

Evaluation of Healthcare Service Quality and Virtual Clinic Integration in Jeddah

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Abstract

Background: The rapid evolution of healthcare delivery systems necessitates continuous evaluation of service quality to ensure patient satisfaction and system efficiency. Traditional healthcare services often face challenges such as waiting times, organizational inefficiencies, and resource limitations. Virtual clinics have emerged as an innovative solution, enhancing accessibility, reducing wait times, and providing convenience. This study focuses on assessing the quality of healthcare services in Jeddah, Saudi Arabia, and explores the integration of virtual clinics as a complementary approach to traditional care.

Method: This study employed a descriptive research design, using a structured questionnaire to evaluate patient experiences in traditional and virtual healthcare settings. Data were collected from 493 participants through phone calls and virtual clinic interactions. Participants represented diverse demographic profiles and were surveyed on their experiences with medical staff, service accessibility, and the quality of information provided. SPSS v.28 and Microsoft Excel were used for descriptive statistical analysis to assess communication, service quality, accessibility, and overall satisfaction.

Results: The findings revealed high levels of satisfaction in several areas: 83% of respondents praised doctors' communication, and 77% were satisfied with the clarity of diagnostic information. However, only 69% expressed satisfaction with nursing staff interactions. Challenges were identified in waiting times (16.8% dissatisfaction), appointment scheduling (27.8% reported difficulties), and perceived shortages in medical supplies (31.4%). Despite these issues, overall satisfaction with healthcare services was high, with 74% approving of service quality and 79.9% endorsing treatment effectiveness.

Conclusion: While Jeddah's healthcare services demonstrate strong performance in patient communication and treatment quality, areas such as nursing staff interaction, appointment scheduling, and resource adequacy require targeted improvements. Optimizing virtual clinic integration and enhancing communication training for staff can address these challenges and further improve patient experiences in both traditional and virtual settings.

Background

In-person healthcare services have long been the cornerstone of medical care delivery, offering patients direct access to healthcare professionals and facilities. Evaluating the quality of these services is essential to ensure patient satisfaction and the effectiveness of the healthcare system. Various dimensions such as communication, responsiveness, and the physical environment significantly influence patient perceptions and satisfaction (**Ferreira et al., 2023**). Patient satisfaction is a multidimensional construct that hinges on effective communication, accessibility, and the clarity of information provided by healthcare professionals. Studies underscore that patient-centered communication significantly enhances trust and satisfaction with healthcare services, even in virtual settings (**Çakmak & Uğurluoğlu, 2024**). For instance, an evaluation in Iranian teaching hospitals found that clear physician communication and a smooth admission process were key determinants of positive patient experiences (**Abbasi-Moghaddam et al., 2019**).

Facilities and the environment are also pivotal. Cleanliness, availability of prescribed medications, and the provision of diagnostic tests directly affect how patients perceive healthcare services. For example, a study indicated that patients expressed dissatisfaction with hospital cleanliness and the timeliness of services (**Girija & Basak, 2023**). Another critical area of concern in healthcare systems globally is the management of waiting times and hospital organization. Studies indicate that delays in service and inefficiencies in resource allocation can significantly detract from patient satisfaction, even when other aspects of care are satisfactory (**Marshall et al., 2023**).

Virtual clinics, when effectively integrated, have the potential to alleviate many of these challenges by streamlining appointment management and providing real-time patient tracking systems (**Munavalli et al., 2020**). However, satisfaction with medical staff, particularly nursing staff, continues to lag compared to doctors. This disparity highlights the importance of enhancing soft skills and training among nursing staff to improve patient interactions and care delivery (**Walker, 2005**).

