

FROM MANUALS TO MOBILE:

Digital Literacy and Technology Adoption
Among India's Community Health Workers



Author:

Tanvi Anand, Associate - Knowledge Management

Keshav Sahani, Chief Strategy Officer, Digital Health

Acknowledgement:

Chandrika Bahadur, CEO



EXECUTIVE SUMMARY

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Community Health Workers (CHWs) are central to India's public health system, particularly in ensuring that maternal and child health services reach areas that are otherwise difficult to access. As trusted members of their communities, CHWs play a vital role in improving healthcare access, continuity of care and early intervention for vulnerable populations.

In recent years, digital tools, ranging from mobile applications for service tracking to interactive voice response (IVR) based training platforms, have emerged as powerful enablers of CHWs' performance. These tools hold tremendous potential for improving service coverage, enhancing data quality and streamlining reporting. However, their adoption on the ground remains uneven and highly dependent on how they are introduced, designed and supported.

This research explores the experiences of CHWs engaging with digital tools and unpacks the behavioural and systemic factors that shape adoption. Drawing on field insights, programmatic data, case study analysis and findings from the Akshita Baseline Study conducted in Madhya Pradesh, this study offers a grounded, human-centred view of India's digital transition at the frontline.

Key findings reveal a landscape of both challenge and promise. Most CHWs own smartphones but often share them with family members or rely on outdated devices. Digital literacy among CHWs varies widely due to generational differences, educational disparities and regional constraints. Although one-time trainings are quite common, they rarely equip CHWs with sustained confidence, especially when the tools are complex or poorly suited to their actual workflows. The burden of maintaining both digital and paper records, coupled with high data costs, usability barriers and a lack of real-time support, discourages sustained engagement.

Yet, where digital tools succeed, common enablers stand out. CHWs are more likely to adopt technology when tools are intuitive, available in local languages and capable of functioning offline. Hands-on, peer-based training sessions that are reinforced over time strengthen confidence and encourage consistent use of tools. Where formal support systems are weak, CHWs rely on informal networks, like WhatsApp groups, to get quick guidance and troubleshoot problems as they arise. Programs that actively involve CHWs in decision-making,



respect their feedback and minimize duplication of effort tend to see higher motivation and uptake.

Many CHWs are increasingly moving beyond basic usage to become peer mentors, co-trainers, and digital champions within their communities. Their growing comfort with digital tools is not only improving service delivery but also reshaping their professional identity, enhancing their social recognition and building long-term capacity within the system.

For digital health tools to truly empower CHWs at scale, a shift in mindset is required. Technology must not be introduced as a compliance tool but as a job aid that values CHWs' time, autonomy and judgment. Training needs to move beyond one-off sessions and evolve into an ongoing process of diverse learning and support. Digital tools should be co-developed with CHWs, adapted to low-resource realities and linked with the broader health systems to avoid overlap and exhaustion. Supervisors should function as enablers rather than gatekeepers.

While this study focuses on CHWs, these insights are relevant to frontline workers across the development sector. With India's digital ecosystem rapidly expanding, its success will heavily depend on how user-friendly, scalable and inclusive these systems become. When CHWs are placed at the centre of digital innovation, the result is not only improved adoption but a stronger and more responsive public health system.



INTRODUCTION

1. INTRODUCTION

“It is 10 AM in a rural village in Madhya Pradesh and Amina, a 32-year-old CHW, is already on her way to visit an expecting mother. With her cloth bag on her shoulder, she reaches into it for her phone, a device she recently purchased after months of saving. Having studied until the 10th grade, she is comfortable with basic reading and writing but has had limited exposure to digital technology. The health department has introduced a new maternal health app for tracking antenatal care visit but Amina is still familiarizing herself with its features. The icons seem confusing. She is also unsure if she has enough mobile data to sync the reports. Last night, her son borrowed the phone to watch videos and now the battery is low. She sighs, making a mental note to check with her supervisor later. Digital tools have immense potential to support her work and with the right guidance, she is confident she can make the most of them.”



Amina's experience reflects the broader shift taking place in India's healthcare delivery system. Digital tools are gradually becoming an integral part of everyday work for CHWs across India. National and state programs are pushing this change with strong intent. For these efforts to sustain, CHWs need continuous training, steady guidance and proper support to utilise them to the fullest.

This research explores how CHWs in India are experiencing the shift to digital tools including what enables adoption, what holds them back and what systemic changes can strengthen their digital engagement. By examining both structural and behavioural factors across regions and initiatives, the study aims to generate actionable insights to make digital health systems more empowering for frontline workers.

1.1 Understanding the Landscape

1.1.1 The Role of CHWs in Public Health

Community Health Workers (CHWs) form an integral part of the Indian rural health system, serving as a bridge between formal healthcare institutions and underserved communities. In the Indian context, CHWs primarily include Accredited Social Health Activists (ASHAs), Anganwadi Workers (AWWs) and Auxiliary Nurse Midwives (ANMs), all of them being female frontline workers who provide essential health services in rural areas.

They operate within local communities to deliver maternal and child health support, promote disease prevention and raise health awareness. They are often the first and only point of contact with the healthcare system for them.

