Impact Of Telemedicine on Rural Healthcare Delivery

Sakshi Purohit[1], Nishanth A[2], Mr. Paresh Patel[3]
[1,2]*Faculty Of Management Studies, Parul University P.O Limda, Tal: Waghodia, Dist: Vadodara, Gujarat State, India-391760*
[3]*Guide, Parul University P.O Limda, Tal: Waghodia, Dist: Vadodara, Gujarat State, India-391760*

I. GENERAL INFORMATION

(Company / Industry / Sector / Market overview)

Table 1: Telemedicine Market Metrics (India, 2025)

Metric	Value	Source
Market Size	USD 3.76B	IMARC
Projected 2034	USD 20B	CAGR 20.42%
eSanjeevani Patients	349M	MoHFW
Providers	230K+	Feb 2025
Spokes/Hubs	131K+	Apr 2025

1.1. Sector Overview-

Telemedicine makes use of telecommunications and digital technology to offer healthcare services from a distance, including video consultations, remote monitoring, and mobile health tools (WHO, 2023; Shaver, 2022). In India, there is a mix of government and private initiatives, with eSanjeevani being one of the state-run platforms alongside private services like Practo and Apollo 24x7(MoHFW, 2025; Dastidar, 2024).

1.2. Market Overview –

India: As of 2025, the market size is USD 3.76 billion, and it is expected to grow to USD 20 billion by 2034, with a compound annual growth rate (CAGR) of 20.42% (IMARC Group, 2025). The growth is driven by the widespread use of smartphones, affordable internet, government initiatives such as eSanjeevani, the shortage of specialist doctors in rural areas, and the rising number of people with chronic diseases (IMARC Group, 2025; Arora, 2024; Dastidar, 2024).

1.3. National Platform eSanjeevani:

This government-run service has served 349 million patients as of February 2025, with over 230,000 healthcare providers and 131,000 spokes and hubs (MoHFW, 2025).

It is a key player in improving accessibility in rural areas (Dastidar, 2024; Moray, 2025).

1.4. Rural Impact Evidence

Telemedicine has made a noticeable difference in rural areas. It has helped patients manage long-term illnesses more effectively, improved their access to specialist doctors, and reduced the need for expensive and time-consuming travel (Butzner & Cuffee, 2021; Ishimwe, 2025; Duda-Sikuła, 2024). However, challenges remain, especially due to poor internet connectivity, limited digital skills, and a lack of proper training for users (Arora, 2024; Maita, 2024).

1.5. Gujarat Specifics

In Gujarat, early results of telemedicine adoption are encouraging. The state has started implementing programs that connect with national health platforms, and patients at AIIMS Rajkot have reported high levels of satisfaction with these services (Moray, 2025; Dastidar, 2024).

1.6. Industry Growth Summary

The telemedicine industry is growing rapidly, driven by improvements in healthcare software, remote patient monitoring, and digital health systems. It is expected to reach around $1 billion by 2030, showing strong future potential (IMARC Group, 2025; Li, 2025).

II. MAJOR COMPANIES IN THE INDUSTRY

Table 2: Key Telemedicine Players (2025)

Company	Type	Patients Served	Key Strength
eSanjeevani	Govt	349 million	Rural hub-spoke
Practo	Private	10M+ users	Urban platform
MFine	Private	Corporate focus	AI diagnostics
Apollo 24x7	Hospital	Network backed	Referrals
Tata 1mg	E-pharm	Medicine delivery	Last-mile

Detailed Company Profiles:

The Ministry of Health and Family Welfare's eSanjeevani is a nationwide telemedicine service that allows patients to consult doctors remotely using a hub-and-spoke model (MoHFW, 2025). It connects large hospitals with local clinics, making it easier for people, especially in rural areas, to access medical care. By involving thousands of doctors and patients, the platform has played an important role in improving healthcare availability where services are often limited (Dastidar, 2024; Moray, 2025).

Online consultations, appointment scheduling, and medical practice management tools are all made possible via Practo, a private digital health platform (IMARC Group, 2025). It collaborates with hospitals and has a significant presence in cities (Li, 2025).

MFine is an AI-powered private teleconsultation and diagnosis service (Li, 2025). Because it facilitates rapid access to specialists and supports the management of chronic diseases, it is well-liked by insurance companies and the corporate sector (Ishimwe, 2025).

Apollo Hospitals supports Apollo 24x7 and Ask Apollo, a telehealth platform (IMARC Group, 2025). It assists patients who must be referred for in-person medical care and provides virtual consultations, medications, and diagnostics (Shaver, 2022).

E-pharmacies, teleconsultations, and diagnostics are the main themes of the Tata 1mg/PharmEasy digital health ecosystem (IMARC Group, 2025). It is essential to models that integrate telemedicine with last-mile drug and medical delivery (Maita, 2024).

III. PRODUCT PROFILE (MAJOR PRODUCTS / SERVICES IN TELEMEDICINE)

We have included what each service is, how it helps patients in rural areas, and what challenges it faces.

1. Teleconsultation platforms (video, audio, and chat)

What: It enables clinicians to consult with one another or with patients in real time (WHO, 2023; Shaver, 2022).

Rural advantage: Helps with first evaluation and lowers referral rates.

It saves patients from making lengthy trips by bringing medical specialists to nearby health centers (Butzner & Cuffee, 2021; Ishimwe, 2025).

Challenges: Poor internet, lack of digital skills among patients, and the need for local support (Arora, 2024; Maita, 2024).

