

Effectiveness of Virtual Home Health Care for Chronic Diseases Management: A Cross-Sectional Study Among the Saudi Population

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Introduction: Chronic disease is a considerable public health concern in Saudi Arabia, as it affects the healthcare system and requires innovative healthcare solutions. Virtual Home Health Care (VHHC) has emerged as a promising approach in managing chronic diseases. This study aims to analyze the effectiveness of VHHC in managing chronic diseases from patients' perspectives in Saudi Arabia.

Methods: This study used a cross-sectional design and a convenience sample of 517 patients with chronic diseases from various regions of Saudi Arabia (Eastern, Western, Central, Southern, and Northern Regions) who are current or former VHHC users were participated. An online, self-administered questionnaire was employed to gather patients' demographic information, chronic disease status, experiences with VHHC, and evaluations of VHHC's effectiveness.

Results: The study revealed that the age group of 25 to 35 years represents the largest segment (39.5%) of participants, with 70% being female. The majority of participants (60.9%) held a bachelor's degree. Additionally, half of the participants (57.4%) have had a chronic illness for more than five years. Overall, respondents held a relatively positive opinion (weighted mean of 3.89 ± 0.710) of VHHC's effectiveness. Also, the results showed that disease duration and education level are significant predictors of VHHC effectiveness, according to the regression analysis, with disease duration exerting the greatest influence ($B = 0.134$, $p = 0.034$).

Conclusion: Virtual home healthcare is a convenient experience for most participants, who are mostly satisfied with such services. However, some areas still need more improvement, which requires tailored strategies and initiatives to enhance health literacy, which is a significant predictor of effectiveness in the current study among patients with chronic diseases among patients with chronic diseases.

Keywords: chronic diseases, home health care, Saudi Arabia, virtual healthcare

Background

Chronic diseases are long-lasting conditions caused by a combination of physiological, genetic, behavioral, and environmental factors that impact people of all ages and hinder progress toward the 2030 Agenda for Sustainable Development Goals.¹ Saudi Arabia has made significant progress in improving the prevention and management of chronic diseases in recent years. However, these diseases remain the leading cause of death in the country, and their prevalence continues to grow.² In 2024, the General Authority for Statistics in Saudi Arabia (GASTAT) reported that 18.95% of adults have a chronic disease, with the most common being diabetes (9.1%), hypertension (7.9%), high cholesterol (3.6%), cardiovascular diseases (1.5%), and cancer (0.6%).³ The premature death, illness, and disability associated with these diseases negatively impact socio-economic growth and the long-term financial stability of government and public services.² There is an urgent need to develop sustainable solutions that effectively address the needs of patients with chronic diseases to reduce the impact of these illnesses.^{4,5}

Home healthcare allows patients with chronic diseases to receive safe and comprehensive medical care at home and within their families.⁶ The demand for home health care programs has grown worldwide due to the increase in chronic diseases that require constant monitoring.⁷ Telemedicine uses technology for remote home healthcare through Virtual Home Health Care (VHHC), which enables virtual management of chronic diseases.⁵ Virtual medical consultations are helpful for those who need medical attention but cannot physically visit a clinic or hospital, as well as for patients with chronic conditions needing regular follow-up with healthcare providers. So VHHC benefits patients with chronic illnesses who are confined to their homes or unable to access traditional medical care.⁸ Furthermore, most countries face significant difficulty in healthcare when it comes to chronic diseases, so incorporating telemedicine services into a routine follow-up approach has the potential to alleviate the burden of chronic diseases by improving patient management, expanding access to care, and fostering continuity.^{5,9} It is considered more effective and cost-efficient than hospital treatments, reducing unnecessary hospitalizations, admissions, stays, treatment costs, and exposure to hospital infections.¹⁰ In Spain, about 10% of people with type 2 diabetes mellitus have used virtual medical consultations for healthcare delivery, which has shown numerous advantages in managing type 2 diabetes mellitus.¹¹ However, barriers such as health literacy and modality-specific challenges continue to impact participation in VHHC interventions, as mentioned in the done by Sudhakar et al (2020) the digital literacy issues were linked to lower participation and poorer outcomes in remotely delivered epilepsy self-management programs.¹² Also, patients may encounter difficulties obtaining virtual care as a result of poor infrastructure, low digital literacy, or restricted access to telehealth services.¹³

