



Effectiveness of Care Through Video Consultations: The Patient Perspective

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Abstract

Background: In countries like India, where healthcare disparities between rural and urban areas are pronounced, understanding patient perceptions is crucial for scaling up Video Consultation (VC) services. In this regard, this study aims to investigate patient perceptions and behaviors regarding VC in both rural and urban healthcare settings.

Methods: A descriptive study was conducted among Obstetrics and Gynecology patients in Karnataka from mid-March to mid-May 2024, who obtained VC. Non-probability sampling was used, with data collected through online video consultation feedback forms distributed to patients. Criteria included adults (≥ 18) from both urban and rural settings, who consented to participate in the study.

Results: The study included 206 participants from urban ($n=70$) and rural ($n=139$) areas. Overall, about 75.1% of participants expressed high satisfaction with VC. A rural-urban comparison revealed the urban cohort reporting higher overall satisfaction (94.2% vs. 65.4%), better audio/video quality ratings (61.4% vs. 8.6%), clearer instructions from doctors (88.5% vs. 61.8%), and a perception of time-saving (88.5% vs. 38.8%). However, the majority of participants from both cohorts manifested willingness to recommend online consultations (97.1% vs. 96.4%). The most preferable option for VC was through a mobile application.

Conclusion: This study underscores the overall high ratings of VC based on patient perception, although it reveals geographical disparities, with rural patients exhibiting lower satisfaction compared to urban patients. It emphasizes the imperative for improved infrastructure and tailored solutions in rural areas to enhance the efficiency and accessibility of VC.

Keywords: Healthcare; Video Consultation; Urban; Rural; Turnaround Time

Introduction

Health is crucial for enhancing quality of life, ensuring longevity, and boosting economic productivity. Good health allows individuals to perform daily activities effectively, reduces the risk of chronic diseases, and minimizes healthcare costs. It also supports mental well-being, enabling better stress management and emotional stability. Healthy populations contribute to stronger communities and are essential for sustainable development. As the World Health Organization (WHO) states, "Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (WHO, 1946). This holistic approach underscores the comprehensive significance of health in our lives [1].

Oppositely, there is a significant disparity in the quality and accessibility of healthcare between urban and rural regions, notably due to a shortage of physicians, especially general practitioners (GPs) [Error! Bookmark not defined.]. This scarcity is expected to worsen due to demographic shifts and an aging population, leading to larger patient loads per physician [2]. In India, about 69% of the population lives in villages, yet only 26% of doctors serve these areas, with most being in the private sector. This discrepancy means that over 833 million people rely on just 44,000 doctors, resulting in an average of approximately 19,000 people per doctor [3,4]. In addition, minimal public spending, and an urban-centric distribution of resources in the primary healthcare industry exacerbate the accessibility concerns. The shortage of healthcare personnel in rural regions forces residents to travel up to 100 km for services, and many rural healthcare providers lack formal qualifications. High poverty rates and low insurance coverage (with nearly 90% uninsured) mean most healthcare costs are paid out-of-pocket or through loans [5]. These disparities significantly affect the quality of care and increase out-of-pocket health expenditures, pushing 3.3% of the population into poverty each year.

Urban areas boast more hospitals than rural areas, yet they often lack a cohesive plan, resulting in inefficiencies within the healthcare system. India's rapid urbanization poses significant healthcare access challenges [6] economic inequality compels the urban poor to turn to unqualified providers, with 20% lacking adequate training. High out-of-pocket expenses and insufficient government funding exacerbate these problems [7,8]. Moreover, cultural barriers, including gender norms and social stigma, further hinder access to quality care [9,10].

