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DIGITAL EMPOWERMENT AT GRASSROOT LEVEL: A STUDY OF ASHA AND ANGANWADI WORKERS

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ABSTRACT

Digital empowerment is increasingly important for improving rural livelihoods and Background: Digital empowerment is increasingly recognized as a catalyst for improving rural livelihoods and strengthening welfare delivery in India. Anganwadi centres and Accredited Social Health Activists (ASHAs) act as vital links between government digital initiatives and rural communities; understanding their digital access and practices is crucial for inclusive transformation.

Objectives: This study aims to (i) analyze access to and use of digital applications by Anganwadi and ASHA workers, (ii) understand their role in localized digital empowerment, and (iii) explore the impact of digital services on the community.

Methods: Employing a descriptive research design, the study used purposive sampling to select 100 respondents. Data were gathered via a structured interview schedule supplemented by secondary sources. Results were analyzed using simple statistical percentage analysis. **Results**: The analysis reveals growing but uneven adoption of digital applications among frontline workers. While ASHA and Anganwadi workers facilitate community access to digital services and act as local change agents, barriers such as limited device availability, unreliable connectivity, and insufficient institutional support constrain their effectiveness. Digital services have produced measurable benefits in service delivery and information access, though uptake among beneficiaries remains uneven due to low digital literacy.

Conclusion: Frontline health and childcare workers play a critical role in localized digital empowerment and in mediating the community impact of digital services. Strengthening device access, connectivity, training, and targeted digital literacy programs for beneficiaries will enhance the effectiveness and inclusivity of rural digital interventions.

KEYWORDS: Digital Empowerment, ASHA and Anganwadi Workers, Digital Inclusion

INTRODUCTION

Rural populations in India continue to experience persistent health inequities arising from a complex interplay of social, environmental, and economic determinants, coupled with comparatively weaker health infrastructure and limited access to quality healthcare services.

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According to the World Health Organization, such disparities are particularly pronounced in low-resource settings, where poverty, illiteracy, inadequate sanitation, and geographic isolation significantly influence health outcomes. Women and children in rural areas remain especially vulnerable to undernutrition, anemia, maternal morbidity, infant mortality, and preventable diseases (WHO, 2023).

These challenges not only affect individual well-being but also hinder broader social and economic development. Consequently, strengthening primary healthcare systems and enhancing community-based service delivery mechanisms have become critical priorities for improving equitable access to health and nutrition services across rural India.

In response to widespread malnutrition and poor maternal-child health indicators, the Government of India launched Poshan Abhiyaan (National Nutrition Mission) on 8 March 2018 in Jhunjhunu district of Rajasthan. The programmes adopts a comprehensive, technology-enabled, and convergence based approach to improve the nutritional status of adolescent girls, pregnant women, lactating mothers, and children aged 0–6 years. It aims to reduce stunting, undernutrition, anemia, and low birth weight through coordinated actions across multiple sectors, including health, sanitation, education, and women's empowerment. Unlike earlier nutrition programmes that operated in isolation, Poshan Abhiyaan emphasizes real-time monitoring, community participation, and data-driven decision-making. By integrating digital tools into service delivery, the programmes seeks to enhance accountability, improve targeting of beneficiaries, and ensure timely intervention at the grassroots level (Ministry of women and Child Development, 2018).

Parallel to these nutrition-focused efforts, India has witnessed a rapid expansion of digital governance initiatives aimed at transforming public service delivery. The Digital India campaign has played a pivotal role in promoting digital infrastructure, digital literacy, and electronic service provision across sectors. In the healthcare domain, the Ayushman Bharat Digital Mission (ABDM) aims to create an integrated digital health ecosystem by linking citizens, healthcare providers, and health systems through interoperable platforms. Such initiatives are intended to improve accessibility, transparency, efficiency, and continuity of care, particularly in underserved regions. Digital technologies offer significant potential to overcome geographic barriers, streamline administrative processes, and enable evidence-based policymaking through real-time data collection and analysis (ABDM, 2018).

