# "Adaptation Of Telemedicine And E-Pharmacy Services: A Study Of Patient Perception In Vadodara"

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Abstract: Digital technology has significantly transformed the healthcare sector, especially through the development of telemedicine and e-pharmacy services. These online platforms make it possible for patients to have distant medical consultations with medical professionals and online purchases of medicines, thus improving patient convenience and accessibility. The main objective of this study is to determine the level of telemedicine and e-pharmacy adoption by patients in Vadodara, as well as their attitudes towards online healthcare services. The primary research was conducted using a structured questionnaire, which was distributed to the respondents living in both rural and urban areas of Vadodara. The analysis of the data was done using statistical methods, such as the one-sample t-test and ANOVA. The results show that a large number of respondents are aware of and use online healthcare services, specifically telemedicine consultations and online purchases of medicines. The study also highlights certain challenges such as trust issues, digital literacy, and accessibility barriers, which can hinder the effective use of these services among different demographics. The findings offer advantageous suggestions for healthcare providers and policymakers to improve digital healthcare services and increase patient satisfaction.

## INTRODUCTION:

Previous studies have highlighted the growing importance of telemedicine and e-pharmacy services in improving healthcare accessibility. Various studies have highlighted the importance of digital health platforms, focusing on their potential to provide patients with accessible and affordable healthcare facilities. A study conducted by different authors and academicians revealed that telemedicine plays a significant role in providing healthcare facilities to geographically isolated regions that are mostly located in rural areas and face a scarcity of medical facilities. Moreover, the use of telemedicine helps in reducing travel expenses and enables patients to stay at home while still being able to consult medical professionals. At the same time, studies focusing on the use of e-pharmacy have revealed that consumers have shown a high inclination toward purchasing pharmaceutical products online due to the convenience of home delivery and simple access to a wide range of products. However, some studies have also highlighted the challenges that may act as barriers to the growth of e-pharmacy services in the consumer market, including concerns over the authenticity of products, issues related to data privacy, and a lack of trust in digital platforms. The existing body of research suggests that, in spite of the rapid growth of

digital healthcare services, it is imperative to have an overall understanding of patient perspectives and the determinants for using digital healthcare services. The growth of telemedicine services and e-pharmacy services in India has been made possible due to an increase in internet accessibility, the availability of smartphones, and government policies that encourage digital healthcare services. The COVID-19 pandemic has certainly accelerated the growth of digital healthcare. As a result of the restrictions on in-person consultations, patients began looking for alternative ways to receive medical care. As a result, many healthcare services and pharmaceutical companies have started using digital services to improve healthcare services. Even though there are advantages to the use of telemedicine and e-pharmacy services, they are still limited by certain challenges, such as trust, digital literacy, privacy, and technology. Understanding how patients view these services is crucial.

This study aims to investigate the integration of telemedicine and e-pharmacy services among the patient community of Vadodara. The primary objective of this study is to determine the level of awareness among patients regarding the use of these services, their usage patterns, and the factors influencing their perception about the use of digital healthcare services.

The findings of this study attempt to provide healthcare professionals, policymakers, and digital healthcare companies with insights into patient needs, which can help improve the service offerings of telemedicine and e-pharmacy services.

## LITERATURE REVIEW:

### 1. Telepharmacy Knowledge and Perception among Pharmacy Students

One study recently investigated the understanding and perceptions of telepharmacy among pharmacy students. The findings revealed that 32.4% of the students had a good understanding of the subject, and 48.6% had a positive perception of it. This indicates that there is a need for more education and technology knowledge to make telepharmacy systems more widely accepted. (Masresha Derese Tegegne, 2023)

### 2. Telepharmacy Applications During COVID-19

A systematic review of 39 research articles found that telepharmacy was widely used during the COVID-19 pandemic for remote counselling, prescription review, and medication dispensing, improving healthcare access in remote areas. (Truong Van Dat, 2023)

### 3. Telepharmacy and Patient Satisfaction

Research on telepharmacy indicates that remote pharmaceutical services increase patient satisfaction, healthcare accessibility, and service efficiency, particularly when digital technologies are integrated into pharmacy practice. (Eva Sartika Dasopang, 2025)

### 4. Telepharmacy Impact on Patient Outcomes

Impact of telepharmacy on Patient Outcomes telepharmacy intervention studies have found that pharmacists positively impact patient outcomes, medication compliance, and management of diseases, particularly for chronic diseases. (Priyanka Saharan, 2025)