With advancements in telehealth technologies, virtual clinics have become an integral part of modern healthcare delivery in Kingdom of Saudi Arabia (**Alamri & Alshagrawi, 2024**). These innovations aim to improve accessibility, reduce patient wait times, and address resource limitations in healthcare systems (**Haleem et al., 2021**). The integration of virtual clinics in Saudi Arabia has revolutionized healthcare delivery, providing increased accessibility and convenience for patients while addressing the challenges of traditional in-person care. Studies have demonstrated high levels of patient satisfaction with virtual clinics, particularly in aspects like reduced waiting times, privacy, and the professionalism of healthcare staff. For example, research in Jazan revealed that most patients rated their experiences in virtual clinics as "good" to "excellent," highlighting the role of such clinics in improving access to quality care in a culturally appropriate manner (**Hamzi et al., 2023**). Similarly, an evaluation in Hail noted that both patients and healthcare providers favored virtual clinics for their ability to reduce workloads and improve service delivery, despite challenges like the inability to perform physical examinations and occasional technological barriers (**Alshammari et al., 2023**). These findings suggest that virtual clinics are becoming an integral component of the Saudi healthcare system, enhancing efficiency while maintaining high standards of care. Moreover, studies demonstrate the capability of virtual clinics to provide high-quality healthcare even in resource-constrained settings, emphasizing their adaptability across various communication networks such as 3G, 4G, and 5G. These clinics show promise in addressing geographical and infrastructural challenges

while encouraging investment in telecommunications to further enhance healthcare access (**Blocker et al., 2023**).

This study builds on these insights to evaluate the current state of healthcare service quality in Jeddah and explores how virtual clinics can be optimized to meet evolving patient needs effectively. It aims to identify specific gaps in service delivery and provide actionable recommendations to enhance both traditional and virtual healthcare systems.

Methodology

1. Study Objectives

This study aims to evaluate the quality of healthcare services provided in Jeddah, with a particular focus on the integration of virtual clinics. It seeks to gather patients' opinions on their experiences with medical staff, the quality and clarity of information provided, the organization and efficiency of service delivery, and the accessibility of both traditional and virtual healthcare services. Furthermore, the study aims to identify key areas for improvement to enhance the overall patient experience and optimize the use of virtual clinics in the healthcare system.

2. Study Design

- **Type of Study:**

The study employs a descriptive research design, utilizing a survey methodology to collect data from participants. The data collection process is supported by a collaborative team consisting of researchers, social workers, and members of the virtual clinic team, ensuring a thorough and well-rounded approach.

- **Data Collection Tool:**

A specially designed questionnaire covering various aspects of the patient experience with the healthcare system, including communication, service quality, and facility organization.

- **Questionnaire Sections:**

- Demographic data.
- Patient experience with medical staff.
- Quality of medical information provided.
- Accessibility and organization.
- Overall service evaluation.

3. Data Collection

- **Target Population:**

Patients who accessed healthcare services in Jeddah during the specified study period, including both traditional in-person visits to medical facilities and virtual clinic consultations.

- **Sample Size:**

The study included a carefully selected sample of 493 participants to ensure representation of both genders and various age groups and educational levels.

- **Data Collection Method:**

Responses were collected through a combination of telephone calls and virtual clinics. During the telephone calls, participants were contacted directly by researchers and social worker who recorded their answers in real time.

In the virtual clinics, participants joined scheduled online sessions where they interacted with the research team, who facilitated discussions, provided guidance, and documented the participants' responses in a structured manner.