Significance of the Study

During the COVID-19 pandemic, telemedicine gave prospects for remote health care delivery, demonstrating the potential value of digital health.¹⁴ In Saudi Arabia, the Ministry of Health is attentive to telemedicine as part of its progress in the field of e-health and has made tangible progress in this field, where people's satisfaction with telemedicine has become high.^{15–17} The recent achievement in this regard is Seha Virtual Hospital (SVH), which was developed as a specialized hospital that uses the latest innovative technologies to provide specialized services and support health facilities. The hospital offers 24-hour remote monitoring via Internet of Things (IoT) devices, which facilitate the provision of VHHC for patients with chronic diseases.^{15,18,19} Identifying the factors that influence patients' perceptions and satisfaction with VHHC, which is important to improve the quality of the service provision, ensure equitable use, and prevent resource wastage. VHHC has been driven by robust evidence that telehealth delivers comparable quality and outcomes to traditional in-person visits.²⁰ However, few studies have specifically focused on virtual care effectiveness for chronic disease management from the patient's perspective.^{11,14} This study aimed to analyze the effectiveness of VHHC in managing chronic diseases from patients' perspectives in Saudi Arabia. The effectiveness of VHHC was measured through assessing usefulness, perceived convenience, trust in the service, efficiency of care, and satisfaction.

Materials and Methods

Design

The research employed a cross-sectional study design.

Participants and Sampling

A convenience sample of the adult population in the Saudi community who fulfilled the eligibility criteria was included by using a snowball sampling technique, by encouraging the participants to distribute the survey to more people as they could. The eligibility criteria include adults aged 18 years and older, male and female, who have a chronic disease and currently use or have previously used VHHC services in the last 12 months. Screening questions at the beginning of the survey were added to ensure the availability of the eligibility criteria (if not applicable, the survey will be declined). The sample size was determined using the following formula, where $Z_{\alpha/2}$ is 1.96 for alpha 0.05, P is the proportion of VHHC users in KSA (0.5), D is the design effect (2), and E is the margin of error (0.05).²¹ The minimum sample size is 517 for VHHC users in Saudi Arabia.

$$n = \frac{(Z_{\alpha/2})^2 \cdot P \cdot (1 - P)}{E^2} \cdot D$$

Study Instrument

The researchers developed a self-administered questionnaire after a thorough review of relevant and recent literature, including the following parts:

- **Part I: Socio-demographic data:** age, gender, nationality, marital status, education, and residence.
- **Part II: Medical history and experience with VHHC:** history of chronic disease, type of chronic disease, and duration of the disease. Also, this part includes information about the patient's experience with VHHC.
- **Part III: Effectiveness of VHHC in Managing Chronic Disease:** It is adapted from previous research,^{22,23} it contains 11 items rated on a 5-point Likert scale (strongly agree) five degrees (from 4.21 to 5.00), (agree) four degrees (from 3.41 to 4.20), (neutral) three degrees (from 2.61 to 3.40), (disagree) two degrees (from 1.81 to 2.60) and (strongly disagree) one degree (from 1 to 1.80). The cut-off point was used, which is equal to 3.40, to determine the effectiveness of VHHC. The effectiveness of VHHC was measured through assessing usefulness, perceived convenience, trust in the service, efficiency of care, and satisfaction.

Instrument Validity and Reliability

A panel of six experts critically revised and agreed on the content of the overall study instrument by examining the wording, sequence, and scoring of the items. Then, the instrument was reviewed and adjusted based on the panel's feedback. The Cronbach's Alpha coefficient test (α) was used to assess the instrument's reliability ($\alpha = 0.889$). A pilot study was conducted on 10% of participants who were excluded from the overall study sample to ensure the instrument's clarity and wording; accordingly, any noticed modifications were fixed.