CHWs became an official part of India's public health system with the launch of the ASHA program in 2005 under the National Rural Health Mission. This step was taken to address the limited availability of medical personnel, including doctors and nurses, in delivering healthcare in remote regions.

The government envisioned a system where locally selected women could mobilize communities, deliver key health messages and connect households to government services. Their roles and responsibilities have, however, expanded over time. CHWs now conduct home visits, monitor and track pregnancies, promote institutional deliveries and support newborn care, often while working with minimal resources. ASHAs alone have been credited with increasing institutional deliveries from 47% in 2005 to about 80% in recent years.¹

As the health system has evolved, so has the role of CHWs - from behaviour change communicators to data collectors, service providers and digital intermediaries. Their growing responsibilities have made digital tools both an opportunity and a burden, depending on how thoughtfully they are implemented.

1.1.2 The Rise of Digital Health and Its Promise

Digital health refers to the use of mobile technology, telemedicine, electronic health records and artificial intelligence to improve healthcare delivery. The World Health Organization recognizes digital health as a key driver for Universal Health Coverage (UHC), particularly in low-resource settings where access to healthcare facilities is limited.²

¹<https://mohfw.gov.in/sites/default/files/3201617.pdf>

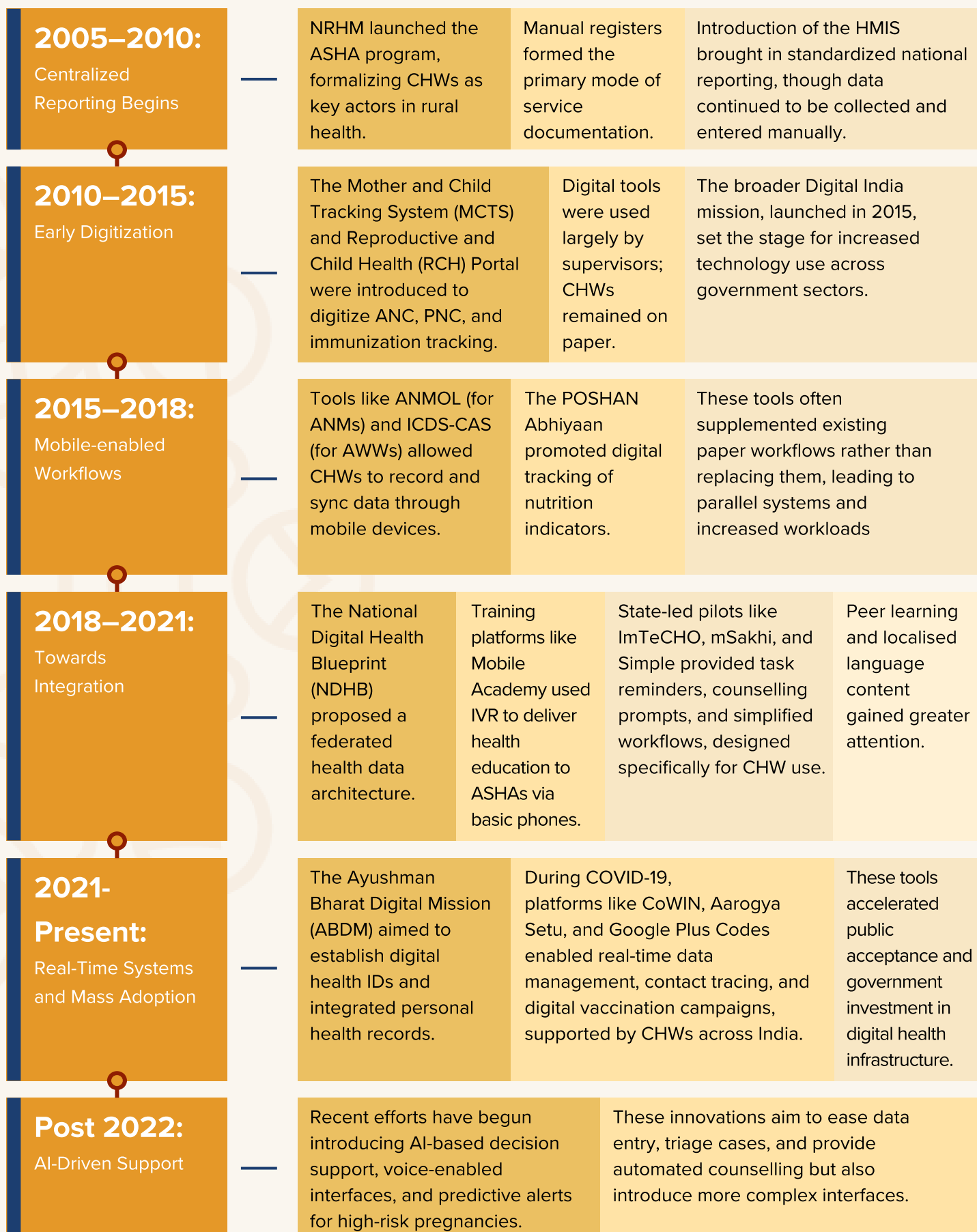
²<https://www.who.int/docs/default-source/documents/g4dhdad2a9f352b0445bafbc79ca799dce4d.pdf>



Health workers across India continue to rely heavily on extensive manual record-keeping to track service delivery. ANMs typically maintain service delivery registers (SDRs) with over 20 tables to document antenatal care, immunization and other maternal and child health services.³ AWWs are still responsible for nearly 11 different registers to monitor child nutrition, growth and preschool education.³ Additionally, labour room staff manage separate registers for deliveries, maternal outcomes and stock tracking. These paper records continue to be the starting point. The next steps include compiling of entries to prepare summary reports which are then fed into centralized systems such as the Health Management Information System (HMIS) to monitor key indicators. Even with growing digitization, most mobile and web-based tools function as add-ons to these registers rather than replacing them completely. This usual system has led to duplication of work, increased administrative burden and limited efficiency gains.

