Educational Administration: Theory and Practice
2024, 30(1), 7059-7064
ISSN: 2148-2403
https://kuey.net/

Research Article

Impact of Technological Changes on Health Insurance Adoption in Rural Areas

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Citation: Prof Balkrishna Salunkhe, et al (2024). Impact of Technological Changes on Health Insurance Adoption in Rural Areas, *Educational Administration: Theory and Practice*, 30(1) 7059-7064
Doi: 10.53555/kuey.v30i1.10272

ARTICLE INFO

ABSTRACT

Technological changes are affecting how rural people learn about, get health insurance and use it. As mobile phones and online platforms become more common, rural users have more health information, price options and plan choices than ever before. Tech tools are used by many state and private schemes to reach far flung areas, communicate details in local languages and speed enrolment'. In India, mobile-based tools e-wallets and telemedicine platforms make health insurance visible and usable in the rural parts. Still mixed results. Some users experience poor signals, low digital skill and fear fraud. Trust can slip if the tool is hard to use or the message unclear. Some users will avoid signing up due to previous misuse or unclear rules. Others may provide face-to-face help that digital tools cannot offer. Firms & state bodies now track how rural users react to tech tools. They check app use, time spent & follow-up steps. Tools might show which steps confuse users or where people drop off. These checks improve design & timing. To drive adoption uptake, tools must meet local need. The tool must be simple, the message clear and the support must be strong. Tech should guide users instead of replacing human help. In other words, technology can increase adoption if firms plan for trust, access and skill gaps. Smart, clear and local first: Building use and trust in rural health insurance.

Keywords- Health Insurance, Technology On health Insurance, Rural are health Insurance

Introduction

People learning about and accessing health services are changing slowly in Indian rural areas. Most significant are changes due to technology in public and private health systems. Where physical gaps, staff shortages and weak public health support shaped earlier access, technology opens new doors. This change most clearly shows up in how rural users share, explain and use health insurance.

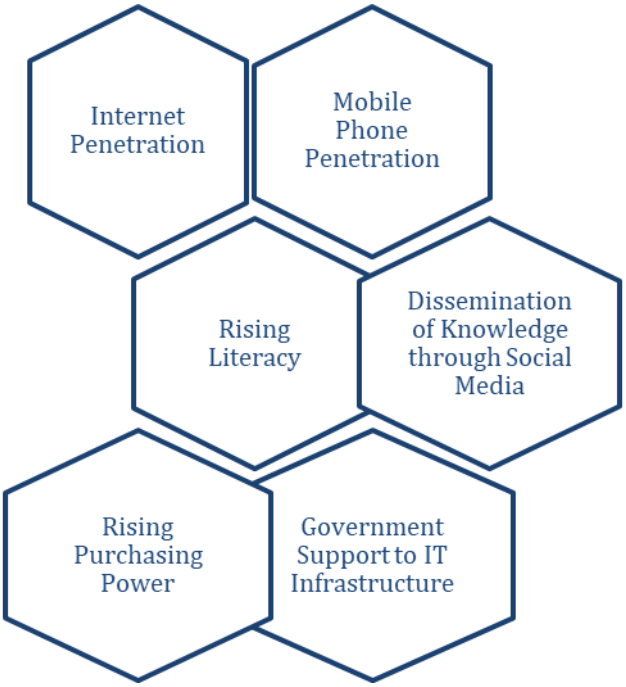
According to Haggstrom et al. (2019), low health insurance has often been a result of low awareness, trust gaps and hard sign-up steps in rural areas. Numerous people don't know what health insurance covers, how you can use it or when it helps. Some fear losing money. Others think it's too complicated. Long forms, few local offices and slow service hampered adoption. But new technology tools try to plug those gaps. Mobile phones, digital ID checks and local apps are used to deliver clear health messages, track sign-ups and shorten wait time. State and private firms now offer insurance in rural homes through digital channels. Most plans provide SMS alerts / voice messages / health portals in local language. These tools show you the cost, steps and claims. Others use call support, or trained workers who bring mobile tools to villages. Users can sign up, track status and ask for help now without traveling.

