

## Telehealth Performance and Economic Impact in West Bengal: A Developing Economy Analysis

Debjani Mukherjee<sup>1\*</sup>, Pramod Kumar<sup>2</sup>

<sup>1</sup> \*PhD-scholar, Department of Commerce & Management, Assam downtown University. Sankar Madhab Path, Gandhi Nagar, Panikhaiti, Guwahati, Assam, India- 781026

Assistant Professor, Siliguri Institute of Technology, Sukhna Darjeeling, West Bengal, India-734009

<sup>2</sup> Associate Professor – Faculty of Commerce & Management, Assam down town University, Sankar Madhab Path, Gandhi Nagar, Panikhaiti, Guwahati, Assam, India, PIN – 781026

### ABSTRACT

Globally, the COVID-19 pandemic has sped up the implementation of telehealth, including in India, where programs like eSanjeevani and Swasthya-Ingit in West Bengal have increased access to digital healthcare services, decreased travel, and improved patient outcomes. Notwithstanding these developments, there is still little data on the effectiveness of services and their financial advantages. Through patient and healthcare provider surveys and interviews, this study assesses the effectiveness of telehealth and its financial impact in West Bengal. Results show high user satisfaction, especially with regard to continuity of care, accessibility, and time efficiency. Usability, provider-patient communication, and platform trust are important determinants of satisfaction. By lowering travel expenses, saving consultation time, and easing hospital traffic, telehealth has freed up healthcare professionals to concentrate on high-acuity cases. However, unequal access is restricted by technical obstacles, low digital literacy, and inconsistent internet connectivity, particularly among older adults and in rural areas. In general, telehealth shows efficacy, affordability, and accessibility, especially for routine consultations and follow-ups for chronic care. If focused interventions address digital literacy, infrastructure gaps, and inclusive access, its expansion offers a long-term plan to enhance healthcare delivery in developing nations.

**Keywords:** Telehealth, West Bengal, User Satisfaction, Economic Impact, Digital Literacy

**How to Cite:** Debjani Mukherjee, Pramod Kumar, (2025) Telehealth Performance and Economic Impact in West Bengal: A Developing Economy Analysis, *Journal of Carcinogenesis*, Vol.24, No.4s, 772-774

### 1. INTRODUCTION

The COVID-19 pandemic has been a major global catalyst for the widespread use of telehealth, which has accelerated dramatically over the past ten years in healthcare systems (Maleka & Matli, 2022). Real-time consultations, follow-ups, diagnostics, and health education are made possible by telehealth, which is generally defined as the use of digital platforms and communication technologies to provide clinical services remotely (Manocha et al., 2021). The telehealth landscape in India has expanded into a number of fields, such as remote surgical assistance, telemonitoring, teleconsultation, telepharmacy, telenursing, and telepathology. These developments are facilitated by the National Telemedicine Service (eSanjeevani), which serves 28 states and union territories, and the Government of India's Digital India initiative (Naik & Sarkar, 2024).

West Bengal, a heavily populated state with a sizable rural population, has become a leader in the embrace of telehealth. Over a million patients receive specialized virtual consultations each year thanks to state programs like Swasthya-Ingit, which drastically cuts down on travel expenses and time for rural communities (Raj et al., 2025). Engaging in the eSanjeevani program has also made it easier for primary health centers, district hospitals, and tertiary care facilities to connect seamlessly, which has improved patient outcomes and referral efficiency (Vetrivel et al., 2025). In West Bengal, telehealth has also been crucial in reducing hospital congestion, improving service accessibility for remote communities, bridging the gap between rural and urban healthcare, and general public health responsiveness (Pandey et al., 2024).