4. Data Analysis

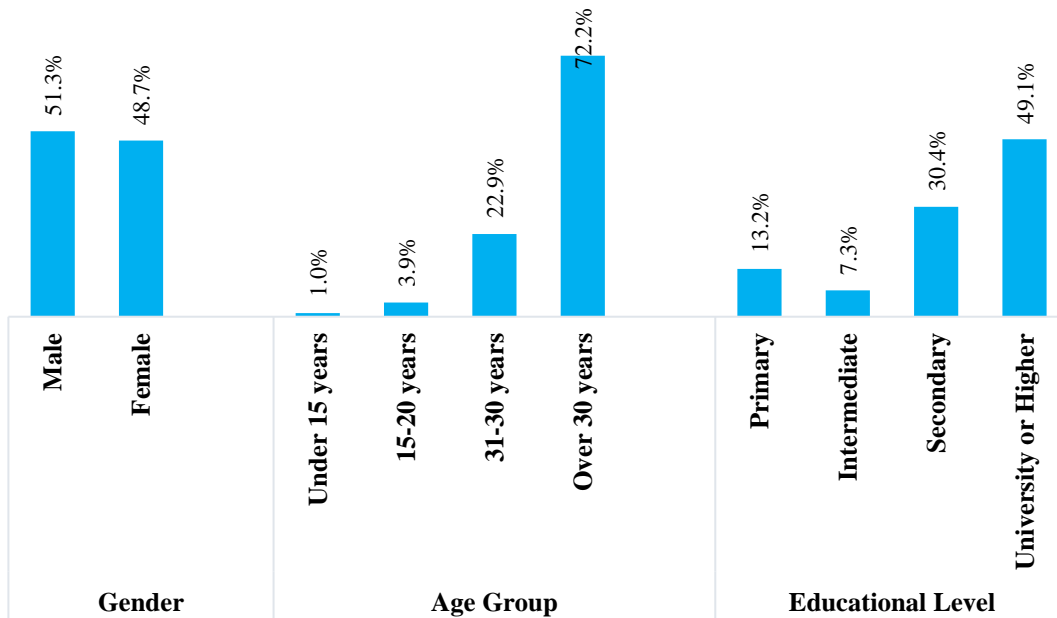
- **Tools Used:** Data was analyzed using SPSS v.28 and Microsoft Excel to provide accurate descriptive statistics (percentages and frequencies).

5. Results

The gender distribution is relatively balanced, with males constituting 51.3% of the sample and females 48.7%. The age group data reveals a concentration in the "Over 30 years" category, representing 72.2%, which suggests that older adults are the primary respondents. Educational attainment shows a predominance of higher education, with 49.1% of respondents holding a university degree or above, indicating a well-educated sample group.

Table 1 Demographics

Variable	N (%)
Gender	
Male	253 (51.3%)
Female	240 (48.7%)
Age Group	
Under 15 years	5 (1.0%)
15-20 years	19 (3.9%)
31-30 years	113 (22.9%)
Over 30 years	356 (72.2%)
Educational Level	
Primary	65 (13.2%)
Intermediate	36 (7.3%)
Secondary	150 (30.4%)
University or Higher	242(49.1%)



Part Two: Patient Experience Evaluation

- Communication with Medical Staff

A significant majority of patients (83%) were satisfied with the clarity of doctors' communication, their attentiveness, and concern for health status. Neutral responses were below 12%, and dissatisfaction was consistently under 8%, reflecting a strong performance in doctor-patient communication.

Table 2 Communication with Medical Staff

	Dissatisfied N (%)	Neutral N (%)	Satisfied N (%)
1. Did the doctors communicate with you clearly and understandably?	31 (6.3%)	53 (10.8%)	409 (83.0%)
2. Did you feel that the doctors listened to your description of your condition?	37 (7.5%)	47 (9.5%)	409 (83.0%)
3. Did you feel that the doctors were concerned about your health status?	31 (6.3%)	59 (12.0%)	403 (81.7%)

- Quality of Information Provided

The data indicates that over 77% of respondents were satisfied with the quality of diagnostic information, treatment options, and follow-up instructions. Dissatisfaction remained below 7%, suggesting that while the majority were pleased, there may be room to improve in communicating treatment details, as 17% remained neutral on this aspect.