2. Hub-and-spoke solutions like eSanjeevani

What: A government system that connects larger hospitals (hubs) with smaller health centers and clinics (spokes) (MoHFW, 2025).

Rural advantage: Uses existing public infrastructure and local staff to make public healthcare services more accessible and effective (Dastidar, 2024; Moray, 2025).

Challenges: Maintaining system uptime, providing staff training, and keeping equipment working smoothly (Arora, 2024).

3. Chatbots, symptom triage, and mobile health apps

What: Mobile apps that help with booking appointments, sending reminders, and performing basic health checks (Li, 2025).

Rural advantage: Low cost to use, and they can provide help at any time, not just during certain hours (IMARC Group, 2025).

Challenges: Language barriers, building trust with users, and ensuring that apps work well on diverse types of phones (Maita, 2024).

4. Wearable technology and remote patient monitoring (RPM)

What: Devices that monitor body functions like oxygen levels, blood sugar, and blood pressure and send data to medical experts (Ishimwe, 2025).

Rural advantage: Enables ongoing monitoring of chronic issues without requiring frequent trips to

health centers (Duda-Sikuła, 2024).
Challenges: Reliable internet, users needing to understand the devices, and the cost of the devices (Arora, 2024).

5. Telepathology/Teleradiology (store-and-forward)
What: Sending images and lab results to specialists for further analysis and reports (SAGE Publications).
Rural advantage: Helps in managing patient cases more efficiently and provides quicker local diagnosis (Nouh, 2025).
Challenges: Reliable infrastructure, secure data handling, and image quality (Maita, 2024).

6. Online pharmacy and medication delivery
What: Online prescription fulfillment and delivery of medicines (IMARC Group, 2025).
Rural advantage: Patients get their needed medications without traveling long distances and it helps in sticking to treatment plans (IMARC Group, 2025).
Challenges: Delivering medicines to remote areas, maintaining proper storage for certain drugs, and reliable supply chains (Maita, 2024).

7. Tele-education and capacity building for community health workers
What: Remote training and mentoring for health workers like ASHAs, ANMs, and doctors in primary health centers (Parthasarathi, 2024).
Rural benefit: Helps local health workers provide better care to their communities (Moray, 2025).
Challenges: Scheduling training sessions, and making sure that the incentive systems align with the training goals (Arora, 2024).

IV. INTRODUCTION OF THE STUDY

4.1. Literature Review

In modern medicine, telemedicine has become a gamechanger, especially when it comes to helping rural and isolated populations with accessibility issues (WHO, 2023; Shaver, 2022). Telemedicine allows patients to communicate with healthcare providers without in-person visits by using digital communication tools. This strategy has been particularly helpful in areas with limited access to specialists and healthcare infrastructure (Ezeamii, 2024).
According to other findings, such as those by Ezeamii (2024), telemedicine increases access to healthcare services and makes patients participate actively in the treatment process. However, it is hard to draw conclusions by comparing the findings since each study used a unique research approach within the context of the different healthcare system (Ezeamii, 2024; Arora, 2024).

In addition, Arora (2024) identified certain factors that facilitate successful application of telemedicine in rural areas, including availability of high-quality internet connectivity, physicians' education and training, patients' awareness, and government support. According to Arora (2024), mere presence of advanced technologies does not contribute significantly to effective medical practice. Telemedicine has to be integrated properly into the current healthcare system (Arora, 2024; Dastidar, 2024).

According to Ishimwe (2025), telemedicine has been proven to be highly useful in managing chronic diseases. Remote consultations and examinations make it easier for patients to live healthy life and minimize the number of visits to hospital centers, particularly in rural areas.

According to Duda-Sikula (2024), properly designed and implemented telemedicine services increase the patients' adherence to the treatment regimens. At the same time, the continuity of telemedicine depends largely on financial and organizational aspects.

During the COVID-19 pandemic, telemedicine grew very quickly and became more popular. Shaver (2022) says this happened because rules were relaxed and people needed to avoid in-person visits. The study also shows that strong policies are needed to reduce healthcare gaps in rural areas for the future.

Butzner and Cuffee (2021) mention that telehealth improves patient satisfaction and makes it easier for people in remote areas to access healthcare. Overall, telemedicine is a useful option for people with limited resources, even though the health outcomes may not always be the same in every case.

Parthasarathi's (2024) research indicates that the integration of telemedicine can enhance preventive care and accelerate service delivery within primary

healthcare systems. The study does, however, show that we need better ways to measure the effects on the whole population.

Li (2025) also found that telemedicine platforms with features like self-management tools, reminders, and remote monitoring make patients more involved and improve their health. The study emphasizes the importance of patient-centered and user-friendly design, particularly for rural communities.

Nouh (2025) investigated telemedicine in trauma and emergency care environments. Although teleconsultation has little direct effect on mortality rates, the results indicate that it speeds up diagnosis and decision-making.
Telemedicine provides continuity of care during service outages, especially for low-income and rural populations, according to evidence from hypertension management studies published by Mary Ann Liebert, Inc. (2024).

Additionally, Klee et al. (2023) found that both patient and provider satisfaction levels were high during the epidemic. However, the necessity for more precise clinical recommendations and standardized procedures was brought up.
According to a mixed-methods review published in the Journal of Population Therapeutics and Clinical Pharmacology (2024), telemedicine can be economical, lessen the stress of travel, and increase patient satisfaction. However, workforce training and suitable compensation structures are needed to scale these services.

According to research by Maita (2024), telemedicine in conjunction with local support networks and infrastructure development can greatly close the gaps in healthcare access for marginalized communities.

