Trust and Technology: Gender Differences in E-Health Consultation App Adoption in West Bengal

Mr. Ayan Banerjee
ayanbanerjee764@gmail.com
Assistant Professor, Hospital Management Department, Brainware University, Barasat, pin- 700125
West Bengal, India

Abstract

This chapter is about understanding the influence of trust on the use of electronic health applications by women in rural areas of West Bengal, India. The main subject of this study is the difference between male and female users of the Technology Acceptance Model. The research done involved going through literature published from 2019 to 2025 in PubMed, Scopus, and Google Scholar. The papers talking about trust factors, gender differences, and regional barriers were examined through the lens of the TAM framework. Trust was the primary factor leading to the adoption of a new system, even being more significant than the system's usefulness or ease of use. Relational trust, privacy, and community approval are things women value the most. Men tend to concentrate on the functional aspect of the product, i.e. its reliability. In West Bengal, just 63% of women are in possession of a mobile phone as against 79% of men. Women living in rural areas encounter digital, gender, and geographic barriers at the same time. Smartphone subsidies and the requirement of gender-specific impact assessments are the musts for the governments. Besides, the developers of the platform should facilitate female provider options, simple language that can be local to the area, and trust features. Awareness campaigns that involve the male family members as supporters are necessary for communities. The research demonstrates that trust impacts male and female differently in the acceptance of digital health. It implies that the ways of dealing with health must be cognizant of gender difference, rather than being gender-neutral

*Keywords: trust, gender differences, e-health adoption, Technology Acceptance Model, West Benga*l

Introduction

Healthcare technology adoption highly depends on the trust factor. It is said to be more essential than the actual technology being functional or user-friendly (An et al., 2021; Dhagarra et al., 2020). Trust involves thinking that the system is effective, information is safe, people providing healthcare are capable (Esmaeilzadeh, 2019). Research findings indicate that issues of trust and privacy are key factors in determining whether individuals will utilize digital health services (Yan et al., 2023). Besides that, users with improved digital skills are more likely to perceive technology as a valuable tool and that it is easy to handle if they have confidence in it (AbdulKareem & Oladimeji, 2024). After establishing this trust base, gender leads to significant changes in the use of technology. Women tend to be more fearful of AI and have less favourable opinions of digital health. The reasons for this are inclusive of social and cultural aspects and not merely individual psychological factors (Russo et al., 2025). The mentioned viewpoints are the basis of the fears that women pay more attention to both privacy and relationships when deciding to use technology (Moulaei et al., 2023). In India, the figures

show that merely 63% of women possess mobile phones, while the corresponding percentage for men is 79%. Hence, it limits their access to digital healthcare services (Hersh et al., 2021; Gupta et al., 2025). In spite of such hurdles, eSanjeevani has delivered 276 million tele-consultations, while the Ayushman Bharat Digital Mission has enabled 380 million health accounts to be made (Raj et al., 2023; Dastidar et al., 2024). On the other hand, there are still a number of issues such as low digital literacy, the shortage of gadgets, and bad internet connection (Arora et al., 2024). Such obstacles become even more problematic in West Bengal, the state where medical facilities are mostly located in urban areas. The ladies living in the villages have to cover the long distances and face social and economic barriers besides the mentioned ones (Deb et al., 2022; Sk et al., 2019). They are confronted with the three obstacles of digital, gender, and geographic (Saha et al., 2024). This chapter is using the extended Technology Acceptance Model to answer 4 questions with a systematic scoping review of literature from 2020 to 2025 as its basis in order to bridge the critical gap. Firstly, the impact of trust on the acceptance of e-health applications. Secondly, the differences between male and female trust levels. Thirdly, the reasons why women in West Bengal are reluctant to use e-health applications. Fourthly, the ways that can lead to more trust and adoption of women.

Research Objectives

1. To examine how trust affects e-health app adoption using the TAM Framework.

2. To compare trust levels between men and women to use e-health consultation apps.

3. To identify barriers stopping women in West Bengal from adopting e-health consultation apps..

4. To recommend practical solutions to increase women's trust and adoption of e-health apps.

Literature Review

TAM was initially focused on the importance of the usefulness and ease of use of the system, however, several later studies point out that trust is the key factor in the adoption of technology in the healthcare sector (An et al., 2021; Kamal et al., 2019). Even if an app is highly usable and provides great utility, users still will not adopt it unless they trust it (Dhagarra et al., 2020). Trust depends on a combination of technical competence, provider honesty, and confidentiality (Esmaeilzadeh, 2019). Research in China during the COVID-19 pandemic and in India demonstrates that trust and privacy are leading factors in the use of digital healthcare (Yan et al., 2023; Dhagarra et al., 2020). Expanded TAM shows that digital knowledge is a moderator of the trust factor that influences the level of usefulness and ease of use, which finally results in adoption (AbdulKareem & Oladimeji, 2024). There are differences between male and female genders. Females display greater fear of AI and have lower positive attitudes in comparison to males. Their behaviors are largely influenced by the rules and values of the society rather than anxiety. (Russo et al., 2025) Women not only express more intense concerns about their privacy but also consider the relational and social aspects as more important when deciding on