Table 3 Quality of Information Provided

	Dissatisfied N (%)	Neutral N (%)	Satisfied N (%)
1. Were you informed of the necessary details about the diagnosis?	30 (6.1%)	65 (13.2%)	398 (80.7%)
2. Were the available treatment options explained to you clearly?	27 (5.5%)	84 (17.0%)	382 (77.5%)
3. Were you told how to follow up on your condition after treatment?	33 (6.7%)	80 (16.2%)	380 (77.1%)

- Interaction with Other Medical Staff

While 69% of respondents were satisfied with nursing staff cooperation and friendliness, 17.8% were neutral, and 13.2% dissatisfied. This highlights an area where targeted staff training could improve patient experiences further.

Table 4 Interaction with Other Medical Staff

	Dissatisfied N (%)	Neutral N (%)	Satisfied N (%)
1. Was the nursing staff cooperative and friendly?	65 (13.2%)	88 (17.8%)	340 (69.0%)

- Accessibility and Organization

Patient satisfaction regarding waiting times (63.7%) and hospital organization (72.2%) is positive. However, dissatisfaction with waiting times is relatively high (16.8%), suggesting potential issues with service flow or appointment scheduling.

Table 5 Accessibility and Organization

	Dissatisfied N (%)	Neutral N (%)	Satisfied N (%)
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1. Was the waiting time before receiving the service acceptable?	83 (16.8%)	96 (19.5%)	314 (63.7%)
2. Was the hospital well-organized?	35 (7.1%)	102 (20.7%)	356 (72.2%)

- Overall Assessment

The overall satisfaction with service quality (74%) and treatment appropriateness (79.9%) is high, with dissatisfaction levels below 6%. This suggests that the majority of patients view their healthcare experience positively, although a notable 20.5% expressed neutrality regarding service quality.

Table 6 Overall Assessment

	Dissatisfied N (%)	Neutral N (%)	Satisfied N (%)
1. Were you satisfied with the overall quality of the service?	27 (5.5%)	101 (20.5%)	365 (74%)
2. Did you feel that the treatment was effective and appropriate for your condition?	22 (4.5%)	77 (15.6%)	394 (79.9%)

- Additional Elements

The majority of respondents (72.2%) did not face difficulties in scheduling appointments. However, 27.8% reported challenges, indicating room for improvement in this process. Regarding resources, 67.7% believed staff numbers were adequate, and 68.6% reported no shortages of medical supplies, while 31.4% did notice shortages. Medication availability was less of an issue, with 72.4% satisfied.

Table 7 Additional Elements

	Yes N (%)	No N (%)
1. Did you face any difficulties in scheduling appointments?	137 (27.8%)	356 (72.2%)
2. Do you think the medical staff was sufficient to meet your needs?	334 (67.7%)	159 (32.3%)
3. Did you notice any shortages of medical supplies in the hospital?	155 (31.4%)	338 (68.6%)
4. Did you notice any shortages of medications in the hospital?	136 (27.6%)	357 (72.4%)

Overview of the Study Results

The study aimed to evaluate the quality of healthcare services in Jeddah by surveying 493 patients. The findings showed that 83% of respondents were satisfied with doctors' communication, while 77% were content with the clarity of diagnostic information and treatment options. However, 17% expressed neutrality regarding treatment details. Satisfaction with nursing staff was 69%, though 13.2% were dissatisfied. Regarding accessibility, 63.7% found waiting time acceptable, but 16.8% were dissatisfied. Overall, 74% of patients were pleased with the service quality, and 79.9% viewed treatments as effective. Key challenges included appointment scheduling difficulties (27.8%) and perceived shortages in medical supplies (31.4%). Recommendations include improving appointment systems, enhancing staff training, and addressing resource shortages to optimize patient satisfaction.