And yet all this increased tech use has mixed results. Access has improved, but real adoption depends beyond tools. Many rural users are not digitally skilled. Some cannot read or trust the screen. If the tool is user friendly, the user might not know what button to push. In those instances, they stop halfway through. Others may worry the tool is safe or that their data will be abused. For many first-time users trust remains low. Found by Alem and Broussard 2018 Firms and policy groups now try to determine how to make those tools work better. They

test what parts confuse users, which steps drop-off and which voice creates trust. Some tools even track use in real time. They track how many people open that message, just how long they remain there and the things they do next. Digital trails let teams know where users pause and why. Tools also check which features get increased use. Some find users behave more when shown short clips in local dialect. Others gain when tools provide offline steps following online prompts. This shows that rural users want mixed models with people as well as tech. The focus now shifts to hybrids models. These mix face to face tech support. One model has local health workers using mobile tools. The guides help users' complete forms and solve doubts. The app reveals to them where the user got stuck so they could help fast. Another model involves kiosks in common areas manned by help staff. Those combine local trust with digital speed.

Kamal, Shafiq, and Kakria (2020) found out that, most phones are used in rural India, but not all phones are smart. So, some tools use simple codes and voice lines. Call-backs can happen because of a missed call. A short code may link local help. These steps are cheap and low tech. Such steps seem safe to many first users.

But firms must check how users see the tech. The voice in the tool may be too fast or too formal, so users may skip it. Many will not use it if it gives only steps. Tools must speak like people. They should match tone, speed and word use. Insurance plans also should be clear. Users won't sign up in case they do not know what the plan is. A tool sending alerts is no help if the message is not clear. Some users think that insurance means fixed help. Some think it works in cities only. Those false ideas must stop. Digital literacy training might help. Some firms hold small group meets to teach apps. Those include reading a message or link or filling in a form. People learn faster in safe groups that try the tool. They also help one another. Trust also grows when tools connect to people. A worker who is known to the user increases trust for the tool. If the user asks a question and gets a response, they feel heard. Tools which provide one-way talk fail badly. Two-way tools increase trust. Figure 1 presents the factors supporting growth of technology in rural India:



Source: Authors' Own Work

Figure 1 Factors Supporting Growth of Technology in Rural India

Firms also must plan for repair. And if it fails or displays a wrong prompt, users may quit the app permanently. Once the claim fails, users can not try again. Hence, systems must work fine and be fixed quickly. Tools must show when a step was completed / when a claim was sent / what happens next. How tools use data also shapes trust. Users must know what is stored, who sees it and how it helps. Use of hidden data damages trust. Built by open use. A line that reads "This data helps us make faster claims" makes people feel safe. To increase adoption, firms must also check tone. Most tools sound too formal. Some sounded like ads. This tone does not work in rural talk. The users want a tone that feels like a friend, not a pitch. Some apps use local voice actors. Others use stories instead of facts. These changes help. Timing affects use as well. Messages from a health tool that go out at the wrong time-like during farm work - might not be visible. If it arrives at night, read with family. That makes a difference.

Tools should also respect choice. If someone says no, the tool must stop. The tool must get the user a paper copy if he wants one. Tools feel like a push - users drop out. Users stay when tools are helpful. In some places, tech raised both signups and claims. Users that learn once then help others. This peer use creates local trust. This reduces costs too. A trained user requires less help & helps others. This builds growth. Still, gaps remain. Women, old users, and low-income groups use tools less. Most lack phones and have poor credit. Tooling must

plan for these users. Shared phones, group help/offline steps should fix this. Firms that fill these gaps now could lead. Those who just push tools without support might fail. And the tool is not the goal. That's a step. What is important is that the user understands, acts and trusts.

Bokolo (2021) explored that long term health tools must evolve with the user. It is up to them to learn from use, tone changes, and patch up the weak spots. Some firms build feedback into the tool. Users rate steps, mark errors, or send tips. The tool grows in this loop. India's rural space is vast, diverse and dynamic. No one tool fits all. But tech can bring health insurance into more homes - with the right plan, the right voice - and the right care. The task is great, but the way is clear: Trust, tone & time. Firms that build tools with these in mind will shape user steps as well as public health. Work begins with one user, one screen, one reply. But it can grow into a system that serves everyone, with care.

Literature review

Rising mobile phone usage in rural India has altered how people obtain medical insurance. With smartphones, far more people can go shopping for, compare and even manage health insurance policies from home. Mobile technology means less trips to far-off offices, lines in the bank or dependence on agents. That makes insurance more accessible to users who looked at it as slow, costly or even confusing. Mobile apps now provide plan explanations in simple steps, compare various policy types and help with enrolment. Several apps even show premium costs, payment times and claim status in real time too. For rural users this saves time & costs and the procedure is simpler to follow. Many apps support regional languages, have voice instructions and offline modes for locations with bad networks.