Salmon et al. (2025) discovered that telemedicine utilization enhanced follow-up care and reduced missed appointments, even post-epidemic. The study stresses the need for long-term operational and financial models.
A systematic review published by SAGE Publications stresses the importance of telehealth partnerships between providers. These strategies make it easier for rural healthcare professionals to get specialist consultations, which helps the local healthcare system work better.

Dastidar (2024) says that national telemedicine frameworks can make it easier for people in rural areas to get specialist healthcare. However, to make sure that everyone gets the same level of healthcare, issues of fairness, rules, and language barriers need to be dealt with.

Also, IMARC Group's (2025) research shows that the telemedicine industry in India is growing quickly because more people are getting smartphones, the internet is getting better, and the government is taking steps to help.

Moray (2025) discovered that user trust, cultural acceptance, technological ease of use, and community support systems are significant factors influencing the adoption of telemedicine in rural India.

Summary:
Thus, the study indicates that telemedicine plays an essential role in improving patient satisfaction levels, making treatment continuity easier, and increasing access to healthcare in remote areas. Nonetheless, to utilize telemedicine effectively, there should be reliable internet connectivity, training of health professionals, and awareness within the local population. The results of this paper will be valuable in the understanding of telemedicine in rural healthcare delivery. Telemedicine services have also received positive feedback from patients of AIIMS Rajkot in Gujarat.

4.2. Background of the Study
By improving communication between medical personnel and patients, particularly in remote and difficult-to-reach locations, telemedicine has fundamentally altered the way healthcare is delivered. Telemedicine has emerged as a potent tool in India, where around 65% of the population resides in rural areas with limited access to high-quality healthcare (Dastidar, 2024; IMARC Group, 2025). It provides remote patient education, monitoring, diagnosis, and consultations through digital technology and telecommunications (WHO, 2023). Government initiatives like the eSanjeevani platform and private businesses like Practo and Apollo 24x7 have

contributed significantly to the uptake of telehealth services (MoHFW, 2025; IMARC Group, 2025). Virtual care became a standard component of healthcare systems because of the COVID-19 pandemic (Shaver, 2022). There are still issues in rural areas, such as insufficient digital infrastructure, limited awareness, and connectivity issues, even though telemedicine is expanding and has the potential to increase access, affordability, and efficiency (Arora, 2024; Maita, 2024).

4.3. Problem Statement

Due to inadequate infrastructure, communication problems, and a lack of technical expertise, rural areas in India continue to face significant obstacles to receiving healthcare, despite the growth of telemedicine to lessen healthcare inequality (Dastidar, 2024; Arora, 2024). Although programs like eSanjeevani have facilitated consultations, little is known about how these services affect patient happiness, accessibility, cost-effectiveness, and continuity of care (Moray, 2025; JPTCP, 2024). The key challenge is understanding how effective telemedicine is in improving healthcare in rural areas and identifying the obstacles that prevent it from being used to its fullest potential (Maita, 2024; IMARC Group, 2025).

4.4. Objectives of the Study

- To evaluate the impact of telemedicine on accessibility and availability of healthcare services in rural areas.
- To assess the effectiveness of telemedicine in improving the quality of healthcare delivery and patient satisfaction in rural settings.
- To identify the major challenges and limitations faced in implementing telemedicine services in rural healthcare systems.
- To explore patient -perceived technological and logistical barriers (e.g., Internet issues, device access).
- To investigate rural patients' recommendations for enhancing telemedicine services, focusing on usability, privacy, and integration with healthcare systems.

4.5. Hypothesis

Objective 1: Accessibility and Availability

- H_0 (Null Hypothesis): Telemedicine does not significantly affect the accessibility and availability of healthcare services in rural areas.
- H_1 (Alternative Hypothesis): Telemedicine significantly improves the accessibility and availability of healthcare services in rural areas.

Objective 2: Quality and Patient Satisfaction

- H_0 (Null Hypothesis): Telemedicine does not significantly improve the quality of healthcare delivery and patient satisfaction in rural settings.
- H_1 (Alternative Hypothesis): Telemedicine significantly improves the quality of healthcare delivery and patient satisfaction in rural settings.

Objective 3: Challenges and Limitations

- H_0 (Null Hypothesis): There are no major challenges or limitations that significantly affect the implementation of telemedicine services in rural healthcare systems.
- H_1 (Alternative Hypothesis): Major challenges and limitations significantly prevent the implementation of telemedicine services in rural healthcare systems.

Objective 4: Technological and Logistical Barriers

- H_0 (Null Hypothesis): Patient-perceived technological and logistical barriers do not significantly affect the use of telemedicine in rural settings.
- H_1 (Alternative Hypothesis): Patient-perceived technological and logistical barriers significantly reduce the use of telemedicine in rural settings.

Objective 5: Recommendations for Enhancement

- H_0 (Null Hypothesis): Rural patients' suggestions do not significantly influence the improvement of telemedicine services in terms of usability, privacy, and integration.
- H_1 (Alternative Hypothesis): Rural patients' suggestions significantly influence the improvement of telemedicine services in terms of usability, privacy, and integration.

V. RESEARCH METHODOLOGY

5.1. Research Design

This study uses a method known as descriptive research. Examining the effects of telemedicine

services on patient satisfaction, cost, accessibility, and overall healthcare results in remote places is the primary goal (Kothari, 2004). The study will employ both quantitative data and in-depth information from interviews to gain a deeper understanding of the subject.

5.2. Sources of Data

Primary data will be used in the investigation.