Telehealth and digital health technologies are increasingly being adopted to address healthcare gaps in rural areas, where limited infrastructure, shortage of specialists, and geographical barriers often restrict access to timely medical care. Telehealth services such as video consultations, mobile health applications, and remote patient monitoring enable patients to receive diagnosis, treatment advice, and follow-up care without traveling long distances. These services help reduce travel time, minimize healthcare expenses, and improve continuity of care, particularly for chronic diseases, maternal health, and elderly care. By facilitating early detection and timely intervention, telehealth plays a significant role in improving healthcare accessibility in underserved communities **(Chandrakar, 2024)**.

Mobile health (m-health) technologies also strengthen rural healthcare delivery by supporting frontline workers such as ASHA and Anganwadi workers. Using smartphones and digital applications, these workers can collect and update health data, track beneficiaries, send reminders for immunization and antenatal check-ups, provide health education, and communicate with doctors or higher health facilities. Such digital tools enhance the efficiency, accuracy, and outreach of community-based services while reducing paperwork and delays. Growing smartphone penetration in rural areas has created new opportunities to expand these digital interventions and improve coordination between health systems and local communities. (Parmar,2024)

At the same time, rural healthcare systems continue to face significant challenges that affect service delivery and health outcomes. Many rural areas experience shortages of trained healthcare professionals, inadequate medical facilities, poor infrastructure, and limited transportation, which make access to quality care difficult. Basic issues such as unreliable electricity, insufficient medical equipment, and scarcity of essential medicines further weaken healthcare services. Socio-economic constraints, low levels of health awareness, and geographical isolation also contribute to underutilization of available services. These challenges create disparities between urban and rural healthcare and highlight the need for strengthened infrastructure and support systems alongside technological interventions (Bangla et al, 2024)

At the grassroots level, frontline health workers serve as the critical interface between government programmes and rural communities. Accredited Social Health Activists (ASHA) and Anganwadi workers play indispensable roles in delivering primary healthcare, nutrition services, immunization support, maternal and child care, health education, and community mobilization. Their proximity to households allows them to identify vulnerable populations, monitor health conditions, and facilitate access to institutional services. Recognizing their central role, the government has introduced several digital applications to support their work. Platforms such as the POSHAN Tracker, Aarogya Setu, and e-Kavach under the National Health Mission are designed to digitize beneficiary records, monitor service delivery, track immunization schedules, document maternal health indicators, and generate real-time reports. These tools are expected to enhance efficiency, reduce paperwork, improve accuracy of data, and enable better supervision and planning (Ministry of women and Child Development, 2021).

Despite the promising potential of digital interventions, their implementation at the grassroots level has encountered significant operational challenges. Research and field reports indicate that many frontline workers struggle with limited digital literacy, insufficient training, inadequate technical support, language barriers, and unreliable internet connectivity. In rural areas, infrastructural constraints such as poor network coverage, electricity interruptions, and lack of device maintenance further complicate digital adoption. Additionally, the introduction of multiple applications often increases workload, requiring workers to balance traditional responsibilities with new reporting requirements. In some cases, digital systems are perceived as time-consuming and difficult to navigate, leading to stress, reduced efficiency, and resistance to technology use. These challenges highlight the gap between policy intentions and ground

realities, raising concerns about the sustainability and effectiveness of digital health initiatives in resource-constrained settings.

Furthermore, digital empowerment extends beyond mere access to devices or applications; it encompasses the knowledge, skills, confidence, and institutional support necessary to utilize technology effectively. Without adequate capacity building and supportive infrastructure, digital interventions may inadvertently widen existing inequalities rather than alleviate them. Frontline workers, particularly those with limited formal education or prior exposure to technology, require continuous training, mentoring, and user-friendly systems tailored to local contexts. Understanding their lived experiences, perceptions, and coping strategies is therefore essential for evaluating the actual impact of digital transformation in rural healthcare delivery.

Health is a fundamental component of social well-being and sustainable development, and its digital transformation must be inclusive, equitable, and context-sensitive. While national policies emphasize technological advancement, the success of such initiatives ultimately depends on the readiness and empowerment of those responsible for implementation at the community level. Assessing the digital competencies of ASHA and Anganwadi workers, as well as the barriers they encounter, provides valuable insights into the effectiveness of ongoing programmes and identifies areas requiring policy attention.