Over the last two decades, the digitalization of healthcare processes has introduced promising solutions to various challenges in patient treatment. Femtech, a term used to define software and services that use technology tailored towards women's health, such as web-based video consultations (VC), remote examinations, virtual home visits, and digital prescriptions have played a significant role in bridging gaps in healthcare accessibility. Among these technologies, VC stands out for their ability to enhance access to specialist care, particularly benefiting rural residents by overcoming geographical barriers. VC reduces travel burdens and costs for patients, promoting timely and collaborative care delivery, especially for those with chronic conditions or disabilities. It facilitates direct patient-healthcare provider interaction, thereby improving care quality and organizational efficiency [Error! Bookmark not defined.,] [11]. Furthermore, VC contribute to improving the patient-doctor ratio, reducing the need for physical visits, and mitigating the transmission of infections, particularly in times of health crises [12,13].

In the adoption of VC, the relationship between doctors and patients is pivotal. A strong doctor- patient connection leads to better compliance, improved clinical outcomes, and reduced medical errors. In our study of OB/GYN specialists in India, we found that 66% had good knowledge and 75.7% had a positive attitude towards Femtech, however, only 37.2% demonstrated good practice in using Femtech [14]. This highlights the importance of nurturing strong doctor-patient relationships for effectively integrating Femtech and video consultations into clinical care. Positive patient experiences and trust in healthcare providers are crucial for the successful adoption of these technologies. Challenges arise when consultations feel rushed or when patients feel unheard. Such experiences can leave patients dissatisfied or even deter them from seeking further consultations, which can be detrimental to both the patient's health and the doctor's practice. Patients' perceptions of their interactions with doctors significantly influence their satisfaction and health concerns [15,16].

In countries like India, where healthcare disparities between rural and urban areas are pronounced, understanding patient perceptions is crucial for scaling up VC services [17]. This study aims to investigate patient perceptions and behaviors regarding VC in both rural and urban healthcare settings. By providing valuable insights into patient engagement and satisfaction, the findings will

help optimize the implementation and utilization of VC services in rural healthcare settings across India.

Methodology

Study design

A cross-sectional descriptive research study was conducted among patients who received VC from OB/GYN specialists in Karnataka between mid-March and mid-May 2024 through the app "Health for Her," either operated remotely from patients' homes in urban healthcare settings or obtained assistance from healthcare workers in rural settings. Employing a non-probability sampling technique, the web-based self-administered questionnaire was sent to patients following the consultation. The sample size was determined using the following parameters: a standard normal distribution value at a 95% confidence level of 1.96 and a margin of error (d) of 5%.

Selection criteria

The study encompassed adult patients (18 years or older) residing in both urban and rural areas of India, receiving OB/GYN treatment through VC. Furthermore, participants were selected based on their willingness to participate in the study and ability to provide informed consent. Any language or communication barriers were addressed through appropriate translation services or assistance to ensure equal access to participation.

Study instruments

A concise questionnaire was designed to gauge patients' perceptions of VC, comprising 7 questions (Qs), including demographic details (1Q) and questions related to their perception on VC (6Qs). Participants were evaluated on their overall VC experience, satisfaction with audio and video quality, clarity of treatment instructions, perceived time saved, preference for access method, and likelihood of recommending VC to others. This approach aimed to gather insights into satisfaction levels and preferences, informing future healthcare delivery strategies.

Participants were presented with a variety of response options, including Likert scale choices such as 'Excellent,' 'Good,' 'Neutral,' 'Poor,' 'Clear,' 'Mostly Clear,' 'Not Clear,' 'Very valuable,' 'Somewhat valuable,' 'Not very valuable,' 'Didn't save much time,' 'Not valuable at all,' 'Took about the same amount of time,' 'I have no preference

between web and app,' 'I prefer using the app,' and 'I prefer using the web.' Additionally, dichotomous responses like 'Yes,' 'No,' 'Dissatisfied,' and 'Satisfied' were included.

Likert scale responses quantified satisfaction, clarity, and perceived value. Dichotomous responses aided in quantifying agreement or disagreement, facilitating frequency analysis. Cumulative analysis of these responses evaluated overall outcomes, including satisfaction levels and preferences.