acceptance (Moulaei et al., 2023). The digital literacy of women in India is limited by the lack of autonomy, education and access to the digital space. Besides, socio-cultural barriers and gender differences in the possession of smartphones and use of the internet are the major reasons for the deepening of the exclusion of women from the digital world (Gupta et al., 2025). India has been investing in digital health at an accelerated pace. The e-Sanjeevani platform ranks among the largest telemedicine platforms globally and has already facilitated more than 276 million consultations. Under the Ayushman Bharat Digital Mission, 380 million health accounts were made and 262 million health records were connected (Raj et al., 2023; Dastidar et al., 2024). While significant barriers like low digital literacy, limited access to devices and the internet, and cultural bias towards face-to-face care remain (Arora et al., 2024). The differences between genders are still very large; 63% of women and 79% of men possess mobile phones, and as a result, there are obstacles in front of women in terms of access. (Hersh et al., 2021) Between 2016 and 2018, the maternal death rate in West Bengal dropped significantly to 98 per 100,000 live births, however, there are still areas of lack of access to health care caused by urban-centric facilities, difficulties in transportation, limited finances, and making of decisions late (Deb et al., 2022; Sk et al., 2019). Rural women are affected by the digital, gender, and rural divides, among others. These women are prevented by cultural, financial, and mobility barriers from fully utilizing digital health technologies for their own empowerment (Saha et al., 2024).

Methodology

This chapter employs a systematic scoping review along with the Technology Acceptance Model framework to explore the dimensions of trust, gender differences, and regional factors in the adoption of e-health. In order to know the changes in the digital health sector after the pandemic, studies done from 2019 to 2025 have been looked through. Besides that, three databases namely PubMed, Scopus, and Google Scholar were searched using the following keywords "e-health adoption," "Technology Acceptance Model," "trust," "gender differences," "telemedicine India," and "digital health barriers". The criteria for inclusion consisted of peer-reviewed studies, systematic reviews, and government reports on the technology acceptance model (TAM) in healthcare, the influence of gender on technology usage, and the implementation of digital healthcare in India with a focus on West Bengal. Prioritized were studies that utilized validated research tools and reported gender-disaggregated data. The exclusion criteria were non-health technology related technology studies, studies from rich countries that have no relevance to India, and foundational TAM papers published before 2019. Data was gathered on trust factors, gender differences, adoption barriers, and findings from West Bengal to act as a base for answering four research objectives such as examining the role of trust, comparing gender-based trust levels, identifying women-specific barriers, and coming up with practical recommendations.

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Department of Computer Science, Pandit Deendayal Upadhyaya Adarsha Mahavidyalaya, Amjonga, Goalpara, Assam, India

Analysis and Discussion

This evidence very strongly disputes the assumptions made in TAM. The role of trust has gone beyond merely adding to usefulness and ease of use, as it has become the main driver of adoption. Patients in healthcare environments where they feel exposed and are concerned about the privacy of their data, the mere presence of technical features is not able to determine whether users will adopt the system (An et al., 2021; Dhagarra et al., 2020). This design showed a recurring theme in numerous research works. A few studies conducted at the beginning of the pandemic indicated that usefulness was the most important factor. However, most of the evidence that has been published after 2020 points out that trust is the main factor which other TAM aspects have to go through (Esmaeilzadeh, 2019; Yan et al., 2023). Most importantly, the concept of trust varies significantly between men and women. Research reveals that women exhibit greater fear towards the use of technology and have more intense worries about their privacy, still, these are attributed to gender-based social and cultural habits rather than to the character of the individual (Russo et al., 2025; Moulaei et al., 2023). Mostly, men are the ones who verify the efficiency of the systems while women consider whether they can rely on the provider, whether their information is safe and whether the community supports them. The difference in question dismantles the concept of gender-neutral platforms that assume that they can equally access male and female. Present-day platforms mainly concentrate on the efficiency of systems and overlook whether individuals have trust in relationships, thus these platforms are fundamentally tailored to the behavior of men. The outcomes are very important for West Bengal. The number of women who own phones is just 63 percent while that of men is 79 percent. Thus, in addition to the trust issue, there is a problem of basic access (Hersh et al., 2021). Just improving digital literacy or creating superior internet infrastructure cannot be effective in situations where healthcare decisions require the consent of men due to cultural practices and joint family systems (Deb et al., 2022; Sk et al., 2019; Saha et al., 2024). Effective solutions must incorporate characteristics such as a female doctor option, interfaces in the local language, methods to involve the family in the consent process, and unambiguous privacy guarantees that cater to women's requirement for trust relationships. Such a review acknowledges a number of limitations, including not many long-term studies and regional differences, but the trend remains visible. Developing going further means using the designs that are not only gender-specific but also take into account that the household power relationships influence whether women are capable of technology adoption.

