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Patient satisfaction with the virtual clinic in Jazan city, Saudi Arabia: A cross-sectional study

Mada Ibrahim Hamzi[1*], Nasra Hussain AlSomali[2], Nadiya Hussain AlSomali[3], Mada Mousa Mahdi[4], Ali Jubran Noshaily[5]

[1]*Abu Arish General Hospital, Saudi Arabia.*
[2,3]*King Fahad Medical City, Saudi Arabia.*
[4]*Jeddah first health cluster, Saudi Arabia.*
[5]*Abu Arish General Hospital, Saudi Arabia.*

Corresponding author: Mada Ibrahim Hamzi (*Email: madamahdi94@gmail.com*)

Abstract

Patient satisfaction is an essential dimension of care quality and an aspect of the spread and adoption of Virtual Clinic facilities. Patient satisfaction assessment has emerged as a critical measure of healthcare performance and outcomes. This study aimed to assess patient satisfaction with a virtual clinic in Jazan City, Saudi Arabia. A cross-sectional study using a convenience sample of 305 patients at a virtual clinic in three general hospitals in the Jazan region of Saudi Arabia was conducted. A quantitative descriptive correlational design was used for the study. The researchers used the Telehealth Satisfaction Scale to measure patient satisfaction with care from the Virtual Clinic. Independent sample t-tests and one-way analysis of variance were used to compare satisfaction scores between groups. The study suggested that patients were very satisfied with their virtual clinic. Overall, the average of most scale items exceeded three, indicating satisfaction ratings between "good" and "excellent." There were no statistically significant associations between sociodemographic characteristics and patient satisfaction with virtual clinics. It is also a relatively new concept in the health sector in the Jazan area, but the high satisfaction of surveyed users motivates further development in that area. For patients, the courtesy, respect, sensitivity, and friendliness of virtual clinic staff, as well as maintaining patients' privacy, were vital, reporting that virtual clinics could enhance access to care.

Keywords: Patient satisfaction, Saudi Arabia, Telehealth satisfaction scale, Virtual clinic.

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1. Introduction

Assessing the quality of integrated service products is a significant problem for health service managers and directors [1]. Many factors relate to patients' perception of overall satisfaction or lack thereof with the health system; these include patient expectations, health quality, demographic characteristics, and features of the health system [2]. Nevertheless, patient satisfaction is a powerful quality indicator and has become an important outcome measure. Patient satisfaction survey results are increasingly being recognized as metrics to measure the effectiveness of the hospital service delivery system [3]. Patient satisfaction was defined as a measure of the difference between what a patient expected or wanted and what was actually delivered during the care process [4].

The quality and delivery of healthcare are evolving with virtual clinic technology [5]. A virtual clinic is an online conference room in which a customer and supplier share a meeting space. Patients within a virtual clinic can read first reports of diseases or injuries of the body without as long a wait for an in-person visit at a hospital or clinic [6]. The current use of the telephone use as a virtual clinic was developed in the 1870s to avoid unnecessary workplace visits, where tablets or other devices can be used to send voice, survey questions, email, text messages, pictures, and videos with or without a conference call. The virtual clinic is also expanding and has grown into a broader category of patient care, including broadcasting and information technology [7]. This digitized technology can provide continuous healthcare input to various parameters of patient treatment from remote geographical locations over long periods. At a virtual clinic, a healthcare specialist may take a look at patients via a video link. This reduces travel and the possibility of further exposure to infection or injury [8]. In a study conducted by Sept et al. [9] it is shown that diagnostic accuracy or agreement of virtual care looks equivalent to clinical follow-up visits.

In recent years, the analysis and application or use of virtual clinic technology has dramatically increased over time; this growth was primarily attributed to the high waiting times, limited primary care visits, and the numerous patients' willingness to sit in front of a screen for immediate care delivery [10]. In addition to this, various tools have been created to help monitor and boost the quality of virtual clinic technology. One of the most common and prevalent tools among them is patient satisfaction [11]. Moreover, virtual clinics rely on patients' acceptance of such technology for its future effectiveness. This underscores the need for a full assessment of quality through patients' satisfaction and experiences [12]. Patient satisfaction with the virtual clinic service has been reported to be high, but evaluation of patient satisfaction with virtual clinic services is limited. Therefore, assessing patients' satisfaction with the virtual clinic is an important issue for both patients and healthcare providers and healthcare institutions [13].

Patient satisfaction plays an essential role in the quality of care and the implementation and uptake of virtual clinic services [14]. Assessing patient satisfaction is now a critical metric of health care quality and outcomes. However, to the best of our knowledge, no studies regarding patient satisfaction with virtual clinics in Saudi Arabia have been conducted. As a result, healthcare providers are unable to assess the value of the care they provide meaningfully. Therefore, this study aims to evaluate the patient satisfaction of patients who are using the virtual clinic and to find out differences in patient satisfaction with the virtual clinic across various demographic variables.