³<https://chwcentral.org/indias-auxiliary-nurse-midwife-anganwadi-worker-accredited-social-health-activist-multipurpose-worker-and-lady-health-visitor-programs/>

India's digital health journey has undergone significant evolution over the last two decades. The key phases below illustrate how flagship programs have shaped this evolution:





METHODOLOGY

2. METHODOLOGY

One evening, Amina sits with her supervisor, trying to understand the latest health tracking app. But as she scrolls through the unfamiliar interface, she wonders: Did others also struggle like this?



This study seeks to answer this question by examining how CHWs experience, adopt and navigate digital tools in their day-to-day work. It combines literature review, program insights and contextual data from field research to understand better the systemic and behavioural factors that shape digital uptake at the last mile.

The study is anchored around several use cases, including mobile applications for tracking, telemedicine and remote consultations as emerging service delivery models as well as digital training platforms for capacity-building and data collection and reporting tools, that CHWs rely on for service delivery.

To analyse these aspects, we employ:

- **Secondary Research & Literature Review:** Examining studies, reports, and program evaluations to assess related government initiatives and mobile-based learning programs, mapping known barriers and enablers of digital adoption.
- **Case Study Analysis:** Investigating real-world scenarios to understand the practical challenges and successes of CHWs engaging with digital health tools.
- **Primary Data from PCC Baseline Study (2025):** Based on a study undertaken by Population Council Consulting (PCC) in two districts of Madhya Pradesh, namely Morena and Chhindwara. Commissioned by The Antara Foundation (TAF) as a part of their Akshita Program, the research collected field evidence on CHWs' access to smartphones, digital engagement and key obstacles to adoption.

By weaving together field-level insights, national analysis and Amina's day-to-day realities, this research aims to capture a human-centred perspective on how digital tools can become both usable and scalable in reach for CHWs.



FINDINGS

3. FINDINGS

As Amina sits on a wooden bench outside a health centre, she scrolls through the app on her phone, retracing her steps from the morning. She recalls her struggle to sync data during the home. Her supervisor reassures her that she is not alone; many CHWs experience difficulties with digital tools. Amina listens closely, realizing that the challenges she encounters are part of a larger pattern.



3.1 The Digital Landscape CHWs Navigate

For most CHWs in India, adopting digital tools is not just about navigating software. It requires dealing with poor connectivity, devices that are not always their own and bridging the digital divide that exists between diverse age groups.

3.1.1 The Digital Reality of CHWs: Ownership vs. Usability

Around 95% of CHWs in India now report having a smartphone.⁴ However, the reality behind this number is far more complicated. In many households, the phone is a shared resource, usually controlled by male members, leaving CHWs with limited time to use the device. They often use outdated or malfunctioning hand-me-down devices which limit their ability to use health applications efficiently.

The findings from the Akshita baseline study further reinforced this. While 80–90% of women including CHWs reported access to smartphones, actual usage was limited to phone calls and WhatsApp. Only a few engaged in internet-based tasks or used health apps consistently. Frequent battery drains, poor device quality and the absence of dedicated access continued to impede meaningful digital engagement.

⁴https://gh.bmj.com/content/bmjgh/6/Suppl_5/e007298.full.pdf

Amina echoes this experience: “It is my phone but everyone in the house uses it. If it breaks, I just wait until someone can help me fix it.”

3.1.2 Educational Disparities & Regional Variability

Beyond basic literacy, digital engagement requires numeracy and comprehension skills, as well as confidence and other skills that CHWs often struggle with, due to limited prior exposure.

While Amina can follow step-by-step instructions, she finds data entry and troubleshooting daunting.

CHWs, especially those from older cohorts or tribal communities often face similar difficulties.⁵

Comfort with digital tools varies across age groups. Older CHWs are less inclined to explore new apps on their own and usually turn to younger people for guidance. This pattern reinforces dependence and limits opportunities to build confidence.⁶

Regional factors further exacerbate these challenges. For instance, CHWs have adapted to tools like NCD apps⁷ in Madhya Pradesh. However, frequent data synchronisation delays force them to maintain offline records, thereby reducing efficiency.⁸ In Jharkhand, the absence of interfaces in Santhali and other local languages creates barriers to digital adoption.⁹ Similarly, in states like Meghalaya, difficult terrain and weak infrastructure often limit network access, reducing the utility of digital tools in isolated pockets.¹⁰

3.1.3 Challenges in Digital Engagement

Even with widespread smartphone access, digital engagement among CHWs continues to face hurdles due to the following reasons:

- **Network & Data Constraints:** Unstable network makes data entry and record sharing difficult in rural areas. Field observations in Chhindwara revealed that frequent disruptions forced workers to re-enter data or rely on paper notes. Many tools lacked an offline syncing feature which resulted in data loss and redundant work. As a result, CHWs often relied on paper records, compromising the effectiveness that digital solutions had promised.¹¹ High mobile data costs, often borne out-of-pocket by CHWs, further discourage consistent use.