Data Collection

The survey was prepared in Arabic using Google Forms, and the researchers distributed the survey link using the chief social media platforms in Saudi Arabia (Twitter, Facebook, Snapchat, LinkedIn, Instagram, WhatsApp). It was conducted between March 2025 and June 2025. The participants could not continue the survey if they did not approve the consent form. After answering the screening questions about having chronic diseases and using VHHC, participants could complete the survey.

Statistical Analysis

The researchers used SPSS statistical software, version 27. Descriptive statistics were used to summarize categorical and numerical variables, including number, percentage, and mean scale scores with standard deviations. A multiple linear regression model was used to predict the effect of gender, age, duration of disease, and level of education on the effectiveness of VHHC services.

Ethical Considerations

Ethical approval was obtained from the MOH Institutional Review Board of Research Ethics (IRB log No. 25–86E). The study strictly followed the Declaration of Helsinki. The survey's link contained a complete explanation of the study's aim and the needed elaboration for answering the questions. The researchers also obtained digital informed consent from each respondent before starting the survey to ensure voluntary participation. The respondents were informed of their right to decline their replies at any time and that their answers would be kept anonymous and solely used for the study.

Results

Table 1 shows that the age group of 25 to 35 years represents the largest group at 39.5%, while the 18 to 25 years group is the smallest. For gender distribution, the table shows a notable skew towards females, who comprise nearly 70% of the

Table 1 Distribution of the Patients with Chronic Diseases According to Socio-Demographic Characteristics and Duration of Chronic Disease (n=517)

Parameters	Frequency (%)	
Age (in years)		
18 > 25	29	5.6
25 > 35	204	39.5
35 >45	134	25.9
≥ 45	150	29.0
Gender		
Male	157	30.4
Female	360	69.6
Educational Level		
Read and write	0	0
High school	69	13.3
Bachelor's degree	315	60.9
Postgraduate degree	133	25.7
Place of residence:		
Eastern region	22	4.3
Western region	27	5.2
Central region	455	88.0
Southern region	8	1.5
Northern region	5	1.0
Duration of chronic diseases:		
Less than 5 years	220	42.6
More than 5 years	297	57.4

participants. The educational level data reveal that the majority of participants (60.9%) hold a bachelor's degree, with the absence of individuals who can only read and write. Regarding place of residence, the central region dominates the residence data, accounting for 88% of the respondents. The data on chronic diseases show that about 57.4% have had a chronic disease for more than 5 years.

Figure 1 reports that hypertension stands out as the most prevalent chronic condition among the participants, impacting 26.4% of them. Following closely, diabetes affects 22.9% of the participants, while asthma ranks third, with 13.9% of participants. The prevalence of thyroid diseases is noted at 11.8%, while both heart diseases and hypercholesterolemia are reported at 9.7%. Immune diseases affect 8.3% of the participants, and mental illness is the least prevalent, impacting 5.6% of the group.

Table 2 shows that the highest weighted mean (4.06) indicates that respondents generally find VHHC convenient, with 80.9% agreeing or strongly agreeing. While the lowest mean score (3.38) was about the efficiency of VHHC