Statistical analysis

The entire dataset underwent thorough scrutiny for completeness and consistency before being compiled, coded, and subsequently entered into the Microsoft Excel Sheet. Summary statistics, including frequencies and percentages, were employed to succinctly present the dataset, with the findings visually depicted through tables and graphs.

Ethical approval

This research study was conducted in accordance with ethical principles and was granted approval by the Institutional Ethics Committee. Prior to data collection, all study participants provided informed consent by agreeing to participate, acknowledging the objectives, significance, and confidentiality concerns of the study. The participants' confidentiality and anonymity were maintained, and they retained the right to decline or withdraw from the study at any stage. No form of incentive or compensation was provided to the participants.

Results

Demographic details

The study involved 209 participants, with 70 from urban areas and 139 from rural areas. Among the rural cohort, 91 registrations were observed in the above-40 age group, followed by 47 in the 20-39 age bracket, and 3 in the 10-19 age bracket. In contrast, the urban cohort revealed a comparable number in the 20-39 age group (n=39) and the above-40 age group (n=30), with only one registration in the 10-19 age group (Figure 1).

Overall experience

Of 209 participants, 75.1% (n=157) marked positive responses on VC, with 77.5% (n=162) expressing satisfaction with the audio-

video quality, and 70.8% (n=148) found the doctors’ instructions clear during VC. More than half of the participants (55%; n=116) indicated that VC was a valuable option for saving time, and a significant majority (96.6%; n=202) were willing to recommend it to friends and family. Furthermore, about 63.1% (n=132) of the participants preferred the application compared to other options (Table 1).

Rural vs urban experience

The overall experience and satisfaction rates with online consultations were notably higher in urban areas (94.2%; 66/70) compared to rural areas (65.4%; 91/139) (Figure 2). Urban respondents also rated the audio and video quality more favorably, with 61.4% (43/70) describing it as excellent, while only 8.6% (12/139) of rural respondents did so. Additionally, clear instructions on medication and treatment plans were reported by 88.5% (62/70) of urban participants, compared to 61.8% (86/139) of rural participants. The perceived value of time saved through online consultations was significantly more pronounced in urban areas, with 88.5% (62/70) finding it very valuable, compared to only 38.8% (54/139) in rural areas. Among both cohorts, app-based consultation was preferred with 51.4% (36/70) in urban respondents, and 69% (96/139) in rural participants. Furthermore, the majority of respondents from both urban (97.1%; 68/70) and rural (96.4%; 134/139) areas indicated they would recommend online consultations to friends or family (Table 1).

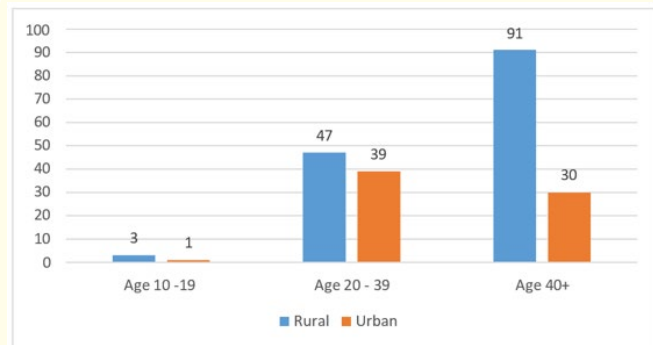


Figure 1: Age Distribution of Patients.

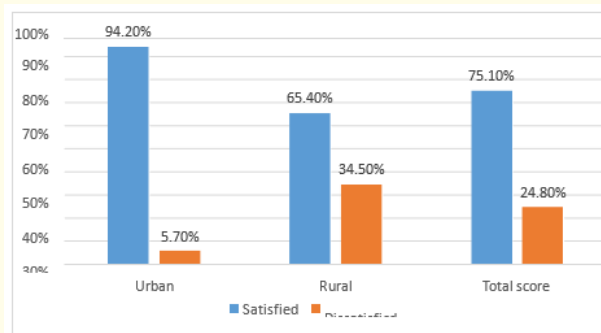


Figure 2: Patient Satisfaction Levels in Urban and Rural Areas.