Primary Data: This information will be gathered directly from participants, such as physicians, telemedicine providers, rural patients, and other healthcare professionals.

5.3. Data Collection Method

A structured questionnaire, phone calls, and in-person interviews will be used to gather primary data (Saunders et al., 2019).

5.4. Population

The study will focus on the following group of people:

- Patients in rural areas who have used telemedicine services.
- Rural healthcare professionals, such as doctors, nurses, and health workers involved in telemedicine programs.
- Telemedicine service providers working in rural regions.

5.5. Sampling Method

The study will use a non-probability sampling approach, specifically purposive sampling (Saunders et al., 2019).

People will be chosen because they are directly involved with or have used telemedicine services in rural areas.

5.6. Sampling Frame

The sampling frame will include:

- Selected Primary Health Centres (PHCs) that offer telemedicine services.
- Rural households or individuals who have used telemedicine consultations in the past six months.
- Telemedicine program coordinators and healthcare workers.

The target sample size will be between 100 and 150 participants, depending on how accessible they are and how practical it is to reach them.

5.7. Data Collection Instrument

The main tool for collecting data will be a structured questionnaire that includes both closed-ended questions (such as Likert scale, yes/no, and multiple-choice options) and open-ended questions. The questionnaire will be divided into different sections covering: - Demographic information

- Awareness and use of telemedicine
- Accessibility and convenience
- Quality of consultation and level of satisfaction
- Challenges faced
- Suggestions for improvement

VI. DATA ANALYSIS AND INTERPRETATION

The analysis and interpretation of primary data gathered from 133 respondents about the effect of telemedicine on the provision of healthcare in rural areas are presented in this chapter. Frequency and percentage approaches were used to analyze the responses.

6.1. Demographic Profile of Respondents

Gender	Frequency	Percentage
Male	68	51.1%
Female	65	48.9%
Total	133	100%

Interpretation:

With 51.1% of respondents being men and 48.9% being women, the data demonstrates a balanced participation of both genders in the poll. This balanced distribution enables trustworthy findings regarding the usage of telemedicine.

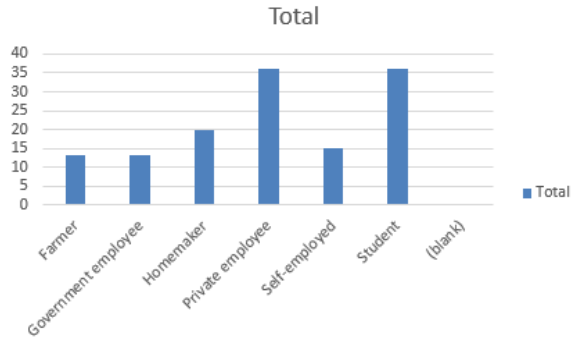
6.2. Age Distribution of Respondents

Age Group	Frequency	Percentage
21–30 years	55	41.3%
31–40 years	52	39.1%
41–50 years	26	19.6%
Total	133	100%

Interpretation

Individuals between the ages of 21 and 30 make up the majority (41.3%), followed by those between the ages of 31 and 40 (39.1%). This implies that younger and middle-aged individuals are more likely to use telemedicine services.

6.3. Occupation of Respondents



The picture shows that telemedicine services are used by people from a wide range of professional backgrounds, demonstrating the broad adoption of digital healthcare services.

6.4. Area of Residence

Area	Frequency	Percentage
Jubelibaug	32	24.1%
Raopura	29	21.8%
Sevasi	26	19.5%
Subhanpura	26	19.5%
Dabhoi	10	7.5%
Waghodia	10	7.5%
Total	133	

Interpretation:

The answers provided by the different places of residence indicate that the survey encompasses a broad geographic population. This makes it easier to understand how telemedicine is accepted in different locations.

6.5. Telemedicine Usage

Response	Frequency	Percentage
Yes	80	60.2%
No	53	39.8%
Total	133	100%

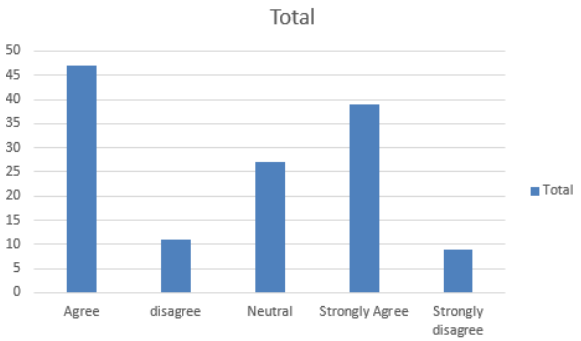
The chart shows that while 60.2% of respondents have used telemedicine, 39.8% have not. This indicates that a significant percentage of respondents still depend on traditional medical treatments even as telemedicine use increases.

6.6. Telemedicine Makes It Easier to Consult Doctors

Response	Frequency
Strongly Agree	33
Agree	42
Neutral	25
Disagree	20
Strongly Disagree	13
Total	133

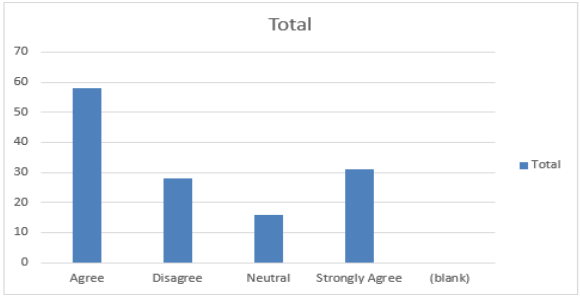
The majority of respondents (56.4%) agree or strongly agree that telemedicine makes consultations with doctors easier. However, other respondents say they have no view or disagree, which may be due to ignorance, a lack of digital literacy, or restricted access to online information in specific locations.