⁵<https://www.ruralhealthinfo.org/toolkits/health-literacy/2/digital-literacy>

⁶<https://www.kcdigitaldrive.org/project/community-health-workers/>

⁷NCD apps refer to digital tools that assist health workers in screening and managing non-communicable diseases such as diabetes and hypertension.

⁸<https://rthresources.in/conversations-on-health-policy/digitization-of-health-services-part-ii-designing-health-information-systems-that-are-fit-for-purpose/>

⁹<https://intelehealth.org/wp-content/uploads/2023/01/eSanjeevani-Jharkhand-Impact-Report-2022.pdf>

¹⁰<https://blogs.isb.edu/bhartiinstitute/2024/05/27/navigating-the-digital-fog-in-meghalaya-the-abode-of-clouds-connectivity-challenge/>

¹¹https://ijpsl.in/wp-content/uploads/2020/09/Community-Health-Workers_Avantika-Ashmeet.pdf

- **Usability and Interface Issues:** Most health apps are not designed keeping low-literacy users in mind. Complex navigation, non-intuitive interfaces, frequent software updates and technical jargon increase usability challenges.¹² CHWs are expected to adapt tools that do not fit into their reality. Moreover, they fear data loss due to failed syncing or app crashes.

“I lost all my ANC visit data once because of a failed sync,” Amina recalls. “Now I write everything in my register first, just in case.”

- **Lack of Troubleshooting Support:** With no accessible IT helpdesks or support systems, even minor glitches go unresolved.

Amina shares, “When the app freezes or doesn’t open, I just wait till someone at the centre can fix it.”

3.2. Gaps in Training and Design

Amina described her first digital training session as hurried and theoretical but over time, follow-up sessions and peer help began to make things clearer. When a younger colleague showed her how to navigate the app’s updated menu, Amina realized she was starting to find her way.



3.2.1 Inadequate and Inconsistent Digital Training

Most CHWs attend just one-time digital training session. These sessions often rush through content without practical reinforcement. Reports suggest that fewer than 30% of the CHWs receive ongoing digital literacy support beyond initial training.¹³ This results in skill attrition, lack of confidence and low adoption rates.

- One-time workshops provide minimal follow-up.
- Traditional classroom-style training does not emphasize active participation or real-life problem-solving. Research highlights that structured digital training programs can significantly enhance the performance of CHWs as those who receive interactive, hands-on training are nearly three times more likely to use those tools effectively.¹⁴ However, a common hurdle is that many digital tools are built with an assumed level of technical comfort that CHWs do not always possess.

¹²<https://journals.sagepub.com/doi/10.1177/20552076241253994?cid=int.sj-full-text.similar-articles.1>

¹³<https://pmc.ncbi.nlm.nih.gov/articles/PMC10126829/>

¹⁴<https://pmc.ncbi.nlm.nih.gov/articles/PMC10905785/>

- CHWs often rely on family members or peers for support, creating informal learning pathways but reinforcing dependency.

“My niece explains the new app better than the trainer did,” Amina admits, half-laughing.

“But what if she is not around next time?”

The Akshita baseline study reveals that CHWs respond better to short, visual material in their local dialects. Yet most materials continue to rely on lengthy and text-heavy content in English, often disconnected from field realities.

3.2.2 Usability and Design Barriers

Even when CHWs learn to navigate apps, usability issues often undo training gains:

- Many digital tools require multi-step navigation, frequent logins or toggling between screens which can be challenging for those who are not very comfortable using mobile phones.
- Regular software changes also disrupt familiarity. Without proper support, CHWs may struggle when they notice changes in layout or missing functions.
- Another key challenge is that most digital tools are available only in Hindi, leaving out those who work in regions with distinct dialects. Translating content into regional languages can make these tools more accessible for CHWs. Feedback from the field shows that when digital platforms use familiar language and examples from local culture, CHWs engage more confidently and are able to retain the information better.¹⁵
- Accessibility features like voice prompts, intuitive layouts and pictorial instructions can help bridge digital literacy gaps. Yet, only a few tools incorporate these elements.

As Amina explains, “If the buttons are too many or the menu changes, I don’t know what to do.”

3.2.3 Access and Infrastructure Constraints

Structural constraints continue to limit digital adoption:

- **Smartphone Ownership and Accessibility:** A large number of CHWs lack exclusive access to mobile phones. According to the survey, while some CHWs receive devices from health programs, many others continue to use personal or shared phones. For instance, about 74% of frontline health workers reported receiving mobile devices from projects, while 26% used their personal phones.¹⁶ Even when health programs provide smartphones, they often

¹⁵<https://pmc.ncbi.nlm.nih.gov/articles/PMC10905785/>

¹⁶<https://chwcentral.org/wp-content/uploads/2016/11/Mobile-Technology-in-Support-of-Frontline-Health-Workers.pdf>

come with limitations such as insufficient storage, outdated software or malfunctioning hardware. CHWs often receive hand-me-down devices from family members, making it challenging to install necessary applications or access digital records.¹⁷

- **Internet Connectivity and Power Supply:** Weak mobile networks and frequent power cuts continue to pose serious challenges in rural India. Tasks such as entering data in real time, accessing telemedicine services or even downloading updated health modules often take hours. For many CHWs, the patchy mobile coverage makes the usage of digital tools inconsistent and unreliable.¹⁸ Compounding this challenge is limited access to electricity. Nearly 50% of PHCs still report unreliable power supply, making it difficult for CHWs to keep their phones charged.¹⁹

When Amina's battery dies, so does her access to crucial work-related information.

