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Perceptions and preferences of the Saudi Arabia population regarding telehealth services: A cross-sectional study

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Abstract

This cross-sectional study explores the perceptions and preferences of the Saudi Arabian population regarding telehealth services. With the integration of technology in healthcare settings becoming increasingly important, this research aims to fill the gap in understanding its effectiveness and adoption. Utilizing a structured online questionnaire, data was collected from 518 individuals across various demographics, revealing a generally positive attitude toward telehealth. The findings indicate a high level of awareness and satisfaction with telehealth services, with a preference for their use in non-emergency situations and a strong endorsement of video consultations. Despite the positive outlook, the barriers to adoption include concerns about privacy, security, and a lack of public understanding. The study's results are significant for policymakers and healthcare providers, suggesting that while the Saudi public is ready to embrace telehealth, there is a need to address the identified barriers and ensure equitable access to these services. The research underscores the potential for telehealth to improve healthcare delivery in Saudi Arabia, reflecting a global trend toward digital health solutions.

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Introduction

The advent of telehealth services has revolutionized the healthcare industry, providing an alternative means of healthcare delivery that is both convenient and efficient. Telehealth services have been particularly beneficial in improving access to healthcare services, especially in remote and underserved areas (Smith *et al.*, 2020). In Saudi Arabia, the government has been proactive in integrating telehealth services into the national healthcare system, recognizing its potential to enhance the quality of healthcare services (Almalki *et al.*, 2011).

The perception of telehealth services among the Saudi public is generally positive, with many recognizing its benefits in terms of convenience and accessibility. A study by Alaboudi *et al.* (2016) found that the majority of participants believed that telehealth services could improve access to healthcare services, particularly for those living in remote areas (Alaboudi *et al.*, 2016). Similarly, Alghamdi *et al.* (2018) reported that patients were satisfied with the quality of telehealth services received, highlighting the potential of telehealth to improve patient satisfaction (Alghamdi *et al.*, 2019). Moreover, in 2022, Alhur results indicated that the Saudi Arabian population perceived telehealth health services as a convenient method to get mental care, particularly for remote patients (Alhur and Alhur, 2022).

Despite the positive perceptions, there are also specific preferences among the Saudi public regarding telehealth services. A study by Alqahtani *et al.* (2022) found that patients preferred telehealth services for non-emergency medical conditions, such as follow-up consultations and prescription refills (Alqahtani *et al.*, 2022). Furthermore, Al-Samarrai *et al.* (2020) reported that patients preferred video consultations over other forms of telehealth services, such as phone calls or text messages (Al-Samarraie *et al.*, 2020).

While there is a positive perception and preference for telehealth services, there are also barriers to its adoption. A study by a group of researchers in 2017 identified several barriers, including concerns about the privacy and security of patient information, as well as the lack of awareness and understanding of telehealth services in the public (Alsulame *et al.*, 2015). Additionally, Almalki *et al.* (2011) highlighted the need for proper infrastructure and trained healthcare professionals to support the implementation of telehealth services in Saudi Arabia (Almalki *et al.*, 2011).

A positive perception and preference for telehealth services among the Saudi public. However, there are also specific preferences and barriers that need to be addressed to ensure the successful implementation of telehealth services in Saudi Arabia. Future research should focus on exploring the impact of telehealth services on patient outcomes, as well as identifying strategies to overcome the barriers to its adoption.

Materials and methods

Research design

This study employed a quantitative, cross-sectional research design to investigate the perceptions and preferences of the Saudi public regarding telehealth services. The cross-sectional approach allowed for the collection of data at a single point in time, providing a snapshot of the current attitudes and preferences toward telehealth services among the Saudi population.

Population and sample

The target population for this study consisted of individuals residing in Saudi Arabia aged 18 years and above, who had experience with or were aware of telehealth services. A sample of 1,184 participants was selected using a stratified random sampling technique to ensure representation from various demographic groups, including age, gender, and geographical location.

Data collection

Data was collected through a structured questionnaire, which was administered online via social media platforms. The questionnaire consisted of a series of closed-ended questions designed to gather information on participants' perceptions and preferences regarding telehealth services.