According to Reich et al. (2016), SMS alerts along with missed calls in addition help the low digital skill users. Users receive updates on enrolment deadline, claim progress or document needs. Such support creates trust and enhances the user experience. Some state-backed schemes link mobile numbers with ID evidence to speed enrolment and cut mistakes. Mobile access does not close all gaps, however. Users should also know the content, trust that source and understand the way to react. However, with excellent design, clear tone and user training mobile platforms can be a practical and low-cost way to boost awareness and adoption. To put it briefly, mobile technology helps rural folks get health insurance. It brings info closer, steps simpler and supports users in all stages. Mobile tools - matched to local needs - turn awareness into action and pave the way for broader health coverage.

Telemedicine has turned into a mainstream in rural care. It lets people far away speak with physicians by video or phone without having to travel or wait. More individuals make use of these services also learn about health and financial cover. This has raised awareness of health insurance.

As per Gajarawala and Pelkowski (2021), in most villages people do not visit clinics due to cost, distance or lack of doctors. However, by telephone call or video link they can speak to trained staff. In those calls, health workers also explain delays can be dangerous, early care is required and insurance can assist with treatment costs. These chats make people realize that health issues occur without warning and that insurance helps when it matters most. Some telemedicine apps incorporate health insurance prompts. The app might provide protection against hospital bills following a call. It might also be linked to state-supported or free plans. This link between care and cover builds user understanding. Users no longer see insurance as being a paper job but as part of a health path. In certain places, local personnel also work with telehealth for case tracking and follow-ups. They explain how claims work, what plans cover & in which you can get assistance. This person-led support builds trust in the system as well as the insurance. In a nutshell, telemedicine educates more than illness - it treats. It demonstrates to users what care is and why planning is vital. More rural users hear about costs from physicians and find out the insurance. This learning in real time and with real need changes views. Telemedicine thus becomes 'a bridge'not just to doctors, but to health planning via insurance.

Zobair et al. (2020) found out Artificial Intelligence (AI) in claims processing has considerably improved how simple and quick health insurance works - primarily in rural areas. Previously, many rural users encountered delays, unclear regulations and longer waits to claim insurance. These gaps produced distrust and low repeat usage. AI tools now speed up checks, flag mistakes early and guide quicker settlements. AI systems scan documents match claim data & track claim status live. Which helps insurers process claims in days instead of weeks. For rural customers who might depend on quick hospital bill payment, that speed matters. It lowers stress, reduces travel for follow up and increases faith in the system.

Hoque and Sorwar (2017) emphasized Some platforms also send claim update via SMS or mobile apps. Users see when a claim received, approved or paid. This clear flow reduces confused and helps users plan. If there's a gap, AI tools alert the user and firm. This fast feedback loop avoids lengthy hold ups & saves time. AI also sorts simple claims from complicated ones. Easy cases get approved quickly while tricky cases get flagged for manual check. This keeps the system fair & fast. AI also spots false claims and reduces fraud to keep costs low for all users. In rural areas where trust is built slowly on actual use, fast claims count. Users who see that insurance works stay in the system longer and tell others. In a nutshell, AI makes claims simple, clear and fast. This changes so a lot more rural users see insurance as a support and not a risk. It builds trust - which drives adoption.

According to Ramesh, Mohan, and Menon (2016), rural users have learned to make use of phones, apps and internet products via government and non-government electronic literacy programmes. These programs teach

how you can start a browser, read messages, fill in forms and make safe payments. For most very first users this particular training gives them the confidence to use health tool themselves. Previously, rural users depended on middle agents or encountered barriers when utilizing digital health platforms. They had been unsure how to check plan details, compare offers, or complete enrolment. Thanks to digital literacy drives more people understand how to log onto mobile apps to learn about health insurance, check premium costs or even track policy status. This skill allows them to choose responsibly without outside assistance. These programs also teach users to spot fake sites, read terms clearly and get assistance when stuck. It makes users more alert and careful. Understanding the way the system works decreases fear of fraud or loss. This trust drives increased adoption and lower dropouts.

As per Kruse et al. (2016), in most places, trained users also help other people. A digital literacy course completion might help relatives or neighbours with coverage selection or online claims. Such peer support spreads awareness quickly and produces a locally informed user base. Digital literacy also opens other health services including telemedicine e-pharmacie, health alerts etc. When users figure out how to use one tool they will try others. So, one skill leads to a broader adoption of the health system. In short, digital literacy enables rural users to make choices. They have more skill and less fear so they can go shopping for, evaluate and buy health insurance plans which suit them. Blockchain technology is altering just how health insurance data is kept and shared. For rural people worried about privacy, fraud or misuse of individual details, blockchain is a safer method of controlling health records and claims. Every data entry is a block, time stamped and connected with another in a fixed chain. The data cannot be changed once added without approval. This builds protection and reduces tampering risk. Fear of sharing personal documents or health history accounts for low trust in digital - insurance in rural areas. Users who think their data could be noticed, lost or misused avoid enrolment. Blockchain solves this with clear records, safe storage and full user control. Users can track where their info goes, who receives it and why. This transparency creates confidence.