Questions	Responses	Urban-N (%) - 70	Rural-N (%) - 139	Overall (%) - 209
How would you rate your overall experience with the online consultation?	Dissatisfied	4 (5.7)	48 (34.5)	52 (24.8)
	Satisfied	66 (94.2)	91 (65.4)	157 (75.1)
How satisfied were you with the overall audio and video quality of the consultation?	Excellent	43 (61.4)	12 (8.6)	55 (26.3)
	Good	22 (31.4)	85 (61.1)	107 (51.1)
	Neutral	4 (5.7)	14 (10.0)	18 (8.6)
	Poor	1 (1.4)	28 (20.1)	29 (13.8)
How clear and easy to understand were the doctors instructions about your medication/treatment plan?	Clear	62 (88.5)	86 (61.8)	148 (70.8)
	Mostly Clear	6 (8.5)	46 (33.0)	52 (24.8)
	Not Clear	2 (2.8)	7 (5.0)	9 (4.3)

How valuable was the time saved through the online consultation?	Very valuable, saved a lot of time	62 (88.5)	54 (38.8)	116 (55.5)
	Somewhat valuable, saved some time	6 (8.5)	76 (54.6)	84 (40.1)
	Not very valuable, didn't save much time	1 (1.4)	7 (5.0)	8 (3.8)
	Not valuable at all, took about the same amount of time	1 (1.4)	2 (1.4)	3 (1.4)
When scheduling an online consultation, would you prefer to access it directly	I have no preference between web and app	18 (25.7)	10 (7.1)	28 (13.3)
through the web or by downloading and installing an app?	I prefer using the app	36 (51.4)	96 (69.0)	132 (63.1)
	I prefer using the web	16 (22.8)	33 (23.7)	49 (23.4)
Would you recommend it to your friends/family?	Yes	68 (97.1)	134 (96.4)	202 (96.6)
	No	2 (2.8)	5 (3.5)	7 (3.3)

Table 1: Online consultation experiences among patients.

Discussion

Technological advances, particularly in telehealth through VC, enable cost-effective and convenient patient evaluations and treatments. This optimization of healthcare resources brings a range of benefits. For example, VC for ENT services in Australia save \$47 per session compared to in-person visits, and remote monitoring for high-risk pregnancies in Belgium saves \$233,958 annually. Tele dermatology in the US and pediatric videoconferences in Australia also cut transport expenses. Telehealth becomes cost-effective after surpassing a workload threshold, offsetting initial investments with long-term savings. Additionally, remote monitoring can potentially reduce hospital admissions, further lowering costs [18,19]. Furthermore VC significantly reduce carbon footprints and are eco-friendly by minimizing travel for patients and healthcare workers. In the South West Wales Cancer Network,

telemedicine for multidisciplinary team meetings avoided 38,800 km of car travel over two years, saving £9,500 in travel expenses and reducing CO₂ emissions by 4,286 kg. This is equivalent to the annual absorption of 48 trees [20,21]. A study at Umeå University Hospital in Sweden found that telemedicine appointments reduced carbon emissions by 40–70 times compared to traditional visits. Telemedicine becomes a greener choice even at short distances when compared to car travel [22].

Patients benefits, include flexibility in choosing their consultation location and an active role in setting up and managing the technology. This empowers patients and enhances their participation in healthcare. VCs facilitate effective communication through both verbal and non-verbal means, and their visual nature allows real-time symptom sharing, fostering intimacy and trust

with healthcare providers. However, patient perceptions of VCs can vary, affecting their engagement levels [23]. The significance of patient perspective in complying with VC is crucial as it directly influences the acceptance and effectiveness of remote healthcare [24].