The questionnaire was developed by the researchers and tested on a small sample to ensure clarity and validity.

Variables

The dependent variables in this study were the perceptions and preferences of the Saudi public regarding telehealth services. The independent variables included demographic factors such as age, gender, and geographical location, as well as previous experience with telehealth services.

Data analysis

The data collected from the questionnaire was analyzed using statistical software (SPSS). Descriptive statistics were used to summarize the demographic characteristics of the participants and their responses to the questionnaire items.

Ethical considerations

The study was approved by the Ethical Approval Committee from the Research Department at Hail Health Cluster No. 2023-77. The authors ensured that informed consent was diligently obtained from all participants. Prior to their participation, individuals were provided with detailed information about the study's purpose, procedures, potential risks, and benefits. They were also informed of their right to withdraw from the study at any time without any consequences. The participants were only included in the study once they had read and understood this information and voluntarily agreed to participate. This process was conducted in accordance with ethical guidelines and regulations to protect the rights and well-being of the participants.

Results

The analysis of participant agreement distribution shows that an overwhelming majority (99.1% [581 individuals]) agreed with the study's terms, while only 0.9% (five individuals) disagreed. In terms of demographics, the gender distribution was imbalanced, with 60.1% (352 individuals) identifying as female and 39.9% (234 individuals) as male. Educational backgrounds varied, with 73.9% (433 individuals) holding bachelor's degrees, 12.1% (71 individuals) having high school degrees, and an equal percentage having master's degrees or higher. Only 1.7% (10 individuals) was primary or secondary graduates (Table 1).

Table 1. Summary of participant agreement, demographics, and age distribution

Category	Sub-category	Response/Frequency	Percentage	Count
Participant agreement	Agree	581	99.10%	
	Disagree	5	0.90%	
	Total	586	100.00%	
Gender distribution	Male		39.90%	234
	Female		60.10%	352
Educational level	Primary or secondary graduate		1.70%	10
	High school graduate		12.10%	71
	Bachelor's degree		73.90%	433
	Master's degree and above		12.10%	71
Age distribution	18–24	97	16.60%	
	25–34	258	44.00%	
	35–44	165	28.20%	
	45–54	58	9.90%	
	Over 54	8	1.40%	
	Total	586	100.00%	

Regarding age, most participants were 25-34 years old (44.0%, 258 individuals), followed by 35-44 years old (28.2%, 165 individuals). Smaller percentages were in the 18–24 (16.6%, 97 individuals), 45–54

(9.9%, 58 individuals), and over 54 (1.4%, eight individuals) age brackets. Data from Table 2 reveals a range of responses regarding participants' perceptions and attitudes toward telehealth services. Most participants (446) reported being aware of telehealth services, reflecting a mean score of 1.302048 with a standard deviation of 0.581095. In contrast, 37 participants indicated they were unaware.

Satisfaction levels with telehealth services were also reported: 237 participants expressed being very satisfied and 186 were satisfied compared to 44 dissatisfied and 16 very dissatisfied individuals, resulting in a mean satisfaction score of 2.003413 and a standard deviation of 1.062165.

Table 2. Perceptions and attitudes toward telehealth services

Variable	Very positive	Positive	Neutral	Negative	Very negative	Total responses	Mean	Std. deviation
Awareness	446 (Aware)	-	103	-	37 (Unaware)	586	1.302048	0.581095
Satisfaction	237 (Very satisfied)	186 (Satisfied)	103	44 (Dissatisfied)	16 (Very dissatisfied)	586	2.003413	1.062165
Convenience	210 (Much more)	245 (More)	98	24 (Less)	8 (Much less)	585	1.931624	0.900214
Quality	272 (Excellent)	182 (Good)	106	20 (Poor)	6 (Very poor)	586	1.8157	0.917164
Comfort	304 (Very confident)	198 (Confident)	67	14 (Not Confident)	2 (Not at all)	585	1.652991	0.800853
Privacy	280 (Very Confident)	232 (Confident)	69	3 (Not Confident)	2 (Not at all)	586	1.66041	0.729619
Future Use	308 (Likely)	223	48	6	-	585	1.576068	0.686046
Recommend	288 (Very likely)	235 (Likely)	59	4 (Unlikely)	-	586	1.622867	0.691405
Tech Support	242 (Very satisfied)	202 (Satisfied)	101	10 (Dissatisfied)	31 (Very dissatisfied)	586	1.952218	1.062703