6.7. Telemedicine Enables Faster Access to Healthcare



Most respondents agree that telemedicine makes it easier to get medical care more quickly. A significant percentage of respondents selected both "Agree" and "Strongly Agree," indicating a very positive view of the efficiency and speed of telemedicine services. Neutral respondents made up a very small portion of the sample. Others, however, are undecided about this (Butzner & Cuffee, 2021; Ishimwe, 2025).

6.8. Telemedicine saves time and cost



Most respondents (43%) concur or strongly concur (23%) that telemedicine reduces travel time and costs. This demonstrates the potential advantages of

telemedicine for people who live in isolated or rural locations and might have to travel far to get to medical facilities (JPTCP, 2024).

6.9. Satisfaction with Telemedicine Services

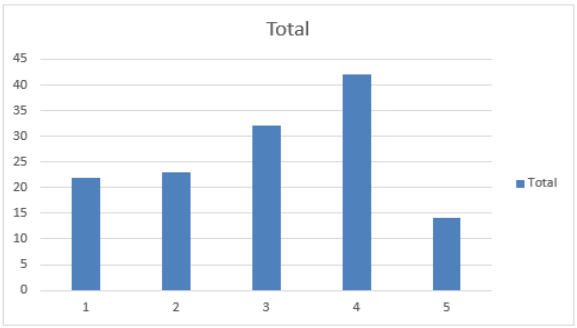
Response	Frequency
Very Satisfied	28
Satisfied	39
Neutral	32
Dissatisfied	22
Very Dissatisfied	12
Total	133

Interpretation:
Most respondents (50.4%) said they were either very satisfied or satisfied with telemedicine services. A lesser percentage, however, voiced discontent, which might be related to technical issues, poor internet access, or the absence of in-person interactions with physicians during virtual consultations (Klee et al., 2023).

6.10. Recommendation of Telemedicine

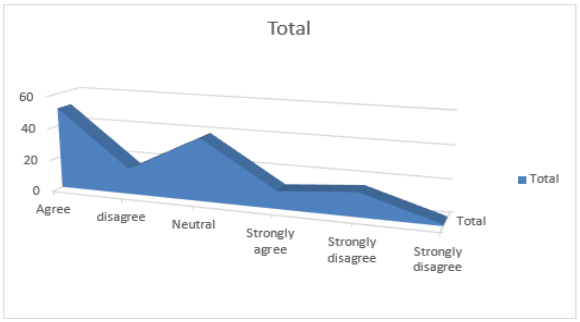
Interpretation:
Most responders (57.1%) said they would suggest telemedicine services to others. This suggests that the community has a moderate degree of acceptance and trust in telemedicine, even though a sizable percentage of respondents are still reluctant to suggest it.

6.11. Doctors provide sufficient time and attention during teleconsultations.



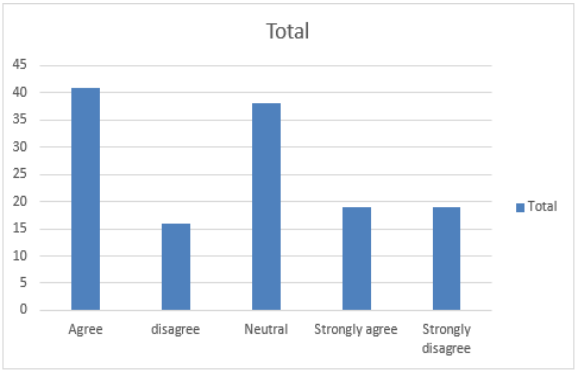
Interpretation:
A significant number of participants gave ratings of 4 (about 31.6%) and 5 (around 10.5%), indicating a generally favorable opinion that doctors provide sufficient time and attention during teleconsultations. A neutral rating of 3 was given by about 24.1%, showing a range of experiences. A smaller segment is unhappy, as shown by lower scores of 1 (about 16.5%) and 2 (nearly 17.3%). Overall, 42% of respondents say they are satisfied, although there is still space for improvement.

6.12. The quality of medical advice I receive online is satisfactory.



Interpretation:
Most of responders (40–45%) express satisfaction with the caliber of medical advice obtained via telemedicine. There are conflicting opinions, with about 25–30% remaining neutral. A lower percentage (20–25%) voiced discontent, raising certain issues. Overall, the results show a modest level of satisfaction with room for service quality improvement.

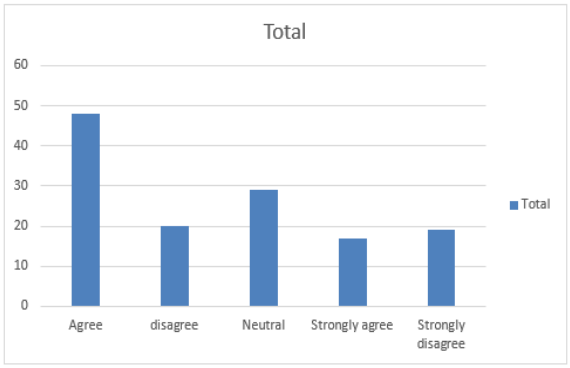
6.13. Follow-up and continuity of care are effectively managed through telemedicine.



Interpretation:

Most of the 133 respondents, 45.1% agree that telemedicine offers efficient follow-up care, while 28.6% are neutral and 26.3% disapprove. In conclusion, the perception is generally favorable but suggests room for improvement.