The National Academies of Sciences, Engineering, and Medicine (2018) found out Blockchain also eliminates middle agents from the equation, lessening fraud and wrong claims. Users no longer have to carry files or stop by numerous offices. Their records are kept safe and only shared with permission. This can make the system quicker, safer & simpler to operate. It also helps insurance providers. They can process claims quicker, eliminate duplicate records & track policy use over time. This helps reduce cost and improves service. A few pilots in India are testing blockchain in public health systems. These include linking Aadhaar with hospital records and insurance data. It is a platform that rural users can trust - it is a secure platform.

Basically, blockchain lays down the foundation of digital health insurance. More rural users join and stay when they feel their data is private and safe. This makes blockchain an important instrument for trust building and adoption in rural health schemes. Chatbots powered by AI are altering how rural users use health insurance platforms. These digital assistants provide help around the clock, with no offices or humans required. Rural users who lack in-person help may find chatbots an easy and reliable way to learn about health insurance.

Saeed and Masters (2021) found that many rural users are first time insurance buyers. They want to find out what the plan is, how you can sign on and how to claim. These doubts usually occur outside office hours. Asking questions in any language with AI chatbots means getting simple, clear answers in your preferred language. Such 24/7 help increases user confidence & reduces confusion & delay. Chatbots also walk users through enrolment too. They explain terms, upload documents and confirm submission. Some sophisticated bots even check that all form fields are filled in correctly before sending the application.

For claims processing, chatbots show claim status, deductions & live updates. At this level of support users feel informed and in control. It also means no longer do you call agents or go to offices for simple queries. Areas with low literacy rates even get access via voice-enabled chatbots. Users ask questions and hear responses via speech. Chatbots also gather user feedback - which helps firms improve service quality and iron out pain points. The chatbot learns from each interaction though, so it's more accurate and useful over time. Basically, AI-powered chatbots plug the support gap in rural health insurance. They make systems accessible, reduce delays and support users at every step. This helps build trust and adoption.

In rural India government led programs like Ayushman Bharat have hugely increased health insurance access. Through digital platforms these schemes have also facilitated identification of eligible families, on-boarding of users in addition to enrolment and speedier and accurate policy management. Technology reduces errors, cuts through the middle layers and gets benefits to the right people. Users are matched with health IDs / Aadhaar / and other public databases using digital tools provided by Ayushman Bharat. It enables fast checks of eligibility and shortens the time to enrol. Beneficiaries receive digital cards to be used at approved hospitals that provide services for free. In this model there are no complex forms or multiple visits required for rural users.

With mobile apps plus online portals folks can check eligibility; see hospital lists; and track claims. Field workers carry tablets and apps to help those who may have trouble using the digital tools themselves. This fusion of technology and local help creates trust and participation. Digital tracking also helps prevent fraud and monitor policy use. Hospitals enter patient data in real time which is reviewed by the system. This reduces the risk of fake claims and speeds up payments. In addition to that, awareness drives using government apps, SMS alerts and village-level health workers tell people about the scheme. Such tools let anyone who has low literacy or digital skills get help.

According to Mbunge et al. (2022), tech-enabled government programs broaden rural health insurance. Combining digital tools with ground level support, such schemes make health cover more easily accessible,

reliable and trusted - setting the stage for better public health in rural India. This shift toward digital health records has changed how insurers assess risk. And in rural areas where health data was often missing or kept on paper, digital systems now collect and store records in a secure and structured way. This change lets insurers know how users are doing and provide plans that meet their needs.

Insurers can use digital health records to determine medical history, past treatments and risk for a person. This avoids guesswork & gives you more accurate pricing. For instance, somebody without serious health problems would get a low premium, and sick people would get a plan with more support for follow-up care. So, insurance feels fair to the user and useful.