Note: The "Total Responses" column accounts for the total number of participants who responded to each question, including those with missing responses

As for the convenience of telehealth services, 210 participants found them much more convenient, and 245 indicated more convenience, whereas 24 found them less convenient and eight much less so. This yielded a mean convenience score of 1.931624 with a standard deviation of 0.900214.

The quality of services was rated excellent by 272 participants and good by 182, with only 20 rating it as poor and six as very poor. The mean quality score stood at 1.8157, with a standard deviation of 0.917164.

Regarding comfort with telehealth services, 304 participants felt very confident and 198 were confident, while comfort levels were not as positive for 14 participants, and only two were not at all confident, culminating in a mean comfort score of 1.652991 and a standard deviation of 0.800853.

Privacy concerns were minimal, with 280 participants feeling very confident and 232 feeling confident about their privacy. There were only three participants who were not confident and two who were not at all confident, resulting in a mean privacy score of 1.66041 with a standard deviation of 0.729619. Looking toward the future use of telehealth services, 308 participants were likely to use the services, with a mean future use score of 1.576068 and a standard deviation of 0.686046.

Participants were also asked about their likelihood of recommending telehealth services, where 288 were very likely to recommend and 235 were likely, leading to a mean recommendation score of 1.622867 and a standard deviation of 0.691405.

Finally, tech support satisfaction was rated as very satisfied by 242 participants and satisfied by 202 compared to 10 dissatisfied and 31 very dissatisfied, which gave a mean tech support satisfaction score of 1.952218 and a standard deviation of 1.062703.

Discussion

The overwhelmingly positive perception of telehealth services, as evidenced by the high awareness levels (Mean = 1.302048, Std. Dev. = 0.581095) and satisfaction scores (Mean = 2.003413, Std. Dev. = 1.062165), aligns with the growing body of literature that supports telehealth as an effective means of healthcare delivery (Smith *et al.*, 2020). Our findings are consistent with recent studies that have indicated an acceleration in telehealth adoption due to the COVID-19 pandemic (Greenhalgh *et al.*, 2020). The convenience of telehealth services reported by participants (Mean = 1.931624, Std. Dev. = 0.900214) is indicative of the reduced need for travel and the increased accessibility of healthcare services (Hollander and Carr, 2020).

Quality of care, often a concern with the adoption of telehealth, was rated highly (Mean = 1.8157, Std. Dev. = 0.917164), echoing the findings of a study by Dorsey and Topol (2016), who found that telehealth can deliver quality care comparable to traditional in-person visits (Dorsey and Topol, 2016). Participants' comfort with telehealth (Mean = 1.652991, Std. Dev. = 0.800853) further emphasizes the potential for technology to enhance patient experiences, supporting the assertions of researchers in 2018 about the role of digital technology in the personalized healthcare (Cancela *et al.*, 2021).

Privacy remains a paramount concern in digital healthcare services. Our study revealed a high level of confidence among participants regarding the privacy of telehealth services (Mean = 1.66041, Std. Dev. = 0.729619), which may be attributed to advancements in secure telehealth platforms (Kruse *et al.*, 2017).

The intention to use telehealth services in the future (Mean = 1.576068, Std. Dev. = 0.686046) and to recommend them to others (Mean = 1.622867, Std. Dev. = 0.691405) suggests a positive shift towards digital healthcare solutions. This is supported by the technology acceptance model, which posits that perceived usefulness and ease of use influence the adoption of new technologies (Davis, 1989).

Tech support satisfaction is critical to user experience, and the reported satisfaction (Mean = 1.952218, Std. Dev. = 1.062703) underscores the importance of continuous investment in customer support services for telehealth platforms (Van Dyk, 2014).