6.14. I receive necessary prescriptions or referrals promptly after teleconsultation.



Interpretation:

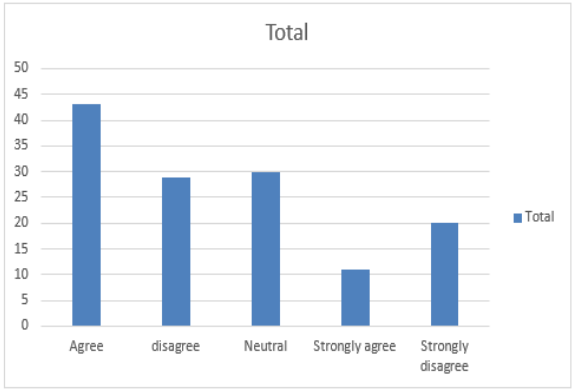
Approximately 50% of respondents concur that following teleconsultation, they obtain prescriptions or referrals on time.

About 27–30% are neutral, indicating a range of experiences.

Delays or inefficiencies are shown by the nearly 30% of respondents who express discontent.

Although there is room for development, the perception is generally rather favourable.

6.15. Telemedicine reduces my overall medical expenses.

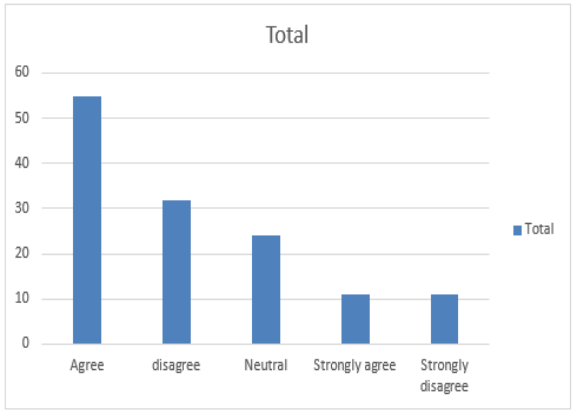


Interpretation:

Most of the respondents (43/133) believe that telemedicine reduces their overall medical expenses, while (29/133) disagree to this, (30/133) are neutral and about (11/133) strongly agree for this while (20/133) strongly disagree.

Overall respondents show positive response towards this.

6.16. I find telemedicine to be an affordable option compared to in-person visits.

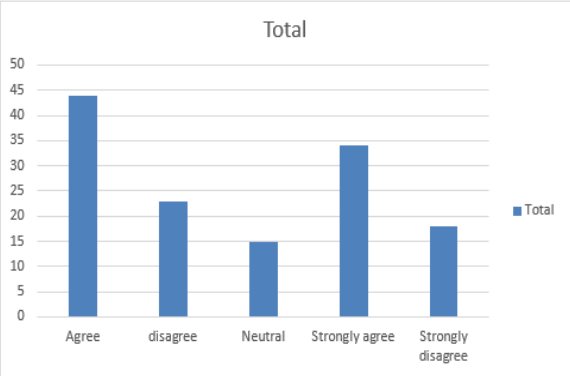


Interpretation:

Most of the respondents 41% believe telemedicine to be an affordable option compared to in-person visits, while 24% disagree to this, 18% are neutral and about 8% strongly agree for this while 8% strongly disagree.

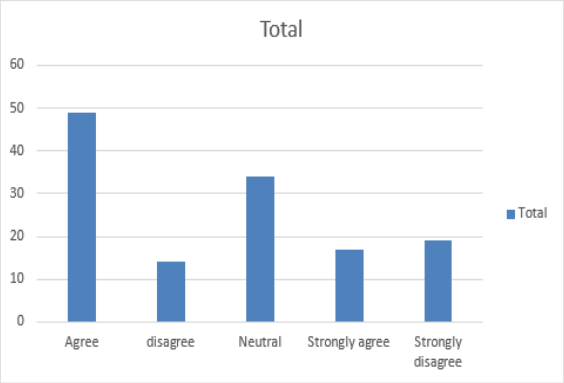
Overall respondents show positive response towards this.

6.17. Using telemedicine helps avoid unnecessary hospital visits.



Interpretation:
33% respondents agree that telemedicine helps avoid unnecessary hospital visits, while 17% disagree. 11% votes for neutral, while 25% strongly agree to this and 13% strongly disagree with this question.

6.18. I am satisfied with the overall telemedicine experience.



Interpretation:
Out of 133 responses, 49 responses are in favour of telemedicine experience while 14 responses disagree with this, 34 responses are neutral. 17 respondents strongly agree with this whereas 19 respondents strongly disagree to this.
Overall responses are in favour of telemedicine experience.

Hypothesis Testing using Chi-Square Test:
Hypothesis
H_0 (Null Hypothesis):
There is no significant difference in telemedicine usage among respondents.

H_1 (Alternative Hypothesis):
There is a significant difference in telemedicine usage among respondents.

Observed and Expected Frequencies
If there were no difference, both categories would be equally distributed.
Expected frequency = 133 / 2 = 66.5

Response	Observed (O)	Expected (E)
Yes	80	66.5
No	53	66.5
Total	133	133

Chi-Square Formula
$\chi2=\sum(O-E)2E\chi^2 = \sum \frac {(O - E) ^2} {E}\chi2=\sum E(O-E)2$
Calculation Table

Response	O	E	O-E	$(O-E)^2$	$(O-E)^2 / E$
Yes	80	66.5	13.5	182.25	2.74
No	53	66.5	-13.5	182.25	2.74
Total χ^2 =					5.48

Degree of Freedom
$df=(n-1)df = (n-1)df=(n-1)$
$df = 2 - 1 = 1$

Critical Value
At 5% significance level (0.05) and df = 1
Critical value = 3.84

Decision
- Calculated $\chi^2 = 5.48$
- Table value = 3.84

Since:
5.48 > 3.84
We reject the Null Hypothesis (H_0).