As per Miah, Hasan, and Gammack (2017), In rural areas, e-record based tailored plans build trust. Users who see the plan fits their health needs and budget are more likely to enrol and stay. It also lowers rejection of claims, because both sides have the same record of facts. The e-records also save time and money by avoiding repeat tests. Government programs as well as rural clinics are now linking patient records to state databases. Some also let users carry digital records by mobile app or smart card. They help users monitor their own health and share records when needed.

Hossain et al. (2019) found that E-records also help with better care in the long term. They help doctors spot trends, suggest early steps and provide better advice. Users benefit more when health cover goes well with care. Essentially, digital health records allow insurers to sell better plans and consumers to shop smarter. As care is linked to cover, e-records promote trust and adoption in rural health insurance systems.

Conclusion

Technological change is gradually changing how rural India adopts & uses health insurance. Mobile apps, AI chatbots, blockchain & telemedicine make enrolment, claims & support faster & safer. Government-led digital initiatives and training also are helping users become familiar with the systems. Users become more aware of risks, of support options and of insurance as a practical step rather than a complicated requirement. Still, digital access, literacy and trust are gaps that persist. Success is local fit - tools need to use clear language, simple steps & link with human help. The best systems are those that combine tech with care, speed with support, and data with privacy. If firms and governments remain focused, rural users will use insurance - they will trust it - and share it. This shift could bring better health protection to India's villages.

References

1. Alem, Y., & Broussard, N. H. (2018). The impact of safety nets on technology adoption: a difference-in-differences analysis. *Agricultural economics*, *49*(1), 13-24.
2. Bokolo, A. J. (2021). Exploring the adoption of telemedicine and virtual software for care of outpatients during and after COVID-19 pandemic. *Irish Journal of Medical Science (1971-)*, *190*(1), 1-10.
3. Gajarawala, S. N., & Pelkowski, J. N. (2021). Telehealth benefits and barriers. *The Journal for Nurse Practitioners*, *17*(2), 218-221.
4. Haggstrom, D. A., Lee, J. L., Dickinson, S. L., Kianersi, S., Roberts, J. L., Teal, E., ... & Rawl, S. M. (2019). Rural and urban differences in the adoption of new health information and medical technologies. *The Journal of Rural Health*, *35*(2), 144-154.
5. Hoque, R., & Sorwar, G. (2017). Understanding factors influencing the adoption of mHealth by the elderly: An extension of the UTAUT model. *International journal of medical informatics*, *101*, 75-84.
6. Hossain, A., Quaresma, R., & Rahman, H. (2019). Investigating factors influencing the physicians' adoption of electronic health record (EHR) in healthcare system of Bangladesh: An empirical study. *International Journal of Information Management*, *44*, 76-87.
7. Kamal, S. A., Shafiq, M., & Kakria, P. (2020). Investigating acceptance of telemedicine services through an extended technology acceptance model (TAM). *Technology in Society*, *60*, 101212.
8. Kruse, C. S., Kristof, C., Jones, B., Mitchell, E., & Martinez, A. (2016). Barriers to electronic health record adoption: a systematic literature review. *Journal of medical systems*, *40*, 1-7.
9. Mbunge, E., Batani, J., Gaobotse, G., & Muchemwa, B. (2022). Virtual healthcare services and digital health technologies deployed during coronavirus disease 2019 (COVID-19) pandemic in South Africa: a systematic review. *Global health journal*, *6*(2), 102-113.
10. Miah, S. J., Hasan, J., & Gammack, J. G. (2017). On-cloud healthcare clinic: an e-health consultancy approach for remote communities in a developing country. *Telematics and Informatics*, *34*(1), 311-322.
11. National Academies of Sciences, Medicine, Medicine Division, Board on Global Health, & Committee on Improving the Quality of Health Care Globally. (2018). Crossing the global quality chasm: improving health care worldwide.
12. Ramesh, M. V., Mohan, R., & Menon, S. (2016, October). Live-in-Labs: rapid translational research and implementation-based program for rural development in India. In *2016 IEEE global humanitarian technology conference (GHTC)* (pp. 164-171). IEEE.
13. Reich, M. R., Harris, J., Ikegami, N., Maeda, A., Cashin, C., Araujo, E. C., ... & Evans, T. G. (2016). Moving towards universal health coverage: lessons from 11 country studies. *The Lancet*, *387*(10020), 811-816.

14. Saeed, S. A., & Masters, R. M. (2021). Disparities in health care and the digital divide. *Current psychiatry reports*, *23*, 1-6.
15. Zobair, K. M., Sanzogni, L., & Sandhu, K. (2020). Telemedicine healthcare service adoption barriers in rural Bangladesh. *Australasian Journal of Information Systems*, *24*.