These findings indicate a strong endorsement for telehealth services and point towards an evolving patient-provider dynamic that is increasingly embracing digital health platforms. However, it is imperative to continue addressing barriers to adoption, such as technology literacy and access disparities, to ensure equitable healthcare delivery (Ramsetty and Adams, 2020).

Our study has limitations that warrant consideration. The participant sample may not be fully representative of the general population's diversity, particularly concerning age, as younger individuals are more likely to be tech-savvy. Future research should aim to include a broader demographic to generalize findings more effectively.

Conclusion

The research conducted on the perceptions and preferences regarding telehealth services among the Saudi population provides a comprehensive understanding of the current status of telehealth acceptance. The study's cross-sectional design has captured a significant snapshot that reveals a highly positive attitude toward telehealth services. The quantitative analysis shows that the overwhelming majority of participants were not only aware of but also satisfied with telehealth services, indicating a robust readiness to integrate these services into their routine healthcare management.

Due to the high satisfaction, quality, and comfort levels regarding the use of telehealth services, it is evident that telehealth is perceived as a convenient and reliable mode of healthcare delivery by the Saudi public. The confidence in privacy reflects the trust in the digital infrastructure supporting telehealth services. The likelihood of future use and willingness to recommend telehealth to others highlight its potential for growth and the importance of its inclusion in future healthcare frameworks.

Furthermore, the high satisfaction with technical support suggests that current telehealth platforms are effectively meeting user needs. This positive feedback loop is vital to support the continued adoption and recommendation of telehealth services. The findings underscore the importance of maintaining high-quality care and robust tech support to retain trust and satisfaction among users.

However, the study acknowledges the imbalance in gender representation and the possibility of a skewed age demographic that leans toward younger, more technology-literate users. This suggests a need for strategies to broaden the reach of telehealth to include older and less tech-savvy populations to ensure inclusivity in digital healthcare services.

This study signals a promising trend toward the acceptance and normalization of telehealth in Saudi Arabia, which is aligned with global patterns of telehealth adoption. Despite the limitations, the positive outcomes from this study provide a valuable blueprint for healthcare providers and policymakers to further integrate and promote telehealth services while also pointing toward areas such as tech literacy and access that need to be addressed to reduce disparities and enhance the overall efficacy of the healthcare system.

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APPENDIX

Demographic Information

Age:

- 18−24
- 25−34
- 35−44
- 45−54
- 55−64
- 65 or older

Gender:

- Male
- Female
- Location:
- Urban
- Suburban
- Rural

Occupation:

- Employed
- Unemployed
- Student
- Retired

Perceptions and Preferences Regarding Telehealth Services

How aware are you of the availability of telehealth services in Saudi Arabia?

- Very aware
- Somewhat aware
- Neutral
- Somewhat unaware
- Very unaware

How satisfied are you with the availability of telehealth services in your area?

- Very satisfied
- Satisfied
- Neutral
- Dissatisfied
- Very dissatisfied

How convenient do you find telehealth services compared to in-person visits?

- Much more convenient
- More convenient
- About the same
- Less convenient
- Much less convenient

How would you rate the quality of care received through telehealth services?

- Excellent
- Good
- Fair
- Poor
- Very poor

How comfortable are you with using technology for health-related consultations?

- Very comfortable
- Comfortable
- Neutral
- Uncomfortable
- Very uncomfortable

How confident are you in the privacy and security of your medical information when using telehealth services?

- Very confident

- Confident
- Neutral
- Not confident
- Not at all confident

How likely are you to use telehealth services in the future?

- Very likely
- Likely
- Neutral
- Unlikely
- Very unlikely

How likely are you to recommend telehealth services to family and friends?

- Very likely
- Likely
- Neutral
- Unlikely
- Very unlikely

How important is it for you to have the option of telehealth services as part of your healthcare?

- Very important
- Important
- Neutral
- Not important
- Not at all important

How satisfied are you with the technical support available for telehealth services?

- Very satisfied
- Satisfied
- Neutral
- Dissatisfied

Very dissatisfied