Discussion

This study evaluated healthcare service quality in Jeddah, focusing on patient experiences and the integration of virtual clinics. The findings indicate a generally high level of satisfaction across most metrics but highlight areas for improvement. The study found that 83% of respondents were satisfied with the clarity and attentiveness of doctors. Similar findings have been reported in studies emphasizing the importance of effective communication in improving patient satisfaction and compliance with medical advice (**Gao et al., 2024**). Moreover, grasping the dynamics of patients' trust in health information sources is essential for crafting effective healthcare systems (**Song et al., 2024**). A pivotal influence on this trust may lie in the quality of patient-centered communication during clinical visits. One study delved into the connection between how patients rate their clinicians' communication and their trust in health information sources. By analyzing data from 14,425 participants, the study revealed that when clinicians demonstrated strong patient-centered communication skills, patients were significantly more likely to trust them as reliable sources of health information (**Asan et al., 2021**). Effective communication is especially critical in virtual clinics, where physical interaction is absent (**Krausz et al., 2016**). The surge in telehealth use during COVID-19 has transformed how general practitioners (GPs) and patients interact in healthcare. A study led by **White et al. (2024)** developed evidence-based tools to foster effective, patient-centered communication in telehealth settings. By analyzing recorded telehealth consultations and gathering GP and patient perspectives, the research highlighted key principles for improving communication, including relationship building, maintaining conversational flow, and ensuring safety netting. This study supports these conclusions, suggesting that Jeddah's healthcare system has successfully fostered strong communication in virtual and traditional settings.

While over 77% of participants expressed satisfaction with the information on diagnosis, treatment, and follow-up, neutrality levels (17%) suggest room for improvement in delivering detailed treatment explanations. These results align with previous studies that emphasize the critical role of comprehensive information in fostering patient trust, adherence to treatment, and shared decision-making. For example, Epstein (2007) highlighted that thorough explanations about diagnosis and treatment options empower patients to actively participate in their care, leading to better outcomes (**Epstein, 2007**). In the context of virtual healthcare settings, limited time and technology barriers can further exacerbate these challenges. **Mehrotra et al. (2020)** identified that virtual consultations often suffer from constraints such as poor internet connectivity, lack of visual cues, and time limitations, which can impact the quality of information delivered to patients. Similarly, a study by **Kruse et al. (2017)** pointed out that technological issues and lack of standardized protocols in telehealth consultations can lead to inconsistencies in information sharing, potentially affecting patient comprehension and satisfaction.

Moreover, other research underscores the importance of tailoring information to individual patient needs. For instance, **Coulter et al. (2015)** emphasized that patients with different health literacy levels may require personalized communication approaches to fully understand their medical conditions and treatment options. In addition, studies by **Légaré et al. (2018)** showed that integrating decision aids into patient-provider interactions enhances the delivery of detailed information and facilitates shared decision-making, particularly in settings with time constraints. In virtual clinics specifically, the lack of face-to-face interaction poses unique barriers. For example, **Greenhalgh et al. (2020)** found that while video consultations offer

convenience, they often require additional training for healthcare providers to ensure effective communication and to adequately convey critical medical details. This suggests that a combination of technological enhancements, such as user-friendly interfaces and decision aids, along with improved communication training, could mitigate the identified gaps in delivering detailed treatment explanations. Taken together, these findings indicate that while Jeddah's healthcare services have achieved a significant degree of patient satisfaction in information delivery, addressing the specific challenges associated with virtual healthcare delivery and diverse patient needs could further enhance satisfaction and support informed decision-making.

Patient satisfaction with nursing staff was reported as 69%, which is notably lower compared to the satisfaction rates with doctors. Furthermore, 13.2% of respondents expressed dissatisfaction. This gap highlights an area for targeted improvement in healthcare delivery, especially in terms of enhancing the interpersonal and communication skills of nursing staff. This finding aligns with broader literature emphasizing the pivotal role of nursing staff in shaping patient experiences. **Walker et al. (2005)** identified that deficiencies in soft skills, such as empathy, active listening, and conflict resolution, often undermine patient satisfaction in clinical settings. Similarly, a study by **Zhang et al. (2024)** noted that staff burnout and insufficient training were key contributors to lower patient satisfaction in nursing interactions, underscoring the need for targeted support and professional development programs. Additional studies have highlighted the efficacy of structured training programs in addressing such disparities. For example, **Chang et al. (2009)** found that ongoing education and simulation-based training for nursing staff significantly improved communication and teamwork skills, leading to higher patient satisfaction ratings.