Practical Recommendations

1. For Government

a. Provide smartphones free of cost or at subsidized rates to rural women can remove the access barrier.

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b. Expand 5G networks in underserved rural areas can solve the connectivity issue.

c. Make gender impact assessment mandatory for e-consultation related initiatives.

d. Include women as part of the technology design groups to ensure gender-responsive platforms.

2. For Platform Developers

a. Develop peer-led digital literacy initiatives along with workshops focused on capacity building.

b. Include added privacy features, with a clear explanation for users about its security.

c. Include female healthcare providers (husband, wife, partner) to encourage comfort for the user.

d. Include the user interface in a local language, utilizing a contextually appropriate interface for a rural environment.

e. Include trust-building features with provider credentials that are verified, as well as testimonial reviews from users of their experience.

3. For Communities

a. Start awareness activities by having dialogue sessions that engage both men and women.

b. Train community health workers to effectively implement digital health adoption.

c. Create groups for women-only to learn digital literacy in safe and contained environments.

d. Get male family members to be supporters rather than barriers.

Conclusions

The chapter dealt with the dependence of e-health adoption on trust among rural women of West Bengal and analyzed this relationship with the help of the Technology Acceptance Model. The results indicate that people trust is the most important factor even more than usefulness and ease of use. Trust is not the same for men and women. Men test the system to ensure that it is functioning correctly. Women only trust the provider, if their information is secure, and if their peers approve. This is the reason why these platforms have different effects on men and women. Rural women from West Bengal are the victims of triple barriers. They don't have digital access, are subjected to gender restrictions, and are in far-flung places. Most of the existing platforms are mainly centered on the technical aspects, and they hardly ever take into consideration the emotional side of the relationships that women would want to talk about. Future research need to explore the decision-making process of families regarding the use of healthcare technology. Technology usage perceptions are different for men and women, therefore e-consultation apps must need gender equity. Keeping this in mind, e-consultation application-makers, public institutions, and societies must collaborate to ensure that these apps are fair to women.

References:

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Department of Computer Science, Pandit Deendayal Upadhyaya Adarsha Mahavidyalaya, Amjonga, Goalpara, Assam, India

1) AbdulKareem, A. K., & Oladimeji, K. A. (2024). Cultivating the digital citizen: trust, digital literacy and e-government adoption. Transforming Government People Process and Policy, 18(2), 270–286. https://doi.org/10.1108/tg-11-2023-0196

2) An, M. H., You, S. C., Park, R. W., & Lee, S. (2021). Using an extended technology acceptance model to understand the factors influencing telehealth utilization after flattening the COVID-19 curve in South Korea: cross-sectional survey study. JMIR Medical Informatics, 9(1), e25435. https://doi.org/10.2196/25435

3) Arora, S., Huda, R. K., Verma, S., Khetan, M., & Sangwan, R. K. (2024). Challenges, Barriers, and Facilitators in telemedicine implementation in India: a scoping review. Cureus. https://doi.org/10.7759/cureus.67388

4) Dastidar, B. G., Jani, A. R., Suri, S., & Nagaraja, V. H. (2024). Reimagining India's National Telemedicine Service to improve access to care. The Lancet Regional Health - Southeast Asia, 30, 100480. https://doi.org/10.1016/j.lansea.2024.100480

5) Deb, D., Das, A. K., Kameswari, B., & Sarkar, A. P. (2022). Changing trends of maternal mortality in a rural medical college in eastern India: a 23-Year Retrospective study. Journal of Clinical and Diagnostic Research. https://doi.org/10.7860/jcdr/2022/57151.17053

6) Dhagarra, D., Goswami, M., & Kumar, G. (2020). Impact of trust and privacy concerns on technology acceptance in healthcare: An Indian perspective. International Journal of Medical Informatics, 141, 104164. https://doi.org/10.1016/j.ijmedinf.2020.104164