Our findings highlight a 75.1% overall positive rating for VC, with a significant portion of participants—about one-third—expressing satisfaction with the audio-video quality and the clarity of doctors' instructions. Particularly encouraging was the 96.4% endorsement rate for recommending VC in rural areas. This mirrors the observations by Hvidt EA, *et al.* who reported a similarly high level of positivity (96%) toward online consultations, emphasizing their practicality during the pandemic. Despite initial apprehensions regarding technical glitches and consultation duration, participants came to appreciate the convenience and safety afforded by VC. Key determinants of patient satisfaction included a pre-existing relationship with their general practitioner (GP) and the sense of being heard and understood during VC sessions. While a minority did express concerns about feeling rushed, overall satisfaction remained high [25]. In another study conducted on a cohort of 257 outpatients, it was found that patients generally had a positive perspective on VC. Factors included a high percentage of doctors greeting patients (86.4%), displaying warmth in facial expressions (86.1%), and utilizing patients' names (68.9%) [26]. However, the study by Mjaaland TA, *et al.* presented 56% negative emotional cues [27]. Several factors emerged as influential in the acceptance of VC, including technological proficiency, age demographics, cultural backgrounds, and access to healthcare services. Moreover, trust in healthcare providers and perceived benefits such as convenience played significant roles [28].

Concerning the urban and rural responses, urban respondents reported higher satisfaction (94.2%) with online consultations compared to rural counterparts (65.4%). Similarly in a comparative cross-sectional study conducted in outpatient departments of two hospitals, one in a metropolitan (urban) area and another in a rural area of Cordoba, Spain. Satisfaction rates regarding VC was higher in urban settings, with 80% of patients compared to 51% in rural areas [Error! Bookmark not defined.]. In consistence, Paul PG, *et al.* reported 44.4% patient satisfaction with teleophthalmology consultations in rural areas of India, where access to ophthalmic

care was limited [29]. Contrarily, Giacomini M., reported high satisfaction scores for telemedicine among both rural and urban patients, with slightly higher satisfaction among rural patients. Statistically significant differences were observed in how patients rated their provider ($p < 0.01$) and overall telemedicine experience ($p < 0.01$). This suggests that on-demand telemedicine can improve health access and patient outcomes, especially in rural communities [30]. The differences in patient satisfaction between rural and urban settings are primarily due to variations in technological access and familiarity with video consultations. Urban patients benefit from better technology and longer consultations, contributing to higher satisfaction. However, similarities in positive outlooks across both settings stem from patients valuing the convenience, safety, and the personal connection with their GP, regardless of location.

This study underscores the need for better infrastructure and tailored solutions in rural areas to enhance the efficiency and accessibility of video consultations. Addressing disparities in patient satisfaction between urban and rural regions is essential for optimizing telehealth services and ensuring equitable healthcare delivery. However, the study's sample size may not fully represent the diverse demographics and healthcare needs of all urban and rural areas, and self-reported data introduces response bias, potentially impacting accuracy. Additionally, the focus on a specific time frame and specialty limits generalizability. Future research should address these limitations to provide a more comprehensive understanding of telehealth utilization and experiences across diverse populations and healthcare settings.

Conclusion

This study highlights overall high ratings of VC in the light of patient perception, albeit with geographical disparities. Compared to rural respondents, the urban cohort marked high ratings on satisfaction with audio-video quality, clarity on doctors' instructions, perception of VC as a time- saving option, and recommendation to friends and family, while both cohorts showed strong preferences for app usage. This study underscores the need for better infrastructure and tailored solutions in rural areas to enhance the efficiency and accessibility of VC. Collaboration among policymakers, healthcare providers, and technology developers is essential to prioritize investment in infrastructure, address response bias, and expand telehealth services across health-care

specialties and geographic regions, unlocking the full potential of telemedicine in revolutionizing healthcare delivery and improving population health outcomes.

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