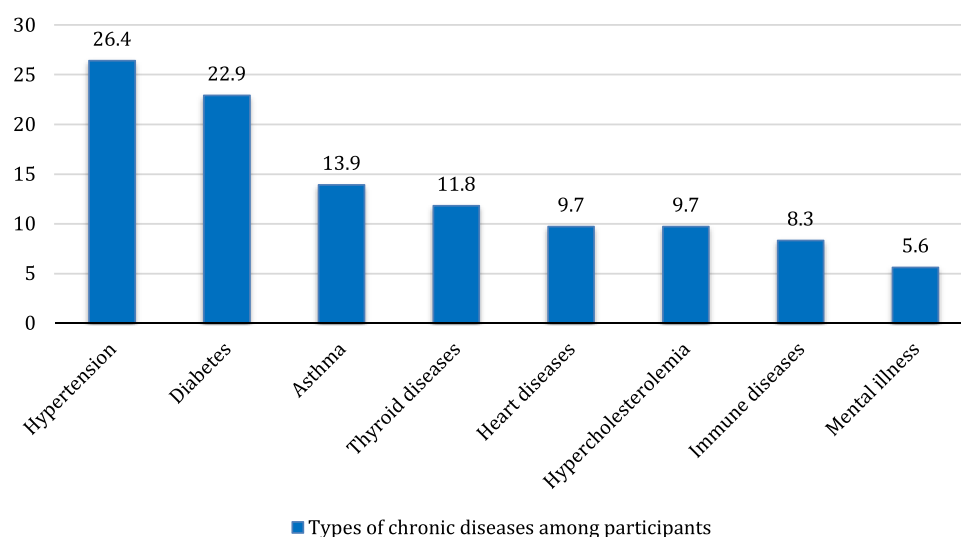


Figure 1 Percentage distribution of patients with chronic diseases according to types of their chronic illness (n=517).

compared to in-person visits, with only 64% agreeing or strongly agreeing. The overall weighted mean of 3.89 ± 0.71 shows a generally positive perception of the effectiveness of VHHC among respondents.

Table 3 shows that the B value for gender is 0.039, which means that an increase of 0.039 in the effectiveness of VHHC is associated with a one-unit increase in gender. However, the significance ($p = 0.568$) indicates that this relationship is not statistically significant. The B value for age is 0.019, so for each additional year of age, the

Table 2 Distribution of Patients with Chronic Diseases According to the Effectiveness of VHHC (n=517)

Effectiveness of VHHC	Strongly Disagree	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree	Weighted Mean
1. VHHC is convenient for me	10 (1.9)	42 (8.1)	47 (9.1)	228 (44.1)	190 (36.8)	4.06
2. I trust the accuracy of the information provided by the healthcare provider during VHHC.	9 (1.7)	14 (2.7)	133 (25.7)	186 (36.0)	175 (33.8)	3.97
3. I can easily obtain medical information related to my condition through VHHC.	38 (7.4)	40 (7.7)	61 (11.8)	174 (33.7)	204 (39.5)	3.90
4. VHHC has helped in quickly accessing healthcare services.	25 (4.8)	46 (8.9)	60 (11.6)	157 (30.4)	229 (44.3)	4.00
5. VHHC has saved me the time I spend going to healthcare clinics.	24 (4.6)	27 (5.2)	79 (15.3)	178 (34.4)	209 (40.4)	4.01
6. VHHC has provided all the healthcare needs for patients with chronic diseases	14 (2.7)	23 (4.4)	157 (30.4)	173 (33.5)	150 (29.0)	3.82
7. I can easily talk to the treating doctor through VHHC	20 (3.9)	26 (5.0)	102 (19.7)	184 (35.6)	185 (35.8)	3.94
8. I felt that I was able to express my health problem effectively during VHHC visits	21 (4.1)	46 (8.9)	93 (18.0)	174 (33.7)	183 (35.4)	3.87
9. VHHC allowed me to see the doctors as if I had visited them in the clinic	9 (1.7)	31 (6.0)	111 (21.5)	133 (25.7)	233 (45.1)	4.05

(Continued)

Table 2 (Continued).