7) Esmaeilzadeh, P. (2019). The impacts of the perceived transparency of privacy policies and trust in providers for building trust in health information Exchange: Empirical study. JMIR Medical Informatics, 7(4), e14050. https://doi.org/10.2196/14050

8) Gupta, A., Chandrakar, A., & Galhotra, A. (2025). Digital Health Literacy and Women in India: Bridging the chasm for a Healthier Tomorrow. Healthline, 16(2), 79–83. https://doi.org/10.51957/healthline_747_2025

9) Hersh, S., Nair, D., Komaragiri, P. B., & Adlakha, R. K. (2021). Patchy signals: capturing women's voices in mobile phone surveys of rural India. BMJ Global Health, 6(Suppl 5), e005411. https://doi.org/10.1136/bmjgh-2021-005411

10) Hood, M. M., Kapoor, V., Sawhney, G., & Singh, H. (2024). India's Vision of a Healthy and Developed Nation from the Perspective of the Healthtech Industry. Journal of Research in Business and Management, 12(8), 127–132. https://doi.org/10.35629/3002-1208127132

11) Kamal, S. A., Shafiq, M., & Kakria, P. (2019b). Investigating acceptance of telemedicine services through an extended technology acceptance model (TAM). Technology in Society, 60, 101212. https://doi.org/10.1016/j.techsoc.2019.101212

12) Moulaei, K., Moulaei, R., & Bahaadinbeigy, K. (2023). Barriers and facilitators of using health information technologies by women: a scoping review. BMC Medical Informatics and Decision Making, 23(1). https://doi.org/10.1186/s12911-023-02280-7

13) Narayan, A., Bhushan, I., & Schulman, K. (2024). India's evolving digital health strategy. npj Digital Medicine, 7(1). https://doi.org/10.1038/s41746-024-01279-2

14) Raj, G. M., Dananjayan, S., & Agarwal, N. (2023). Inception of the Indian Digital Health Mission: Connecting the Dots. Health Care Science, 2(5), 345–351. https://doi.org/10.1002/hcs2.67

15) Russo, C., Romano, L., Clemente, D., Iacovone, L., Gladwin, T. E., & Panno, A. (2025). Gender differences in artificial intelligence: the role of artificial intelligence anxiety. Frontiers in Psychology, 16. https://doi.org/10.3389/fpsyg.2025.1559457

16) Saha, P., Prusty, A. K., & Nanda, C. (2024). Extension strategies for bridging gender digital divide. Journal of Applied Biology & Biotechnology. https://doi.org/10.7324/jabb.2024.159452

17) Sarkar, A., & Raj, P. (2024). Assessment of healthcare infrastructure during the COVID-19 pandemic in West Bengal, India. Humanities & Social Sciences Reviews, 12(2), 33–43. https://doi.org/10.18510/hssr.2024.1225

18) Saxena, S., Arsh, A., Ashraf, S., & Gupta, N. (2023). Factors Influencing Women's access to Healthcare Services in Low- and Middle-Income Countries: A Systematic Review. NURSEARCHER (Journal of Nursing & Midwifery Sciences). https://doi.org/10.54393/nrs.v3i02.47

19) Sk, M. I. K., Paswan, B., Anand, A., & Mondal, N. A. (2019). Praying until death: revisiting three delays model to contextualize the socio-cultural factors associated with maternal deaths in a region with high prevalence of eclampsia in India. BMC Pregnancy and Childbirth, 19(1). https://doi.org/10.1186/s12884-019-2458-5

20) Yan, M., Zhang, M., Kwok, A. P. K., Zeng, H., & Li, Y. (2023). The Roles of Trust and Its Antecedent Variables in Healthcare Consumers' Acceptance of Online Medical Consultation during the COVID-19 Pandemic in China. Healthcare, 11(9), 1232. https://doi.org/10.3390/healthcare11091232

21) Yang, H. J., Lee, J., & Lee, W. (2025). Factors influencing healthcare technology acceptance in older adults through TAM and UTAUT: Meta-Analysis. (Preprint). Journal of Medical Internet Research, 27, e65269. https://doi.org/10.2196/65269

22) Yadav, D., Bhatia, S., Ramam, M., Singh, V., Khanna, N., Khandpur, S., & Gupta, V. (2022). Patient perception and satisfaction with a smartphone-based teledermatology service initiated during the COVID-19 pandemic at a tertiary care hospital in North India. Indian Journal of Dermatology Venereology and Leprology, 88, 623–632. https://doi.org/10.25259/ijdvl_608_2021