### 5. Telehealth Interventions in Pharmacy Practice

Pharmacy practices are increasingly using telehealth technologies for patient monitoring, counseling, and medication management, which is improving healthcare delivery and accessibility globally. (Image, Image, Image, & La, 2025)

### 6. Digital Transformation in Healthcare Services

Digital healthcare technologies, such as telemedicine and e-pharmacy platforms, have completely transformed the healthcare service sector by enabling remote consultations, electronic prescriptions, and digital patient monitoring systems. (WHO, 2025)

### 7. Telemedicine Adoption During COVID-19

The COVID-19 pandemic has played a major role in accelerating the adoption of telemedicine globally, as healthcare professionals used remote consultations to continue patient services while protecting themselves from the risk of infection. (Jedrek Wosik, 2020)

## 8. Digital Health Adoption and Patient Engagement

The goal of digital health technologies like teleconsultations, health monitoring systems, and electronic health records is to improve patient engagement. (Vishnu Ramineni, 2025)

## PROBLEM STATEMENT OF THE STUDY:

Despite the presence of numerous benefits associated with the implementation of telemedicine and e-pharmacy, several issues require attention. These include the lack of proper regulatory policies, the absence of strong legal frameworks, and the lack of digital literacy among the population, in addition to trust and privacy concerns. Moreover, infrastructural issues, such as the lack of stable internet connectivity, also impact the implementation of telemedicine and e-pharmacy. This study proposes to examine the use of telemedicine and e-pharmacy in Vadodara, the hurdles in their widespread implementation, and their effectiveness in the healthcare service sector.

## OBJECTIVES OF THE STUDY:

To analyze the current state and growth trends of telemedicine and e-pharmacy adoption in India.

To identify the major factors facilitating and impeding the adaptation of telemedicine and e-pharmacy services.

To examine the benefits and challenges experienced by users and providers of these digital health platforms.

To evaluate the role of government policies, technological advances, and consumer behaviour in shaping the adoption of telemedicine and e-pharmacy.

## HYPOTHESES:

$H_{01}$: There is no significant relationship between urban and rural respondents' awareness of telemedicine and e-pharmacy and their adoption      of these services.

$H_{11}$: There is a significant relationship between urban and rural respondents' awareness of telemedicine and e-pharmacy services and their      adoption of these services.

$H_{02}$: There is no significant association between urban and rural respondents of patients and their usage of telemedicine and e-pharmacy      services.

$H_{12}$: There is a significant association between urban and rural respondents of patients and their usage of telemedicine and e-pharmacy services.

$H_{03}$: Trust in digital healthcare platforms does not significantly influence patient behavior toward telemedicine and e-pharmacy services.

$H_{13}$: Trust in digital healthcare platforms significantly influences patient behavior toward telemedicine and e-pharmacy services.

$H_{04}$: Perceived convenience does not significantly affect patients' preference for telemedicine and e-pharmacy services.

$H_{14}$: Perceived convenience significantly affects patients' preference for telemedicine and e-pharmacy services.

$H_{05}$: There is no significant perception among respondents that telemedicine platforms are simple to use.

$H_{15}$: There is a significant perception among respondents that telemedicine platforms are easy to use.

$H_{06}$: Respondents are not significantly satisfied with telemedicine services.

$H_{16}$: Respondents are significantly satisfied with telemedicine services.

$H_{07}$: Respondents are not significantly satisfied with e-pharmacy services.

$H_{17}$: Respondents are significantly satisfied with e-pharmacy services.

$H_{08}$: Government policies have not significantly influenced the adoption of telemedicine services.

$H_{18}$: Government policies have significantly influenced the adoption of telemedicine services.

**RESEARCH METHODOLOGY:**

Research Design: Descriptive research design Data Source:

• Primary Data – Structured questionnaire

    Sample Size: 332 respondents

Sampling Technique: Convenience sampling

Data Collection Method: Google Form survey

Statistical Tools Used:

        • SPSS analysis

        • Descriptive statistics

        • ANOVA (Analysis of Variance)

        • T-test

• Secondary Data – Research articles, journals, and online reports.