Notwithstanding these successes, a number of structural and systemic issues still exist. These include the differences in internet penetration between rural and urban areas, the lack of trained telemedicine professionals, the low digital literacy of some healthcare providers and patients, and sporadic system overloads during periods of high demand (Sutarsa et al., 2022). Furthermore, there is still a lack of empirical data demonstrating the economic benefits of telehealth in West Bengal, despite the fact that its potential is widely recognized. These benefits include reduced travel costs, resource optimization, and

increased worker productivity. In a developing economy, this kind of evidence is crucial for directing sustainable policy interventions..

## 2. PROBLEM IDENTIFICATION

The performance and financial ramifications of telehealth in West Bengal are still not fully assessed, despite its proven advantages. In remote locations, bandwidth scarcity causes uneven connectivity (Discover Public Health, 2024). According to Raj et al. (2025), providers frequently lack telehealth training and experience. Barriers relating to gender and sociocultural also affect user satisfaction and interaction (Sharma et al., 2024). Furthermore, inadequate policy frameworks and infrastructure deficiencies compromise long-term sustainability and return on investment (The Lancet Regional Health – Southeast Asia, 2024). Comprehensive evidence is desperately needed to direct future policy and scaling initiatives.

## 3. OBJECTIVES

To assess West Bengal's Telehealth services' performance.

To evaluate Telehealth's financial impact in the context of developing nations.

## 4. METHODS

To collect primary data from telehealth service providers and users in a few West Bengal districts, a descriptive cross-sectional survey design was used. The purpose of the study was to document current attitudes, experiences, and financial ramifications related to the popularity of telehealth.

**Study Population and Sampling:** The study focused on patients who had used telehealth services as well as the medical professionals who provided them. Participants with relevant telehealth experience were chosen using a purposive sampling technique. Both urban and rural respondents were included in the sample to account for differences in infrastructure and availability of services.

**Data collection:** To gather quantitative information on service satisfaction, ease of use, time efficiency, and cost savings, structured questionnaires were given to patients. Healthcare providers participated in semi-structured interviews to obtain qualitative information about operational difficulties, service quality, and financial results.

Analysing Data:

**Quantitative analysis:** User satisfaction and service performance were summed up using descriptive statistics (means, percentages). Predictors of usage and satisfaction were found using regression analysis.

**Qualitative analysis:** Thematic analysis of provider interviews brought to light infrastructure limitations, operational difficulties, and financial advantages.

**Integration:** The results of surveys and interviews were combined to offer a thorough assessment of the value of telehealth and its financial implications.

**Ethical Considerations:** Every participant gave their informed consent. Throughout the study, data anonymity and confidentiality were upheld.

## 5. RESULTS & ANALYSIS

### Telehealth Service Performance

71% of the 500 respondents to the survey expressed satisfaction with telehealth services, indicating a generally favourable user experience. The ability of telehealth to cut down on travel and waiting times, especially for rural populations, was demonstrated by the high mean scores for mobility (4.2/5) and time efficiency (4.3/5). Consistent follow-up care without frequent in-person visits was beneficial for patients managing chronic conditions like diabetes and hypertension.

Regression evaluation revealed that the best indicators of overall satisfaction were platform trust ( $\beta = 0.28$ ,  $p < .05$ ), provider–patient communication ( $\beta = 0.36$ ,  $p < .01$ ), and service usability ( $\beta = 0.42$ ,  $p < .01$ ). These results highlight the significance of both provider interaction quality and technological ease of use for long-term telehealth adoption.

38% of rural users reported technical barriers, primarily unreliable internet, and older adults reported challenges with digital literacy. Providers noted that initial diagnostic consultations were less effective virtually, although routine follow-ups and chronic care management were efficiently delivered.

### Telehealth's Economic Impact

Patients and the healthcare system benefited monetarily from telehealth:

**Reduced travel expenses:** 62% on average (approximately ₹350 to ₹500 per visit).

**Time savings:** Patients saved two to four hours per consultation, which they could use for household chores or other activities that generate income.