Effectiveness of VHHC	Strongly Disagree	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree	Weighted Mean
10. VHHC provides health services with the same efficiency as in-person visits.	77 (14.9)	85 (16.4)	24 (4.6)	228 (44.1)	103 (19.9)	3.38
11. I am satisfied with the services provided through VHHC	7 (1.4)	21 (4.1)	129 (25.0)	277 (53.6)	83 (16.1)	3.79
Overall weighted mean ± SD	3.89±0.71					

Table 3 Multiple Linear Regression Model of the Relationship Between Effectiveness of VHHC and Gender, Age, Duration of Disease, and Level of Education (n=517)

Dependent Variables	Independent Variables	B	Std. Error	Beta	t	Sig
Effectiveness of VHHC	Gender	0.039	0.069	0.025	0.571	0.568
	Age	0.019	0.034	0.024	0.542	0.588
	Duration of disease	0.134	0.063	0.093	2.126	0.034*
	Level of education	0.088	0.052	0.076	1.685	0.043*

Notes: B: unstandardized coefficient *Significant at P < 0.05. β: standardized coefficient. t: independent samples t test.

effectiveness of VHHC increases by 0.019, but this is also not statistically significant ($p = 0.588$). For the duration of the disease, the B value is 0.134, suggesting that for each additional unit of disease duration, the effectiveness of VHHC increases by 0.134. This relationship is statistically significant ($p = 0.034$), indicating a meaningful impact of disease duration. Additionally, for education, the B value is 0.088, which shows that an increase in education level is associated with a 0.088 increase in the effectiveness of VHHC, and this relationship is statistically significant ($p = 0.043$). Therefore, [Table 3](#) can be concluded that disease duration and education are significant predictors of effectiveness, with disease duration having the strongest effect.

Discussion

Home health care has been recognized as a feasible approach for managing chronic illnesses, and now, with the emergence of telemedicine, it has become important to focus on the benefits of VHHC for patients with chronic diseases. This study aimed to explore patients' perspectives on the effectiveness of VHHC in managing chronic diseases in Saudi Arabia. The findings revealed considerable insights about participants' experiences with VHHC and the perceived effectiveness of VHHC services.

Regarding the convenience and accessibility of VHHC, most of the participants reported that VHHC is a convenient choice for accessing healthcare services needed for patients with chronic disease, as it helps in overcoming mobility and time constraints, which makes it a user-friendly healthcare solution. This result comes in agreement with the study done by Alshareef et al (2024), who reported that 90% of participants found virtual appointments useful and convenient.¹⁵ Also, the study done by Ma, Y. et al (2022) recognized that virtual healthcare can substantially improve the quality of chronic disease management.²⁴ Notably, the lowest mean score (3.38) reported by participants of the current study regarding efficiency of VHHC compared to in-person visits signals mixed feelings among participants, which indicates that while VHHC is convenient, it might not have the same level of efficiency as traditional healthcare visits.

The results of the current study also showed another important factor regarding trust in information accuracy; there was a strong level of trust in the accuracy of information provided during VHHC. Notably, this trust leads to patient engagement in the treatment plan, further adherence, wherein patients feel confident, which is a critical factor for

successful chronic disease management. This result is supported by evidence, which proves that patients who have more trust in their healthcare providers are more satisfied with their care. Furthermore, patients' trust in healthcare providers was positively associated with the quality of care, indicating that increasing trust in healthcare providers could positively affect patients' perception of the quality of care.^{25–27} Additionally, the study done by Alharbi et al (2021) asserted that the level of trust of the participants with health information given through virtual clinics might be a factor in determining patients' satisfaction. The results of their study found that the majority of the participants viewed information given through virtual clinics as very trustworthy.²²

When coming to one of the barriers in traditional healthcare settings, which is communicating effectively with healthcare providers,^{28–30} the results of the current study reported that most of the respondents feel they can easily communicate with their treating healthcare providers through VHHC, with a mean score of 3.94. This result suggests that VHHC can be an alternative option for getting over some of the communication barriers existing in traditional healthcare settings, which in turn will lead to improving patient engagement, understanding of their care plans, and increasing overall satisfaction.