**DATA ANALYSIS:**

**1. Demographic Profile of Respondents**

These tables define the characteristics of the 332 people surveyed.

| Category | Classification | Frequency | Percentage |
|---|---|---|---|
| **Age** | 20–30 years | 187 | 56.3% |
| | Below 20 years | 76 | 22.9% |
| | 30–40 years | 47 | 14.2% |
| | Above 40 years | 22 | 6.6% |
| **Gender** | Male | 263 | 79.2% |
| | Female | 69 | 20.8% |
| **Location** | Urban | 257 | 77.4% |
| | Rural | 46 | 13.9% |
| | Not Specified | 29 | 8.7% |
| **Occupation** | Working Professionals | 154 | 46.4% |
| | Students | 139 | 41.9% |
| | Homemakers | 38 | 11.4% |
| | Business | 1 | 0.3% |

**Age:** The majority of respondents are young adults, with 56.3% falling in the 20–30 age bracket. Those below 20 make up 22.9%, while only 6.6% are above 40.

**Gender:** There is a significant gender imbalance in the sample; 79.2% are male and 20.8% are female.

**Location:** A vast majority of respondents (77.4%) reside in urban areas, while 13.9% are from rural areas.

**Occupation:** The sample is primarily composed of working professionals (46.4%) and students (41.9%).

## 2. Awareness and Usage Patterns

These tables measure how familiar users are with digital health and how often they use it.

| Metric | Status/Frequency | Frequency | Percentage |
|---|---|---|---|
| Telemedicine Awareness | Yes | 283 | 85.2% |
| Telemedicine Usage | Yes | 261 | 78.6% |
| Frequency of Use | Frequently | 134 | 40.4% |
| | Very Frequently | 61 | 18.4% |
| E-Pharmacy Awareness | Yes | 283 | 85.2% |
| E-Pharmacy Usage | Yes | 267 | 80.4% |
| Usage Change (2 Years) | Increased Significantly | 133 | 40.1% |
| | Increased Moderately | 128 | 38.6% |

**Telemedicine Awareness & Use:** 85.2% of respondents are aware of telemedicine services, and 78.6% have actually used them.

**Frequency of Use:** Usage is high, with 40.4% using services "frequently" and 18.4% "very frequently."

**E-Pharmacy Awareness & Use:** Awareness is identical to telemedicine at 85.2%, but actual usage for purchasing medicines is slightly higher at 80.4%.

**Change in Usage (Past 2 Years):** The pandemic era has clearly had an impact; 40.1% reported their usage "Increased Significantly", and 38.6% "Increased Moderately".

## 3. Motivations and Benefits

These tables explain why users are choosing digital platforms over traditional ones.

| Service Type | Key Factor/Benefit | Frequency | Percentage |
|---|---|---|---|
| Telemedicine Motivator | Comfort of Home | 66 | 19.9% |
| | Avoid Long Hospital Waits. | 44 | 13.3% |
| | Flexible Timings | 39 | 11.7% |
| E-Pharmacy Motivator | Time Savings | 73 | 22.0% |
| | Convenience over local shops | 60 | 18.1% |
| Telemedicine Benefit | Faster Advice/Follow-ups | 70 | 21.1% |
| | Reduced Travel | 49 | 14.8% |
| E-Pharmacy Benefit | Doorstep Delivery | 77 | 23.2% |

**Telemedicine Motivators:** The primary drivers are consulting from the comfort of home (19.9%), avoiding long hospital waits (13.3%), and flexible consultation timings (11.7%).

**E-Pharmacy Motivators:** The biggest single factor is time savings (22.0%), followed closely by the convenience of the platforms compared to local shops (18.1%).

**Reported Benefits:** * Telemedicine: Faster medical advice and follow-ups (21.1%) and reduced travel needs (14.8%) are the top benefits.

**E-Pharmacy:** 23.2% of users cite doorstep delivery as the major advantage.

## 4. Challenges and Deterrents

These tables highlight the friction points and reasons for hesitation.

| Category | specific challenge | Frequency | Percentage |
|---|---|---|---|
| **Discouraging Factors** | Face-to-Face Preference | 58 | 17.5% |
| | Fear of Counterfeit Meds | 49 | 14.8% |
| | Data Privacy/Security | 45 | 13.6% |
| **Telemedicine Challenges** | Lack of Physical Exam | 85 | 25.6% |
| | Communication Gaps | 45 | 13.6% |
| **E-Pharmacy Challenges** | Prescription Verification Issues | 62 | 18.7% |
| | Quality Concerns | 49 | 14.8% |
| | Delayed Delivery | 48 | 14.5% |

**Discouraging Factors**: A major barrier is the preference for face-to-face consultation (17.5%) and the fear of counterfeit medicines (14.8%).