2. Material and Methods

2.1. Research Design

A quantitative descriptive correlational design was employed to accomplish the aims of the study.

2.2. Study Setting

The Outpatient Virtual Clinic was established in 2022 with three governmental hospitals, including Abu Arish General Hospital, Baesh General Hospital, and Sabya General Hospital. This virtual clinic is simply the practice of using "virtual" technology, such as teleconferencing, in order to "visit" a patient. It will offer telephone follow-up, referrals, further investigations, orders, and medication refills. It will also provide patients with the ability to voice their thoughts in the development of their follow-up and management plan.

2.3. Sample Description

The target population for this study was adult patients (aged over 18 years) with various diagnoses who were being treated for their disease at virtual clinics in government hospitals in Jazan City. The convenience sampling method was used to achieve the required sample size. This sample was obtained during the data collection period by contacting the participants available at the moment until the sample size was reached.

2.4. Inclusion and Exclusion Criteria

Patients will be selected if they a. can read, write, and speak Arabic; b. can be oriented to time, place, and person; c. are eighteen years of age or older; and d. can give informed consent. Patient characteristics for exclusion from the study are a) age less than 18 years or b) inability to provide informed consent.

2.5. Sample Size

The sample size was determined based on a power analysis carried out using G*Power for the current study. To have enough confidence in the findings, based on 0.80 power using an effect size of 0.5 and an alpha error of 0.05, the total needed sample was 290 subjects. Oversampling, however, is done to achieve an enhanced understanding of the phenomena. The total sample size consisted of 305 patients.

2.6. Study Instruments

2.6.1. Sociodemographic Questionnaire

The researchers developed a demographic questionnaire to gather data on the demographics of the population. Age, marital status, level of education, and gender were some of the sociodemographic parameters that were considered.

2.6.2. The Telehealth Satisfaction Scale (TeSS)

The Telehealth Satisfaction Scale (TeSS) is a 12-item scale created by Linassi et al. [15] to evaluate the quality of care in terms of patient satisfaction with telemedicine services. The items are rated on a 4-point Likert-like scale ranging from 1 = poor to 4 = excellent. The TeSS total score ranges from 12 to 48, and higher scores indicate better satisfaction. Internal consistency was high (0.93) according to the developers of the original questionnaire, with strong correlations between the questionnaire items. Additionally, a study by Otten et al. [16] showed that the reliability of TeSS (Cronbach's alpha) was 0.88. The original questionnaire developers established content validity through a comprehensive review of the questionnaire by fourteen experts from differing backgrounds, including physicians, nurses, and telemedicine specialists. The internal consistency of TeSS, as measured by internal consistency, Cronbach's alpha, was 0.84, which indicates high robustness (2015), and the Content Validity Index (CVI) was 0.9.

2.7. Ethical Considerations

The current study was approved by the Saudi Ministry of Health Institutional Review Board (Ref. No. 2179). Furthermore, the author notified the directors of the virtual clinics. Patients were assured that submitting the questionnaires would not affect the implementation of the treatment plan in the virtual clinic. Patients were informed that participation in the study was entirely voluntary and that their anonymity and confidentiality would be preserved.

2.8. Data Collection Procedure

Data collection was done from June 2023 to August 2024. Participants were recruited from virtual clinics at the participating hospitals. After getting patients' consent to join the study, a meeting was held with the hospital's Information Systems Manager to decide on a method to collect the names of patients visiting outpatient clinics and other information. Thus, time slots were scheduled with the head nurse to conduct the study at a time of the day that would cause minimal interference with routine clinic operations.

Participants were given an oral presentation indicating the nature of the study in detail. They provided written informed consent from the researcher prior to the start of the study in the outpatient clinic. Patients visiting the outpatient clinics for a follow-up visit after receiving care in a virtual clinic were identified, and an online survey was generated and sent to their phone numbers via Google Forms. Patient responses were stored in a secured computer file for additional data processing. There are a total of 16 questions across the whole questionnaire. The questionnaires were completed in approximately 10-15 minutes.

2.9. Analysis of Data

Data were analyzed using the Statistical Package for Social Sciences (SPSS) SPSS®-PC version 28 for Windows. All statistical analyses were conducted with a significance level of .05. Descriptive statistics were used to describe the demographic characteristics of the sample and the Telemedicine Satisfaction Questionnaire (TeSS). Cronbach's alpha coefficient will be used to assess the internal consistency reliability of TeSS in measuring interest variables.

An independent sample t-test will be used to analyze differences in satisfaction levels based on gender. A one-way analysis of variance (one-way ANOVA) will be used to investigate variations in satisfaction levels for educational level, age groups, and marital status.