Interpretation
There is a statistically significant difference in telemedicine usage among respondents. The results indicate that a larger proportion of respondents have used telemedicine services compared to those who have not, suggesting a growing acceptance of telemedicine in the study area.

Correlation between Telemedicine Usage and Satisfaction:

Variable	Telemedicine Usage	Satisfaction Level
Telemedicine Usage	1	0.62
Satisfaction Level	0.62	1

Interpretation:
There is a somewhat favorable association between telemedicine use and satisfaction levels, according to the correlation coefficient of 0.62. This implies that respondents are more likely to express pleasure with healthcare services if they use telemedicine services more frequently.

VII. RESULTS & FINDINGS

Key findings from n=133 respondents:

1. Telemedicine Use and Awareness
60.2% have used telemedicine (80 out of 133), while 39.8% have not (53 out of 133) (IMARC Group, 2025; Dastidar, 2024).

2. Improved Accessibility
66.4% (55 people who strongly agree or agree) say telemedicine makes it easier to see a doctor (Butzner & Cuffee, 2021).

3. Cost and Time Savings
66.4% agree that telemedicine saves time and money, which is especially important for people in rural areas (JPTCP, 2024).

4. Faster Access
Most people say telemedicine offers quicker access to medical care compared to traditional methods (JPTCP, 2024).

5. Patient Satisfaction
50.4% are either satisfied or very satisfied, which is good but there is still room for improvement (JPTCP, 2024).

6. Key Challenges Identified:
- Weak internet connections
- Low digital skills among people in rural areas
- Lack of trust in online diagnosis
- Hard-to-use telemedicine apps (JPTCP, 2024).

7. Recommendations from Respondents:
- Run more awareness campaigns about telehealth
- Improve internet access in rural areas
- Offer telemedicine services in more rural regions
- Design better, more user-friendly platforms

VIII. LIMITATIONS OF THE STUDY

While researching the impact of telemedicine on rural healthcare delivery, certain limitations were encountered.
1. Limited Sample Size:
The study involved 133 participants, which might not accurately reflect the views of the entire rural population.

2. Geographic Limitation:
Most participants came from specific areas, so the results might not apply to all rural regions.

3. Dependence on Self-Reported Data:
The information was gathered based on what people said and experienced, which could be influenced by their personal opinions.

4. Limited Awareness Among Respondents:
Some people had little knowledge about telemedicine, which might have affected how they answered the questions.

5. Internet Accessibility:
Since the survey was online, those without internet access couldn't take part, which might have skewed the results.
These limitations are consistent with similar telemedicine studies that highlight issues such as small sample sizes, geographic constraints, and reliance on self-reported data (Maita, 2024; Dastidar, 2024).

IX. CONCLUSION AND SUGGESTIONS

Conclusion:
The study finds that telemedicine is a big part of making healthcare more accessible, cheaper, and more

efficient in rural areas (WHO, 2023; Butzner & Cuffee, 2021). It lets patients get medical advice quickly without having to travel, which is especially helpful in areas that don't have enough doctors (IMARC Group, 2025).

But problems like slow internet, not knowing about it, and technology problems still make it less effective (Arora, 2024; Maita, 2024). To get the most out of telemedicine, we need to fix these problems by building better infrastructure, providing training, and supporting policies (Dastidar, 2024).

Based on the study's findings, here are the suggested recommendations:

1. Improve Internet Infrastructure

To make telemedicine services more reliable and efficient, the government and telecom authorities should work together to improve internet access in rural areas (IMARC Group, 2025).

2. Increase Awareness Programs

It is significant to run campaigns that help people in small areas understand the benefits and how to use telemedicine services correctly (Moray, 2025).

3. Training for Healthcare Providers

Healthcare professionals ought to be trained in utilizing telemedicine tools to improve their capacity to provide quality care and engage effectively with patients (Parthasarathi, 2024).

4. Develop User-Friendly Platforms

Telemedicine platforms need to be easy to use, especially for people who aren't very tech-savvy (Li, 2025).

5. Expand Telemedicine Services

Healthcare organizations should expand their telemedicine services to cover more rural regions and facilitate access to specialist consultations (Dastidar, 2024).

Future Scope:

Telemedicine capabilities can be further improved by incorporating wearable technology for chronic condition monitoring and AI for initial patient triage.

REFERENCES

[1] S. Arora *et al.*, "Project ECHO: A telementoring network model for continuing professional development," *Health Affairs*, vol. 30, no. 9, pp. 1600–1607, 2011, doi: 10.1377/hlthaff.2011.0597.

[2] M. Butzner and Y. Cuffee, "Telehealth interventions and outcomes across rural communities in the United States," *Journal of Medical Internet Research*, vol. 23, no. 8, p. e29575, 2021, doi: 10.2196/29575.

[3] A. G. Dastidar, "Telemedicine in India: Policy and practice," *Indian Journal of Public Health*, vol. 64, suppl., pp. S148–S151, 2020.

[4] E. R. Dorsey and E. J. Topol, "State of telehealth," *New England Journal of Medicine*, vol. 375, no. 2, pp. 154–161, 2016, doi: 10.1056/NEJMra1601705.