Regarding overall satisfaction, the results showed that the rating has been good, yielding an average score of 3.79. However, the existence of neutral and dissatisfied respondents proves that there are still factors lacking in the service that require more attention and enhancement. This concurs with findings from other studies, which stated that even though well received for telehealth, reservations on its efficiency compared to face-to-face visits remain.¹⁵

The regression analysis shows that only the duration of the disease and the level of education are significant predictors, with the duration of the disease being more powerful ($B = 0.134$, $p = 0.034$). This shall be interpreted to mean that probably those patients who have had their chronic diseases for a long time will derive more benefits from VHHC. This can be attributed to familiarity with condition management and healthcare resource utilization. This result contrasts with prior beliefs, as the relationships between gender and age with VHHC effectiveness were not statistically significant. Thus, these demographic factors do not play as crucial a role in determining the effectiveness of virtual care. When examining the demographic profile of the sample size in the current study, it revealed a relatively high number of young adult participants in this sample group with a distinctive female participation. This gender difference is consistent with other studies, which found that females use telehealth services more often than males.¹⁵ Also, for the level of education, the majority of participants hold a bachelor's degree, who are considered as “early adopters”,^{15,31} they may have some comfort with technology and virtual interaction. This result is aligned with the previous studies, which reported a significantly higher acceptance toward virtual care among participants with higher educational backgrounds, with a greater familiarity with e-health interventions.^{32–35}

Limitations of the Study

The study presents several limitations that should be acknowledged. First, the inherent nature of cross-sectional studies limits the ability to draw causal inferences. Second, the limited geographic diversity of responses is notable, as most participants were from the central region of Saudi Arabia. Third, the reliance on online self-reported data introduces self-report bias, such as memory inaccuracies.

Conclusion

The results of this study indicated that VHHC offers a feasible healthcare option for managing chronic diseases and the convenience and accessibility of VHHC are also well recognized. Patients were satisfied with the services provided through VHHC and the study also concluded that disease duration and education are significant predictors of effectiveness. This underscores the need for tailored strategies and initiatives to enhance health literacy as education was found to be a predictor among patients with chronic disease. These tailored strategies and initiatives can include personalized education, implementing technology-based interventions, such as mobile apps that guide users through health information and services, and providing training for patients on how to use digital health tools effectively. Therefore, focusing on these areas may further improve the effectiveness of VHHC, ultimately leading to better health outcomes among the population. This approach not only addresses the immediate needs of patients but also lays a foundation for future research and policy actions aimed at promoting health and access to healthcare.

Disclosure

The authors report no conflicts of interest in this work.