**Telemedicine Challenges:** The lack of a physical examination is the most significant concern, reducing confidence for 25.6% of respondents. Communication gaps also affect 13.6%.

**E-Pharmacy Challenges:** The most common complaints are prescription verification issues (18.7%), quality concerns (14.8%), and delayed delivery (14.5%).

## 5. Satisfaction Ratings (Scale 1–5)

Users rated their experience on a scale where 5 is presumably the highest.

| Service | Majority Rating | Percentage |
|---|---|---|
| **Telemedicine** | **4 (Satisfied)** | **58.4%** |
| **E-Pharmacy** | **4 (Satisfied)** | **51.2%** |

## 6. Government Policy and Future Outlook

This section looks at the impact of the public sector and long-term trends.

| Metric | Rating / Sentiment | Frequency | Percentage |
|---|---|---|---|
| **Government Initiatives** | Aware of eSanjeevani | 266 | 80.1% |
| **Policy Influence** | Agree (Positive) | 138 | 41.6% |
| **Digital Infrastructure** | Agree (Connectivity Driven) | 121 | 36.4% |
| **Future Outlook** | Believe Mainstream in India | 284 | 85.5% |

**Government Initiatives:** 80.1% of respondents are aware of initiatives like eSanjeevani.

**Policy Influence:** 41.6% of users "agree" that government policies have positively influenced the sector.

**Infrastructure:** 36.4% "agree" that improved smartphone and internet access are the primary drivers for adoption.

**Future Belief:** A massive 85.5% of respondents believe telemedicine and e-pharmacies will become mainstream healthcare services in India.

**INTERPRETATION:**

Analysis of the data collected indicates that most people are aware of telemedicine and e-pharmacy. The average score of the responses shows that there is a high level of awareness among both rural and urban participants. The analysis also shows that people often use telemedicine and e-pharmacy services because they are convenient and easy to obtain. Urban respondents tend to use these services more than those in rural areas, which is mainly due to better internet access and digital skills. The ANOVA results indicate that trust plays a significant role in influencing patient adoption of digital healthcare services. Respondents who trust the reliability and security of these platforms are more likely to use them regularly. Furthermore, the results indicate that most respondents generally perceive telemedicine platforms as simple to use. This suggests that digital health applications have become more user-friendly and accessible to the general population.

According to the data, mHealth applications have become more user-friendly and accessible to the general public.

The analysis also emphasizes the positive effect of the initiatives and policies of the Indian government regarding digital healthcare services.

**FINDING:**

- The findings from the study indicated that most of the respondents were aware of telemedicine and e-pharmacy services offered in India.

- Most of the respondents had used telemedicine services, which enable patients to access healthcare professionals online and get medical advice.

- Many people have purchased medications from online pharmacies such as PharmEasy, Netmeds, and Tata 1mg.

- The findings from the study show that the convenience and ability to save time are the reasons why people use telemedicine and e-pharmacy services.

- Many people feel that telemedicine services make healthcare more accessible and efficient trust in online healthcare platforms plays an important role in influencing the adoption of telemedicine and e-pharmacy services.

- Improved smartphone usage and internet connectivity have encouraged the growth of telemedicine services.

- The study also indicates that most respondents believe telemedicine and e-pharmacy services will become more common in the future.

**SUGGESTION:**

On the basis of the findings, the following steps could be taken to facilitate the wider adoption of telemedicine and e-pharmacy services. Raising awareness about digital healthcare through campaigns and educational initiatives could help more patients become aware of these services. Moreover, telemedicine services should be user-friendly, making them accessible to people of all ages. Establishing trust in online medicine purchases depends on the assurance of the authenticity of medicines and the enforcement of strict quality control measures. Ensuring the security of patient data requires the enforcement of strict data security and privacy measures. Moreover, improving communication between doctors and patients during telemedicine services and providing responsive customer support could greatly enhance the user experience.

In addition, making digital healthcare services more affordable and developing favorable government policies could encourage more patients to adopt these services.

**CONCLUSION:**

The study's results indicate that many patients in Vadodara are aware of and are using telemedicine an d e-pharmacy services. Vadodara patients prefer these services because they are easy to access and save time. Trust and security also play a role in how patients see them. With better awareness, improved technology, and supportive policies, digital healthcare services have strong potential to grow and improve healthcare accessibility in the future.

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