3. Result

3.1. Participants' Sociodemographic Profiles

This study was performed on 305 patients (response rate, 92%). Participants: More than half (58.7%) of the participants were female, and 54.8% were married; ages ranged from 18 to 98 years, with a mean (SD) of 39.19 (19.19). Patients had diverse educational backgrounds at the time of data collection, with an educational level predominantly at the university (36.1%) (Table 1).

Table 1.
Patients' sociodemographic characteristics, N= 305.

Variable	Mean	SD	No (%)
Age	39.19	19.19	
Age Groups			
<= 28			106 (34.8)
29 - 43			102 (33.4)
>44			97 (31.8)
Gender			
Male			126 (41.3)
Female			179 (58.7)
Marital Status			
Single			96 (31.5)
Married			167 (54.8)
Divorced			19 (6.2)
Widow			23 (7.5)
Educational level			
Primary school Secondary school University education			109 (35.7) 86 (28.2) 110 (36.1)

Note: SD= standard deviation.

3.2. The Results of Patients' Satisfaction Level

Results showed a mean level of satisfaction of 38.17 on the Telehealth Satisfaction Scale (TeSS) (SD = 8.83). Patients reported a high level of satisfaction regarding their experience with virtual clinic services (Table 2). The average scores ranged from 3.52 (SD = 0.69) for "patient privacy" to 2.75 (SD = 1.13) for the "visual quality of the equipment." Most item scores on the scale rated > 3, which indicated a satisfaction level ranging from good to excellent satisfaction.

Table 2.
Responses of Patients to a 12-item Telehealth Satisfaction Scale, (n = 305).

Item no. statement	Excellent n (%)	Good n (%)	Poor/Fair n (%)	Mean (SD)
How satisfied were you with				
1. "The equipment's voice quality"	120 (39.3)	88 (28.9)	97(31.8)	2.96 (1.02)
2. "The visual quality of the equipment"	105 (34.4)	80 (26.2)	120 (36.3)	2.75 (1.13)
3. "Ease of use of the Telehealth system"	139 (45.6)	83 (27.2)	83 (27.2)	3.09 (1.00)
4. "The time it takes to make this appointment."	126 (41.3)	88 (28.9)	91 (29.8)	3.01 (1.01)
5. "How easily did you get to the telehealth department (taxi, walk, CHR, staff)?"	124 (40.7)	70 (23.0)	111 (36.4)	2.83 (1.18)
6. "The duration spent with the Memory Clinic team"	146 (47.9)	95 (31.1)	64 (21)	3.21 (.90)
7. "The rationale for your treatment provided by the Memory Clinic team."	163 (53.4)	102 (33.4)	40 (13.1)	3.36 (.82)
8. "The thoroughness of the Memory Clinic team, carefulness, and skillfulness of the Memory Clinic team."	168 (55.1)	96 (31.5)	41 (13.5)	3.37 (.82)
9. "The courtesy, respect, sensitivity, and friendliness of the Memory Clinic team"	175 (57.4)	99 (32.5)	31 (10.2)	3.45 (.72)
10. "How well your privacy was respected."	188 (61.6)	94 (30.8)	23 (7.6)	3.52 (.69)
11. "Staff answered your questions about the equipment very well?"	165 (54.1)	107 (35.1)	33 (10.8)	3.41 (.75)
12. "How would you rate your overall experience with this appointment using Telehealth?"	151(49.5)	88 (28.9)	66 (21.6)	3.22 (.91)

Note: SD= standard deviation.

3.3. The Results of the Relationship between Patients' Satisfaction Level with virtual clinic and Sociodemographic Factors

The difference in the total level of satisfaction of patients with their experience regarding virtual clinics based on gender, age, marital status, and educational level was evaluated using an independent-sample t-test and one-way ANOVA. Regarding the study findings, the satisfaction mean level was found to be statistically not significant based on gender, age, marital status, and educational level at $p < 0.05$ (Table 3).

Table 3.
Difference between Sociodemographic Factors and Telehealth Satisfaction Scale, (n = 305).

Variable		Mean	SD	*t/f -Value*	*df*	*P-value*
Gender	Male	39.04	8.87	1.438	303	0.15
	Female	37.56	8.78			
Age	<= 28	37.50	8.79	0.501	2,302	0.60
	29 - 43	38.38	8.78			
	>44	38.69	8.98			
Marital status	Single	38.19	8.21	0.359	3.301	0.78
	Married	37.85	9.36			
	Divorced	39.26	7.11			
	Widow	39.57	8.97			
Educational level	Primary school	38.26	8.29	0.012	2,302	0.98
	Secondary school	38.20	9.16			
	University education	38.07	9.17			

Note: *Significant at $p \leq 0.05$.