References

1. World Health Organization (WHO). Noncommunicable diseases. 2024. Available from: <https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases>. Accessed October 28, 2025.
2. Ministry of Health, Saudi Arabia. The case for investment in prevention and control of non-communicable diseases in the Kingdom of Saudi Arabia. United Nations Development Programme, 2023. Available from: https://www.undp.org/sites/g/files/zskgke326/files/2024-02/ksa_ncd_ic_report_eng.pdf. Accessed October 28, 2025.
3. General Authority for Statistics (GASTAT). 2024. Available from: <https://www.stats.gov.sa/en/news?q=chronic+disease>. Accessed October 28, 2025.
4. Mao Y, Lin W, Wen J, Chen G. Impact and efficacy of mobile health intervention in the management of diabetes and hypertension: a systematic review and meta-analysis. *BMJ Open Diabetes Res Care*. 2020;8(1):e001225. PMID: 32988849; PMCID: PMC7523197. doi:10.1136/bmjdr-2020-001225
5. Muzzamil M, Karim M, Khurram S, et al. Patient perspectives and utilization of telemedicine for chronic conditions in Pakistan barriers and facilitators towards its access. *Discov Public Health*. 2025;22(30). doi:10.1186/s12982-025-00409-9
6. Ministry of Health, Saudi Arabia. Home health care services. 2025. Available from: <https://www.moh.gov.sa/en/awarenessplatform/Patientsrights/Pages/HomeHealthCare.aspx>. Accessed October 28, 2025.
7. Al-Surimi K, Al-Harbi I, El-Metwally A, Badri M. Quality of life among home healthcare patients in Saudi Arabia: household-based survey. *Health Qual Life Outcomes*. 2029;17(1):21. doi:10.1186/s12955-019-1095-z
8. Haleem A, Javaid M, Singh RP, Suman R. Telemedicine for healthcare: capabilities, features, barriers, and applications. *Sens Int*. 2021;2:100117. doi:10.1016/j.sintl.2021.100117
9. Banbury A, Nancarrow S, Dart J, et al. Adding value to remote monitoring: co-design of a health literacy intervention for older people with chronic disease delivered by telehealth - the telehealth literacy project. *Patient Educ Couns*. 2020;103(3):597–606. doi:10.1016/j.pec.2019.10.005
10. Çabuk Y, Menteş SA. Cost analysis in home health services; a study on the tekirdağ province. *Balkan Near Eastern J Soc Sci*. 2019;05(01).
11. Rodriguez-Fortunez P, Franch-Nadal J, Fornos-Perez JA, Martinez-Martinez F, de Paz HD, Orera-Pena ML. Cross-sectional study about the use of telemedicine for type 2 diabetes mellitus management in Spain: patient's perspective. The EnREDa2 study. *BMJ Open*. 2019;9(6):e028467. doi:10.1136/bmjopen-2018-028467
12. Sudhakar S, Aebi ME, Burant CJ, et al. Health literacy and education level correlates of participation and outcome in a remotely delivered epilepsy self-management program. *Epilepsy Behav*. 2020;107:107026. PMID: 32249034; PMCID: PMC7242156. doi:10.1016/j.yebeh.2020.107026
13. Ftouni R, AlJardali B, Hamdanieh M, Ftouni L, Salem N. Challenges of telemedicine during the COVID-19 pandemic: a systematic review. *BMC Med Inform Decis Mak*. 2022;22(1):207. PMID: 35922817. doi:10.1186/s12911-022-01952-0
14. Alodhayani AA, Hassounah MM, Qadri FR, Abouammoh NA, Ahmed Z, Aldahmash AM. Culture-specific observations in a Saudi Arabian digital home health care program: focus group discussions with patients and their caregivers. *J Med Internet Res*. 2021;23(12):e26002. doi:10.2196/26002
15. AlShareef M, AlWabel A. Patient opinions about virtual consultations in Saudi Arabia: a nationwide cross-sectional study. *Healthcare*. 2024;12(10):1001. doi:10.3390/healthcare12101001
16. Alotaibi F, Ghazi S, Asraf O, Al Asmari S. Patients' perceptions of telehealth video visits experience in primary healthcare setting, Saudi Arabia. *J Fam Med Prim Care*. 2023;12(11):2676–2684. doi:10.4103/jfmpc.jfmpc_2269_22
17. Abdel Nasser A, Mohammed A, Aziz F, et al. Measuring the patients' satisfaction about telemedicine used in Saudi Arabia during COVID-19 pandemic. *Cureus*. 2021;13(2):e13382. doi:10.7759/cureus.13382
18. Ministry of Health, Saudi Arabia. Seha Virtual Hospital. 2024. Available from: <https://www.moh.gov.sa/en/Ministry/Projects/Pages/Seha-Virtual-Hospital.aspx>. Accessed October 28, 2025.
19. Salam A, Mini T. *The Changing Demography of Saudi Arabia*. Newcastle upon Tyne, UK: Cambridge Scholars Publishing; 2024.
20. Snoswell L, Chelberg G, De Guzman R, et al. The clinical effectiveness of telehealth: a systematic review of meta-analyses from 2010 to 2019. *J Telemed Telecare*. 2023;29(9):669–684. doi:10.1177/1357633X211022907
21. Serdar C, Cihan M, Yücel D, Serdar M. Sample size, power, and effect size revisited: a simplified and practical approach in pre-clinical, clinical and laboratory studies. *Biochem Med*. 2021;31(1):1–27. doi:10.11613/BM.2021.010502
22. Alharbi G, Aldosari N, Alhassan M, Alshallal A, Altamimi M, Altulaihi A. Patient satisfaction with virtual clinic during Coronavirus disease (COVID-19) pandemic in primary healthcare, Riyadh, Saudi Arabia. *J Family Commun Med*. 2021;28(1):48–54. doi:10.4103/jfcm.JFCM_353_20
23. Sayed S, Aldailami D, Abd El Aziz M, Elsayed E. Perceived telehealth usability for personalized healthcare among the adult population in Saudi Arabia: a cross-sectional study in the post-COVID-19 era. *Healthcare*. 2025;13(1):62. doi:10.3390/healthcare13010062
24. Ma Y, Zhao C, Zhao Y, et al. Telemedicine application in patients with chronic disease: a systematic review and meta-analysis. *BMC Med Inform Decis Mak*. 2022;22(1):105. doi:10.1186/s12911-022-01845-2
25. Haavisto M, Jarva S. Developing trust in a nurse-patient relationship: a literature review. Bachelor's thesis. Degree programme in nursing. *JAMK Univ Appl Sci*. 2018. <https://core.ac.uk/download/pdf/161433467.pdf>.
26. Krot K, Rudawska I. The role of trust in the doctor-patient relationship: qualitative evaluation of online feedback from Polish patients. *Econ Sociol*. 2016;9(3):76–88. doi:10.14254/2071-789X.2016/9-3/7
27. Bahari Z, Vosoghi N, Ramazanzadeh N, et al. Patient trust in nurses: exploring the relationship with care quality and communication skills in emergency departments. *BMC Nurs*. 2024;23(1):595. doi:10.1186/s12912-024-02241-z
28. Roter D, Hall JA. Doctors talking with patients/patients talking with doctors: improving communication in medical visits. Vol 2: Praeger Westport, CT. 2006. Available from: <https://trove.nla.gov.au/work/11239481?selectedversion=NBD40464524>. Accessed October 28, 2025.
29. Albahri AH, Abushibs AS, Abushibs NS. Barriers to effective communication between family physicians and patients in walk-in center setting in Dubai: a cross-sectional survey. *BMC Health Serv Res*. 2018;18(1):637. doi:10.1186/s12913-018-3457-3
30. Raliphaswa NS, Ramathuba DU, Luhailima TR, et al. Barriers to effective communication between patients, relatives, and health care professionals in the era of COVID-19 pandemic at public hospitals in Limpopo Province. *J Resp*. 2023;3(1):29–38. doi:10.3390/jor3010004