- **Data Costs and Affordability:** Data costs constitute a significant barrier, especially for CHWs as they are mostly paid via incentives.¹¹

3.3 Motivation, Mindset and Workload

Even when CHWs have access to devices and receive training, their motivation to engage with digital health tools is influenced by how well these tools fit into their daily routines, how useful they appear in practice and whether they feel supported in using them.

3.3.1 Perceptions of Usefulness and Everyday Relevance

The success of any digital health intervention depends on whether CHWs truly find it beneficial in practice. These tools are meant to reduce their workload, improve efficiency and support informed decision-making. Nonetheless, many CHWs continue to record the same information both digitally and on paper, leading to duplication of effort. This added burden often turns digital tools into an additional burden rather than an enabler.

The contrast between widely adopted platforms like WhatsApp and digital health applications illustrates this clearly. No formal training is required for CHWs to use WhatsApp. It is intuitive, fulfils an immediate need for peer communication and naturally integrates into their routines. Therefore, CHWs are naturally motivated to learn and use it.²⁰ Digital health tools, on the other hand, are often the opposite. They are complex, tend to be designed in a top-down manner and focus more on data collection than on making the work of CHWs easier.²¹ As a result, enthusiasm for these tools wanes when they complicate rather than ease daily work.

¹⁷https://gh.bmj.com/content/6/Suppl_5/e005942

¹⁸<https://pmc.ncbi.nlm.nih.gov/articles/PMC10905785/>

¹⁹<https://pmc.ncbi.nlm.nih.gov/articles/PMC8117894/>

²⁰<https://pmc.ncbi.nlm.nih.gov/articles/PMC8173666/>

²¹<https://www.ghspjournal.org/content/4/2/311#sec-14>

The way CHWs perceive digital tools strongly influences their willingness to use them. They are more likely to embrace tools when outcomes are tangible such as faster reporting, reduced paperwork or improved patient care. On the other hand, if the apps are complex or add to the burden, interest quickly wanes. The inconsistency of training programs funded by different donors and the absence of uniform practices across states make it harder to sustain adoption. Stronger institutional support and cohesive implementation strategies keeping field realities in mind can improve both perception and uptake.

Amina's reflection captures this sentiment well: "The app could really help if it worked properly, and if someone was there to help when it did not."

3.3.2 Incentives, Recognition, and the Weight of Workload

In many cases, CHWs are more inclined to use digital tools when incentives are involved. Programs that offer a blend of financial and non-financial rewards see higher engagement. The Khushi Baby program, for example, provides comprehensive support including training, fair remuneration and essential supplies which helps CHWs feel motivated to use digital reporting systems.²²

Beyond financial incentives, the spread of digital literacy has reshaped how CHWs view their own roles. The Akshaya project in Kerala showed that when digital tools were paired with ongoing training and public recognition, CHWs gained greater visibility and respect within their communities. They described their phones and apps not just as mere tools that helped them perform their duties but as symbols of professionalism and authority.²³

However, motivation declines when digital integration feels like an imposition rather than an enabler. Several health programs expect CHWs to juggle several digital applications at once without acknowledging the extra effort it demands. Well-designed platforms, however, can meaningfully streamline administrative tasks. In Bihar, the Information Communication Technology-Continuum of Care Service (ICT-CCS) initiative demonstrated this in action. By integrating digital job aids into daily routines, it reduced paperwork and simplified reporting. As a result, CHWs spent less time on documentation and more time delivering care.²⁴

For Amina, too, tools that aligned with her routine and reduced paperwork sparked renewed interest in learning. Small successes built her confidence.

²²<https://www.khushibaby.org/homepages/cases-html>

²³<https://www.frontiersin.org/journals/health-services/articles/10.3389/frhs.2023.1119213/full>

²⁴<https://pmc.ncbi.nlm.nih.gov/articles/PMC6875677/>

3.3.3 Performance Monitoring, Surveillance Anxiety, and Friction Points

Performance-linked incentives have been used in various digital health initiatives to promote adoption. While effective in some contexts, these incentives are inconsistently applied and often specific to programs. This inconsistency breeds disillusionment, especially when digital reporting systems are seen as additional tasks rather than solutions.²⁵

The situation is further complicated by digital tools that appear to be surveillance measures. Applications like MDM360 Shield, launched in 2021, used GPS to track the daily movement of ASHA workers. This raised widespread concern as the CHWs feared that technical glitches could misreport their attendance or compliance, affecting both their reputation and incentives.²⁶

As Amina logs out of the app and picks up her paper register, she reflects on the mixed promise of digital health tools.