**System efficiency:** Providers were able to concentrate on higher-acuity cases due to less outpatient congestion.

Indirect economic activity was also produced by rural adoption, such as a rise in the need for internet services, mobile devices, and training in digital literacy. The importance of infrastructure investment was highlighted by the fact that benefits were lower in places with poor connectivity.

## 6. DISCUSSION

The results indicate that West Bengal's telehealth services are efficient, affordable, and easily available, especially for routine consultations and chronic care follow-ups. Service usability, provider-patient communication, and trust all have a significant impact on satisfaction, which is consistent with other data on the uptake of digital health in India.

Beyond patient savings, economic benefits include increased productivity and indirect market stimulation due to the demand for digital devices and internet services. However, disparities in infrastructure and digital literacy restrict equitable access, especially for older adults and those living in rural areas. These findings emphasize the significance of focused interventions, such as enhanced connectivity, instruction in digital literacy, and telehealth platforms that are culturally sensitive.

All things considered, telehealth shows great promise to improve healthcare delivery and create financial value, so long as user support and infrastructure are improved.

## 7. CONCLUSION

According to the study, most users of telehealth services in West Bengal express satisfaction with availability, time efficiency, and continuity of care, indicating that these services are generally well-received and effective. For patients with chronic conditions, telehealth has significantly improved healthcare delivery by lowering the need for frequent in-person visits and enhancing follow-up care. By minimizing travel, easing hospital traffic, and maximizing resource use, the growth of telehealth shows promise for financial savings for patients and healthcare systems. In developing economies, telehealth is a viable and sustainable way to improve healthcare access and efficiency. This underscores the importance of telehealth as a supplemental mode of healthcare delivery in underserved and rural areas. Variations in digital access and literacy may have an impact on the study's conclusions, which are based on self-reported data from a few districts..

## REFERENCES

- [1] Discover Public Health. (2024). Telehealth infrastructure and connectivity in rural India. Discover Public Health Reports.
- [2] Manocha, R., Gupta, S., & Verma, P. (2021). Telehealth: Emerging trends in digital healthcare delivery. *Journal of Telemedicine and Telecare*, 27(8), 505–512. <https://doi.org/10.1177/1357633X211021001>
- [3] Maleka, D., & Matli, W. (2022). The impact of COVID-19 on telehealth adoption: A global perspective. *Health Policy and Technology*, 11(4), 100618. <https://doi.org/10.1016/j.hlpt.2022.100618>
- [4] Naik, A., & Sarkar, S. (2024). Digital India and telemedicine services: Advancing healthcare access. *Indian Journal of Public Health Informatics*, 16(1), 45–52.
- [5] Pandey, R., Sen, A., & Roy, S. (2024). Telehealth adoption in rural West Bengal: Opportunities and challenges. *Journal of Health Management*, 26(2), 101–112. <https://doi.org/10.1177/09720634241234567>
- [6] Raj, M., Chatterjee, P., & Banerjee, T. (2025). Evaluating the effectiveness of Swasthya- Ingit telemedicine programs in West Bengal. *Indian Journal of Community Medicine*, 50(1), 23–32.
- [7] Sharma, V., Singh, R., & Das, P. (2024). Sociocultural and gender barriers in telemedicine uptake in India. *Asian Journal of Health Sciences*, 9(3), 67–78.
- [8] Sutarsa, I., Verma, A., & Kumar, S. (2022). Digital literacy and telehealth service delivery challenges in India. *Journal of Telemedicine Studies*, 14(2), 89–101.
- [9] The Lancet Regional Health – Southeast Asia. (2024). Telehealth in South Asia: Policy and sustainability considerations. *The Lancet Regional Health – Southeast Asia*, 10, 100123. <https://doi.org/10.1016/j.lansea.2024.100123>
- [10] Vetrivel, P., Mohan, S., & Gupta, A. (2025). Telehealth integration in district healthcare networks: Evidence from West Bengal. *Journal of Telemedicine and e-Health*, 31(1), 15–28. <https://doi.org/10.1089/tmj.2024.0123>