31. Sheerah H, Alsalamah S, Alsalamah S, et al. The rise of virtual health care: transforming the health care landscape in the Kingdom of Saudi Arabia: a review article. *Telemed E-Health*. 2024;30(10):2545–2554. doi:10.1089/tmj.2024.0114
32. Reiners F, Sturm J, Bouw LJW, et al. Sociodemographic factors influencing the use of eHealth in people with chronic diseases. *Int J Environ Res Public Health*. 2019;16(4):645. doi:10.3390/ijerph16040645
33. Crisp DA, Griffiths KM. Participating in online mental health interventions: who is most likely to sign up and why? *Depress Res Treat*. 2014;11:790457. doi:10.1155/2014/790457
34. Hennemann S, Beutel ME, Zwerenz R. Drivers and barriers to acceptance of web-based aftercare of patients in inpatient routine care: a cross-sectional survey. *J Med Internet Res*. 2016;18(12):e337. doi:10.2196/jmir.6003
35. Nurtsch A, Teufel M, Jahre LM, et al. Drivers and barriers of patients' acceptance of video consultation in cancer care. *Digit Health*. 2024;10:20552076231222108. PMID: 38188860; PMCID: PMC10768612. ID: 35922817; PMCID: PMC9351100. doi:10.1177/20552076231222108

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