The potential is there: to make her work easier, more efficient and more respected. But for this potential to be realized, tools must be designed around CHWs' realities, not imposed on them.

3.4 What Works: Enablers of Digital Adoption

Many digital health programs across India have demonstrated practical solutions to the challenges discussed above. The following enablers illustrate what works in strengthening digital adoption among CHWs:

- **Grounded and Ongoing Capacity Building:** One of the strongest predictors of digital adoption is the quality, relevance, and continuity of training. CHWs are more likely to adopt and retain digital skills when training is practical, scenario-on, and reinforced over time. Hands-on, repeated training that simulates real-life scenarios increases recall and builds confidence.²⁷ Peer mentoring, on-the-job support, and visual aids in local dialects improve comprehension.

Programs like the M-CAT pilot in Karnataka combined training with mentorship and small financial incentives (₹50 per form), alongside regular peer-led troubleshooting check-ins. This model created safe learning spaces where CHWs could openly discuss difficulties, leading to improved app usage, accuracy, and confidence.²⁸

²⁶<https://www.ideasforindia.in/topics/productivity-innovation/is-digitalisation-a-double-edged-sword-for-workers-in-indias-public-healthcare-system.html>

²⁷<https://www.frontiersin.org/journals/health-services/articles/10.3389/frhs.2023.1119213/full>

²⁸<https://nhsrcindia.org/sites/default/files/2021-06/ASHA%20Update%20Jan%202018.pdf>

Similarly, the Mobile Academy IVR platform provided digital training via voice messages in local languages, enabling CHWs to learn at their own pace, overcome literacy barriers, and revisit content as needed which is a critical enabler in rural areas with low digital comfort.²⁹

Key insight: Structured, peer-supported, multimodal and locally contextualized training models lead to higher digital confidence, retention and sustained tool use.

- **User-Centred Design and Intuitive Tools:** The design and usability of digital tools play a critical role in their adoption by CHWs. As seen in the case of co-designed platforms like ImTeCHO, it succeeded not only because of its technical features but because it was built around the problem statements of CHWs. Instead of adding complexity, the tool streamlined workflows by reducing navigation steps, decreasing the data entry burden and enabling quick access to patient information. These also improved the perception of digital tools as time-savers.³⁰

Key insight: Simple, offline-capable, workflow-aligned tools developed in consultation with CHWs result in higher engagement and consistent usage.

- **Informal Support Networks:** Due to the absence of structured IT helpdesks, CHWs have created their own informal systems to manage digital hurdles. Informal groups, often formed on platforms like WhatsApp, function as quick-response channels where CHWs share tips, troubleshoot errors and distribute job aids. These informal exchanges are gradually maturing into steady platforms of collective learning. Some initiatives, such as M-CAT, have turned these organic collaborations into a structured approach through buddy models and monthly review circles that foster shared learning.³¹

Key insight: CHW-led, peer-driven support systems reinforce learning, improve digital confidence and promote collaborative troubleshooting.

²⁹<https://www.cureus.com/articles/114372-acknowledging-the-role-of-community-health-workers-in-providing-essential-healthcare-services-in-rural-india-a-review#!/>

³⁰https://gil.gujarat.gov.in/pdf/Vol10/Newsletter_Imtecho_13102014.pdf

³¹https://gh.bmj.com/content/6/Suppl_5/e005039

Amina, who once waited for others to fix app issues, now helps newer CHWs navigate syncing problems. Recently, when a colleague was unable to upload a form, Amina guided her through the syncing steps herself. “Earlier, I used to wait. Now I try to fix it first,” she said. Her journey from a hesitant user to a local go-to person reflects how support systems can unlock quiet leadership.



- **Motivation beyond Mandates:** Although financial incentives play a crucial role in promoting digital adoption, non-financial incentives like public recognition and a sense of professional dignity often have a more profound impact. In Rajasthan, the Khushi Baby project linked CHWs’ digital work to their social identity by offering visible tokens of recognition, such as digital ID necklaces, which fostered trust and respect among them.²¹ In contrast, tools like MDM360 Shield, built primarily for tracking undermined motivation by creating anxiety and mistrust. When technology is used to police rather than support, it rarely finds acceptance. Adoption thrives in ecosystems where digital proficiency is celebrated, not policed.

Key insight: Motivation is the strongest when CHWs feel valued, supported and recognized and when digital adoption is framed as professional growth, rather than mere compliance.

For CHWs like Amina, being able to use digital tools not only reduced paperwork but also brought unexpected recognition.

“When our supervisor appreciated how quickly I submitted the reports, it made me feel like I was finally getting it,” she shared.

- **Designing for Constraint, Not Ideal:** CHWs work in environments where electricity, network connectivity and device quality are not guaranteed. Tools designed for these realities like offline-ready applications, lightweight file formats and automatic saving typically see higher usage. This ensures that the app remains functional and usable even when infrastructure is suboptimal, for example, enabling offline data entry and automatic syncing once connectivity is restored.

Key insight: Tools that anticipate and accommodate infrastructural gaps are more likely to succeed in low-resource settings.