Moreover, integrating technology in nursing workflows has been shown to improve efficiency and communication. Studies such as that by **Huter et al. (2020)** have noted that using tools like electronic health records (EHR) and mobile apps enables nursing staff to better track patient needs and provide timely care, which can improve satisfaction. Finally, fostering a supportive work environment for nurses is crucial. A meta-analysis by **Cohen et al. (2023)** demonstrated that organizational interventions, such as flexible scheduling, stress management programs, and recognition initiatives, significantly reduce burnout and enhance patient-nurse relationships. Implementing such measures in Jeddah's healthcare system could address the dissatisfaction rates observed in the study.

Although 63.7% of respondents found waiting times acceptable, dissatisfaction levels (16.8%) and neutrality (19.5%) indicate room for improvement in service delivery. Prior studies have highlighted similar challenges, noting that long wait times reduce patient satisfaction and undermine perceptions of healthcare quality (**Alrasheedi et al., 2019**). Another studies, such as by **Bleustein et al. (2014)**, have shown that excessive waiting times not only frustrate patients but also lead to perceptions of inefficiency within healthcare systems. Virtual clinics have been proposed as a solution to these issues by increasing accessibility and reducing congestion (**Greenhalgh et al., 2020**). In virtual care settings, these delays might be mitigated by proper scheduling systems and better resource allocation. For instance, **Munavalli et al. (2020)** reported that integrating advanced appointment management systems can significantly reduce waiting times by ensuring a more balanced patient flow. Moreover, dissatisfaction with waiting times may stem from understaffing or inadequate workflow processes. Research by **Huang et al. (2024)** emphasized the importance of real-time patient tracking systems and dynamic resource allocation to manage bottlenecks in patient care delivery, which could be a valuable strategy for healthcare facilities in Jeddah.

On the other hand, 72.2% of respondents expressed satisfaction with hospital organization, suggesting that this aspect is relatively well-managed. Well-organized facilities often have a direct impact on patient satisfaction and operational efficiency. For example, **Taylor (2018)** demonstrated that hospitals with streamlined processes, clear signage, and effective staff coordination had significantly higher patient satisfaction scores. Neutral responses (20.7%) suggest that certain aspects of organization may require further improvement. A study by **Ahmed et al. (2024)** highlighted the role of Lean Six Sigma methodologies in improving hospital organization by identifying and eliminating inefficiencies, thereby enhancing patient experiences.

The study revealed significant concerns about medical supplies (31.4% reported shortages) and staffing adequacy (32.3% dissatisfaction). These findings align with broader evidence that resource limitations negatively impact healthcare delivery, especially in rapidly growing urban areas (**Liu et al., 2020**). Strategies to streamline supply chain management and optimize workforce distribution are essential to address these gaps.

Conclusion

The evaluation of healthcare services in Jeddah revealed high overall patient satisfaction, particularly with doctor-patient communication and the quality of services provided. However, challenges such as dissatisfaction with nursing staff interactions, waiting times, and perceived shortages of resources indicate areas for improvement. Virtual clinics have shown potential in addressing accessibility and efficiency gaps, though technological and organizational barriers remain. Strengthening these areas will optimize patient satisfaction and the overall healthcare experience.

Actionable Recommendations

- Implement training programs for nursing staff focusing on empathy, active listening, and patient-centered communication.
- Conduct regular assessments of staffing needs and medical supply inventories to minimize shortages.
- Introduce digital tracking systems to manage and predict resource requirements effectively.
- Improve Appointment Scheduling and Waiting Time Management
- Invest in advanced scheduling systems that integrate real-time patient flow and resource availability.
- Pilot patient tracking technologies to reduce bottlenecks and improve service delivery efficiency.

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