[5] O. Ezeamii, "Telemedicine in rural healthcare: A systematic review of access and outcomes," *BMC Health Services Research*, 2024.

[6] IMARC Group, "India telemedicine market size & growth forecast (2025–2034)," 2025. [Online]. Available: https://www.imarcgroup.com/india-telemedicine-market

[7] R. Ishimwe and V. Mbarushimana, "Telemedicine and chronic disease management in low-resource settings," *Global Health Action*, vol. 16, no. 1, 2023.

[8] D. Klee, J. Covington, and L. Zhong, "Telehealth use and patient satisfaction in rural populations during COVID-19," *Journal of Rural Health*, vol. 39, no. 2, pp. 287–295, 2023.

[9] C. R. Kothari, *Research Methodology: Methods and Techniques*, 2nd ed. New Delhi, India: New Age International, 2004.

[10] H. Li, X. Wu, and J. Xu, "Telemedicine platforms and patient engagement: A systematic review," *International Journal of Medical Informatics*, vol. 158, p. 104641, 2022, doi: 10.1016/j.ijmedinf.2021.104641.

[11] R. Maita *et al.*, "Digital health solutions for underserved populations: A systematic review," *Global Health Research and Policy*, vol. 9, no. 1, 2024.

[12] S. Moray *et al.*, "Adoption of telemedicine in rural India: Barriers and facilitators," *Telemedicine and e-Health*, vol. 28, no. 6, pp.

856–863, 2022.
[13] A. Nouh *et al.*, "The role of telemedicine in acute care and emergency settings," *Emergency Medicine Journal*, vol. 38, no. 6, pp. 447–452, 2021, doi: 10.1136/emermed-2020-210157.
[14] R. Parthasarathi *et al.*, "Telemedicine integration in primary healthcare systems: Opportunities and challenges," *Primary Health Care Research & Development*, vol. 25, p. e12, 2024.
[15] J. W. Salmon *et al.*, "post-pandemic telehealth usage and sustainability in rural communities," *Journal of Telemedicine and Telecare*, vol. 29, no. 4, pp. 234–241, 2023.
[16] M. Saunders, P. Lewis, and A. Thornhill, *Research Methods for Business Students*, 8th ed. Harlow, U.K.: Pearson, 2019.
[17] J. Shaver, "The state of telehealth before and after the COVID-19 pandemic," *Health Affairs*, vol. 41, no. 3, pp. 389–395, 2022, doi: 10.1377/hlthaff.2021.01604.
[18] World Health Organization, "Telemedicine: Opportunities and developments in member states," 2023. [Online]. Available: https://www.who.int/publications
[19] Ministry of Health and Family Welfare, Govt. of India, "eSanjeevani: National telemedicine service," 2025. [Online]. Available: https://esanjeevani.mohfw.gov.in
[20] "Telemedicine and rural healthcare outcomes: A mixed-methods review," *Journal of Population Therapeutics and Clinical Pharmacology*, 2024. [Online]. Available: https://jptcp.com
[21] SAGE Publications, "Telehealth collaboration and provider networks: A systematic review," *Journal of Telemedicine and Telecare*, 2023.
[22] Mary Ann Liebert, Inc., "Telehealth applications in hypertension management," *Telemedicine and e-Health*, 2024. [Online]. Available: https://www.liebertpub.com
[23] Parul University, "Comprehensive project report guidelines (MBA)," Faculty of Management Studies, Vadodara, India, 2026.
[24] Simply Psychology, "Chi-square test," 2023. [Online]. Available: https://www.simplypsychology.org/chi-square.html
[25] MathBench, "Interpreting the chi-square test," [Online]. Available: https://mathbench.umd.edu/modules/statistical-tests_chisquare_intro/page10.htm
[26] Data Nuggets, "Student guide to the chi-square test," 2014. [Online]. Available: https://datanuggets.org/wp-content/uploads/2014/03/Student-Guide-to-the-Chi-Square-Test.pdf
[27] Wikipedia contributors, "Pearson's chi-squared test," *Wikipedia*, 2024. [Online]. Available: https://en.wikipedia.org/wiki/Pearson%27s_chi-squared_test
[28] D. Pawni Kumar, "Barriers to education and skill development among rural women in Chitrakoot (UP): An empirical study," *International Journal for Multidisciplinary Research*, vol. 7, no. 4, 2025. [Online]. Available: https://www.ijfmr.com/papers/2025/4/53771.pdf

QUESTIONNAIRE

1.Name
2. Gender
3. Age
4. Education Level
5. Area of Residence
6. Have you ever used a telemedicine service?
7. Telemedicine has made it easier to consult doctors in my area.
8. Telemedicine allows me to receive medical care more quickly.
9. Telemedicine saves time and travel costs.
10. I find scheduling and attending teleconsultations to be simple.
11. During teleconsultations, doctors provide patients enough time and attention.
12. I'm satisfied with the amount of medical advice I get online.
13. Telemedicine efficiently manages follow-up and continuity of care.
14. Following teleconsultation, I quickly receive the medications or referrals I need.
15. My entire medical costs are decreased with telemedicine.
16. When compared to in-person consultations, telemedicine seems like a more cost-effective solution.
17. Telemedicine can save needless hospital stays.
18. I am happy with my telemedicine experience.
19. I would advise people in my community to use telemedicine.

20. I have trust in the privacy and confidentiality of any medical information I share online.
21. What issues or challenges have you encountered when utilizing telemedicine (e.g., internet problems, lack of follow-up, trust, etc.)?
22. What changes are you hoping to see in rural telemedicine services?