DISCUSSION

4. DISCUSSION

The adoption of digital health tools by CHWs goes far beyond simply introducing new technology. It is closely linked to how the broader health system functions, the everyday realities of CHWs' work and the systemic challenges they face. While these tools have great potential to make service delivery smoother and the work of CHWs efficient, their impact heavily depends on how well they fit into existing routines, how CHWs relate to them and whether the support around them is sustained over time.

The Digital Dilemma: Empowering or Burdening CHWs?

Digital health innovations are often described as 'game-changers' for CHWs but for people like Amina, who work on the frontlines, the reality is not usually that straightforward. Going digital does not necessarily translate to efficiency. The introduction of mobile-based health interventions has, in several cases, streamlined processes but in others, it has added layers of complexity, doubling documentation burdens, increasing cognitive load and introducing surveillance mechanisms that CHWs may find intrusive.

A core challenge lies in the mismatch between digital design and on-ground realities. The most successful tools are those that integrate seamlessly into CHWs' existing workflows. Yet, many tools are introduced without addressing key constraints including unreliable connectivity, lack of offline access and the need to juggle multiple apps and fragmented data systems.

The Fragile Link Between Training and Sustained Digital Competency

Training remains central to digital adoption. However, the standard model of short, standalone workshops often falls short of building lasting proficiency. CHWs with limited digital exposure benefit more from continuous engagement, periodic refresher sessions and accessible technical support that reinforce confidence in day-to-day use. The emergence of peer networks on platforms, such as WhatsApp, illustrates the value of sustained, structured digital literacy initiatives that extend beyond initial training efforts.

Motivation and Perception: More Than Just Incentives

While financial incentives play an important role, CHW motivation is also influenced by how they

perceive the tools they use. Recognition, trust, professional pride and a sense of autonomy often drive more sustained engagement than monetary rewards alone.

However, when digital tools are introduced without clarity or reciprocity (for example, when they do not replace existing manual processes), they are seen as burdens rather than enablers. Many CHWs who were initially enthusiastic about mobile reporting grew frustrated when they realised that the paperwork had not actually reduced. Similarly, digital tools that focused primarily on performance monitoring, without accompanying support mechanisms, were often met with resistance.

Systemic Challenges: Fragmentation and Lack of Integration

A major obstacle to smooth digital adoption lies in the lack of interoperability among different health platforms. CHWs frequently juggle multiple applications for different programs, resulting in duplication, confusion and inconsistent data entry. Instead of easing their workload, these fragmented systems can leave CHWs feeling drained and frustrated.

Supervision and technical support also vary widely. Some CHWs, like Amina, have access to informal networks that makes troubleshooting problems comparatively easier for them. However, others are often left to navigate these tools on their own due to the absence of a structured support system.

Bridging the Gaps: Towards Meaningful Digital Integration

Digital tools can realise their full potential only when they are embedded within a coherent system that supports CHWs and strengthens accountability. This requires moving away from isolated, project-based applications toward integrated solutions that build capacity, simplify workflows and align with the everyday realities of CHWs.

The real goal is not just digital uptake but also digital enablement. Tools must reduce workload, enhance decision-making and strengthen service delivery; not overwhelm them.

This requires a shift from deploying technology to CHWs to designing systems with CHWs.



RECOMMENDATIONS

5. RECOMMENDATIONS

The potential of digital tools to improve CHW performance is widely recognised. However, their success depends on more than mere availability. For Amina and other CHWs like her, the transition to digital systems involves far more than mastering a new application. It is about navigating a system that overlooks their daily realities. The challenge is not resistance to technology but the lack of meaningful support, intuitive design and policies that align with their actual needs.

For digital adoption to be transformative, interventions must be designed keeping CHWs at the centre, ensuring that digital tools become enablers rather than burden. The following recommendations offer practical, sustainable and user-focused solutions to bridge the gap between policy intentions and field realities.

1. Rethinking Digital Training: From One-Time Sessions to Ongoing Support

For many CHWs, digital training is a blur of instructions, hurried demonstrations and overwhelming technical jargon.

Amina describes her first training session as rushed, abstract, and far removed from real-life application. By the time she was back in the field, much of what she had learned felt like a distant memory.

Instead of short-lived, one-size-fits-all training, digital literacy efforts must be:

- **Blended and Continuous:** A structured blend of classroom training, virtual refreshers and workplace mentoring enables sustained skill development and reduces the limitations of one-time sessions.
- **Peer-Led and Community-Based:** Peer-driven training models are often more credible and relatable for CHWs than instruction delivered by outside experts. Local peer-learning groups and WhatsApp-based troubleshooting networks can build digital confidence organically.
- **Multimodal and Simplified:** Video tutorials, interactive voice-based learning and pictorial guides in local languages make digital training accessible to CHWs of varying literacy levels.
- **Integrated with Hands-On Supervision:** Supervisors should go beyond checklist-based evaluations, actively guiding CHWs through digital adoption challenges in real field conditions.

Shifting from one-time instruction to ongoing learning can help the CHWs develop digital confidence, and the ability to adapt and solve problems as technology evolves.

