Summary**

This study has shown that, majority of the patients that we have interviewed are generally satisfied with the new virtual clinic service, and most of them agreed on the benefits of the virtual clinic in mainly: waiting time, the physical, mental, and financial burden of transportation, and the contact with sick patients.

Comparing to regular clinic, virtual clinic provides more privacy and convenient method for primary care service delivery. However, virtual clinic has its drawbacks, about third of our interviewees complaining about the referral or booking was not clear and easy, and some of them complained in regard of the time of the consultation, not receiving the call on the time provided previously.

#### **Strengths & Limitations**

This was a semi structured interview qualitative study based on convenience sampling, done in primary care centers of the Prince Sultan Military Medical City in Riyadh. One of our study's limitation that we did not obtain the physicians' opinions on virtual clinic, also we did not measure the exact amount of cost and time saved. We did not involve specific populations in our study like disabled people or people of mental issues that would benefit from virtual clinic the most. Another limitation is the study was done in primary care settings, so our results cannot be generalized to secondary or tertiary care.

# **Comparison with Existing Literature**

Our study showed high satisfaction rate between the patients who benefit from virtual clinic, similar findings also reported by on local study [19], and multiple international studies [8-13,16-18], primary care-based studies [9-11] and specialized care settings studies [9,12,16,18].

As in other studies, reducing time and cost was the main part that contribute into the high satisfaction rate of the patients [7,8,11,18]. There was a difference in privacy issues comparing to regular clinic in favour of virtual clinic, however, there was no difference comparing to regular clinic in consultation and receiving information, similar results seen in other studies [11,15].

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However, complex cases prefer regular clinic over virtual clinic as in study done by Donaghy E, et al. titled "Acceptability, benefits, and challenges of video consulting: a qualitative study in primary care". Our interviewees did not mention technical issues as compared to some studies that reported technical issues during the consultation. [9,10,15,16]. However, the studies which involved advanced technology has more challenges comparing to basic simple ones.

**Recommendations:** Virtual clinic happens to be a more convenient option for young and female patients. Virtual clinic and different modes of consultations seem inevitable, there I possibility for future expansion of this service in post COVID 19 era and can be used alongside regular clinic services.

Given the results of our study, virtual clinic is associated with high satisfaction rate among our patients that we have interviewed. However, it is advisable to improve the referral or booking process of virtual clinic and make it easier. We should take into considerations; elderlies may have difficulties in booking or following up with virtual clinic. In addition, virtual clinic could have more advanced technologies such as video calls, to have more interaction with health care provider.

Further research needed to measure the satisfaction rate of the health care providers regarding virtual clinic and to include special needs populations in the future.

#### **Conclusion**

Virtual clinic is a good method in reducing costs and time in delivering health care, in patients' opinions. In general, virtual clinic had high satisfaction rate among who benefit from the service. However, there are some concerns need to be addressed like referral or booking process for virtual clinic services.

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