4. Discussion

Virtual clinics are rapidly being recognized as something that can revolutionize the standard of care, particularly outpatient clinics; however, they are not yet fully adopted in all health facilities in the Kingdom of Saudi Arabia. Recent data indicated that patients' satisfaction with the treatments provided by the virtual clinic was increasing [17-19]. To our knowledge, this study is the first to assess the patient satisfaction of patients who visited a virtual clinic. The mean level of satisfaction was 38.17 (SD = 8.83), indicating the patients showed a high level of satisfaction with their virtual clinic services. Above all, more than half of the patient participants feel that virtual clinic services provide more clarity about treatment, as well as courtesy, respect, care, and friendliness. This finding indicates a similar level of satisfaction when compared to other recent studies [20-25]. On the other hand, other studies reported a slightly lower level of satisfaction [26, 27].

Müller et al. [19] measure patient satisfaction with virtual clinic services. Researchers of a randomized controlled trial in one field of neurology outpatient clinics explored satisfaction longitudinally in 279 patients who were treated and followed up in a virtual clinic vs. standard practice for non-acute headache attacks. Females were significantly more satisfied with the virtual clinic service (p-value = 0.027), while none of the age or education categories affected patients' satisfaction, according to the study. The researchers further discovered that, after a year, satisfaction rates of patients utilizing the virtual clinic were not lower than those who used traditional clinic appointments. Similarly, Abdulwahab and Zedan [20] adopted a cross-sectional study with the aim of identifying variables that influence patients' perception of the virtual clinic as a clinical service and satisfaction with that service. Surveyed patients (n = 235) were asked about access to virtual clinics, medical specialties, and overall satisfaction with the services. As for experience with virtual clinic services, the study found that women have significantly more satisfaction than men do (p-value = 0.001), and age group and educational level had no effect on patient satisfaction. Moreover, Alharbi et al. [28] found that male patients were more likely to be satisfied with their experience of virtual clinics. Age also had a significant effect on the level of satisfaction.

The current study results showed that patients' satisfaction levels with their experience of virtual clinics are similar between males and females, and this is not in line with Müller et al. [19], Abdulwahab and Zedan [20], and Alharbi et al. [28]. On the other hand, the result of the current study is similar to the findings of Abdulwahab and Zedan [20] and Müller et al. [19] regarding age and educational level, which revealed that patient satisfaction levels are comparable across age groups and educational levels. Furthermore, it has been shown in this study that there are no statistically significant differences in satisfaction levels among different marital statuses. This finding is similar to the report by Alhajri et al. [21] in which marital status was not significantly associated with overall patient satisfaction with virtual clinic service. One advantage of this study is that the researchers examined patients' views on using virtual clinic services within a variety of clinics and specializations, which improves the broader relevance of the study findings. The researchers think there is a fair rate of satisfaction with courtesy, respect, sensitivity, and friendliness, with privacy being respected, and with staff answering questions about the devices.

4.1. Implications For Nursing Practice

Assessing patient satisfaction with virtual clinic services is of great importance in evaluating whether improvements need to be made in virtual clinics. Therefore, this study elucidates the value of virtual clinic assessment in health care. It motivates healthcare professionals to perform both formative and summative evaluations of the virtual clinician services provided. Evaluating patient satisfaction with virtual clinic services allows for the continual monitoring of patient satisfaction levels and the initiation of necessary interventions.

4.2. Limitations

A number of limitations should be considered when interpreting the findings of this study. The study considered only age, education, marital status, and gender, and the authors noted that a higher proportion of responses came from females and those with at least primary school education, which may not be generalizable to their geographical area. However, other factors may also refine the determinants of patient satisfaction with virtual clinics. The limitations of this study include the fact that it was only conducted in one location, which makes the results less generalizable. Similarly, considering that this

study is cross-sectional, analytic sociodemographic correlations were highlighted, but the conclusion and the direction of the found interactions are challenging to explain.

4.3. Conclusion

This study revealed that patients were generally satisfied with all aspects of virtual clinic services in Saudi Arabia. As the findings of this study demonstrate the significance of the provision of virtual clinic services and the overall level of satisfaction expressed by the patients, further study is warranted elsewhere to improve these data points. To evaluate patient satisfaction further, other sociodemographic data might be considered, such as monthly salary, employment status, medical history, clinical complaints or accompanying diseases, and whether the patient sought the clinic for acute or chronic treatment.

The acceptance of patients and their ambitions to use virtual clinic services in Saudi Arabia need more study. Patients need to be educated and encouraged to use virtual clinic services. Patient education and support programs can be deployed in either primary care facilities, public areas of the hospital, during discharge, through reminder text messaging or patient portals, or the use of signage in areas of healthcare to inform individuals of the services and how to access them.

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