2. Putting CHWs First in Digital Design

The introduction of technology should ease a CHW's workload, not complicate it. Yet, a large share of digital health platforms is designed away from the field with a limited understanding of the environment in which CHWs operate. To truly serve CHWs, digital tools must:

- **Work Offline by Default:** Poor connectivity should never be a roadblock. Offline data entry and auto-syncing when the internet is available should be a standard feature.
- **Be Intuitive and Minimalist:** Overcrowded screens and technical menus overwhelm CHWs. Large buttons, voice-assisted commands and simplified navigation make tools user-friendly.
- **Integrate with Existing Systems:** CHWs juggle multiple apps for different programs, leading to frustration. A unified platform that consolidates various reporting needs can reduce redundancy.
- **Include Built-In Feedback Loops:** CHWs need a way to report app glitches and usability challenges directly, ensuring continuous system improvements based on real user experiences.

For technology to become an enabler and not an obstacle, it must be designed in collaboration with CHWs, not imposed on them.

3. Reducing Digital Workload: Making Technology a Time-Saver, not a Task-Loader

A major reason CHWs are reluctant to adopt digital tools is that these systems often end up increasing their workload rather than reducing it. To genuinely reduce workload, digital interventions must:

- **Eliminate Redundant Paperwork:** If a digital record is required, paper documentation should be phased out wherever feasible.
- **Automate Repetitive Tasks:** Features like autofill, voice-to-text, and AI-assisted decision support can minimize manual data entry.
- **Shift from Compliance to Support:** Digital tracking should not feel like surveillance but rather a guidance tool, offering CHWs reminders, performance insights and real-time assistance.

When designed thoughtfully, digital tools can free up CHWs' time for patient care, rather than turning them into data-entry clerks.

4. Strengthening CHW Support Systems for Digital Adoption

Trainings form a strong foundation for digital readiness. However, unforeseen technical issues are inevitable when CHWs are in the field. Without access to timely troubleshooting, they are left to manage app errors or syncing failures on their own. In order to ensure that CHWs never feel abandoned in their digital journey, support systems must be:

- **Supervisor-Led, Not Just Checklist-Based:** Supervisors need to move beyond routine monitoring and provide hands-on assistance when challenges arise.
- **Backed by Dedicated Digital Helpdesks:** Toll-free helplines, WhatsApp groups and quick-response technical teams can provide CHWs with timely assistance whenever they encounter difficulties.
- **Motivating, Not Punitive:** Instead of penalizing those who take longer to adapt, CHWs should be motivated and rewarded for building their digital skills and confidence.
- **Building Digital Literacy Beyond Job-Aid Apps:** Many CHWs struggle not only with specific apps but also with broader digital skills such as browsing the internet, sending messages and filling out online forms. Investing in tool-agnostic digital literacy programs that incorporate gamified learning approaches can enhance their overall digital saliency. This foundational knowledge can enable CHWs to navigate any digital platform more confidently, making their transition to job-specific apps like ANMOL smoother and more intuitive.

When CHWs know they have support at every step, they are more likely to engage with digital tools proactively.

5. Embedding Digital Health into CHW Policy and Investments

Digital adoption must be backed by long-term policy commitments and sustained investments to remain effective over time. Many initiatives lose traction due to funding constraints, irregular training sessions and fragmented implementation.

To ensure long-term impact, digital adoption should be:

- **Budgeted for Sustainability:** Funds should be allocated for continuous training, system upgrades and troubleshooting mechanisms, recognizing that digital health is not a one-time investment.
- **Integrated into CHW Training Curricula:** Digital literacy must be treated as a core competency and embedded within CHW certification and ongoing capacity-building programs, rather than as an optional add-on.
- **Designed with CHWs, Not Just for Them:** Tools should be developed in collaboration with CHWs to enhance usability, acceptance and relevance, moving away from top-down design approaches.

Amina's story highlights an important truth: technology alone cannot transform healthcare. It takes thoughtful policies, user-centric design and strong human support systems to empower CHWs in their digital journey.





CONCLUSION

6. CONCLUSION

Amina's early experience with digital tools was marked by uncertainty - a borrowed phone, an app that seemed extremely confusing and a training session that ended too soon. Weeks later, her confidence told a different story. What made that change possible was not the device in her hand but the supportive ecosystem that started evolving around her.

The consistent encouragement from the supervisor, marked by reassurance rather than critique, proved instrumental to her progress. So did the moment her niece helped her navigate an update. The peer WhatsApp group, where every question was valued and the pride she felt when she later helped another CHW resolve a syncing issue, further strengthened her sense of ease with the app. These were not dramatic breakthroughs but small and incremental wins. And they added up.

The transformation was evident not only in her growing skill but also in her confidence. She began to see herself not merely as a user of digital tools, but as someone shaping how those tools were used. She began speaking up during review meetings and mentoring the very peers who had once guided her. Over time, she learned to rely on her own judgment, even when the network faltered or the app malfunctioned.

Now, when she logs in, she does it with clarity and purpose. The technical problems remain, but she no longer waits for others to resolve them. She engages with them as part of the solution. Her story is not one of digital transformation imposed on her. It is one of ownership, adaptation and quiet leadership that begins on the ground.

For thousands of CHWs across India, this is what meaningful digital adoption looks like. Not perfection. Not mastery overnight. But the presence of systems that honour their pace, respect their knowledge and enable them to thrive. When CHWs are treated not just as health workers but as co-builders of digital change, the result is far more than just improved tools. *It is a stronger, more humane health system that starts with listening and ends with trust.*