Therefore, the present study aims to examine the extent of digital empowerment among ASHA and Anganwadi workers in rural areas, identify the challenges they face in using digital health platforms, and explore strategies to strengthen grassroots implementation of digital health initiatives. By analyzing their roles, capacities, and experiences, the study seeks to contribute to the development of practical recommendations for enhancing the usability, accessibility, and sustainability of digital healthcare systems. Ultimately, strengthening frontline workers' digital capabilities is essential for improving service delivery, promoting health equity, and ensuring that technological advancements translate into tangible benefits for rural populations in India.

REVIEW OF LITERATURE

Mayank Chandrakar (2024), in their study "***Telehealth and Digital Health Literacy***" examined how telehealth improves access to health care in rural areas through video consultations, mobile apps, and remote monitoring in rural healthcare. The study highlighted that digital health literacy, the ability to use digital tools are essential for effective use of telehealth services. However, many rural people face difficulties due to low digital skills, poor internet connectivity, and limited access to devices. The author concluded that telehealth can significantly improve rural health care if digital literacy, training, and infrastructure are strengthened, despite limitations such as lack of physical examination and challenges in emergency care.

Renu Vij (2024), in their research "*Revolutionizing healthcare: Unleashing the power of digital health*" explained that digital health technologies such as telemedicine and remote patient monitoring improve health care in rural areas by enabling virtual consultations, continuous health tracking, timely treatment, and better use of medical resources, especially in underserved regions.

Kanwar et al. (2023) identify major challenges in implementing telemedicine in rural India, including lack of awareness, low education levels, resistance to change, shortage of staff, and technical difficulties. Together, these studies conclude that although digital health can greatly improve access and quality of care in rural areas, its success depends on improving infrastructure, training, awareness, and acceptance among both patients and health-care providers.

Srinidhi et al. (2021), conducted a research on "*ASHA Kirana and Digital Empowerment*" described the ASHA Kirana initiative in Karnataka, where a digital Maternal Clinical Assessment Tool (M-CAT) was introduced to support ASHA workers in maternal health care. The tool helped workers collect, understand, and use health data more effectively, enabling better communication with doctors and more timely interventions for pregnant women. With proper training and practical support, ASHAs were able to move beyond routine data collection to actively engaging with families and providing informed guidance. The study concludes that well-designed digital tools, combined with training, can strengthen frontline workers' knowledge, confidence, and decision-making ability, thereby enhancing their role and empowerment in rural health care delivery.

Rashmi and Thippesh (2025), in "*Empowering Communities through ASHA Workers: Challenges and Benefits*" explored the critical role of Accredited Social Health Activists (ASHAs) in bridging the gap between the healthcare system and rural/urban communities in India. ASHAs act as educators, counselors, first responders, and community changemakers, significantly improving maternal and child health outcomes. Despite their essential contributions, they face challenges such as low and unequal honorariums across states, lack of formal recognition as government employees, limited retirement benefits, and inconsistent access to health insurance and pensions. The study conclude that fair pay, proper training, recognition, and safety measures are necessary to empower ASHA workers and strengthen public health services

Scott et al. (2022), in their research *"Mobile Academy mLearning for ASHA Workers in Rajasthan"* examined the experiences of Accredited Social Health Activists (ASHAs) with the Mobile Academy, a mobile-based refresher training program in Rajasthan, India. The study highlighted that mobile learning programs requiring minimal digital skills can be accessible and acceptable even among ASHAs with limited smartphone access. The authors suggested that mLearning programs like Mobile Academy could complement, but not replace, face-to-face training and serve as a practical model for ongoing professional development of frontline health workers in low- and middle-income countries.

Azhagu Meena et al. (2022), in their research "*Digital Infrastructures and Ambivalent Care for Anganwadi Workers"* examined how ICT-based monitoring systems introduced under the Poshan Abhiyaan program affected Anganwadi workers in India. The study found that mobile applications shifted their role from direct caregiving to mainly data collection, increasing workload and stress. Although these systems aimed to improve efficiency and accountability, they often ignored the practical challenges and emotional labor involved in frontline work. The authors conclude that digitization without adequate support can create pressure and insecurity

for workers, highlighting the need for policies that recognize their real working conditions and provide proper assistance.

Shenoy and D'Souza (2025), in their research "*Role of ASHA Workers in Empowering Community Health through ICT*" examined how ASHA workers in Dakshina Kannada, Karnataka, use ICT tools such as smartphones, WhatsApp, and government applications to spread health information, especially on maternal and child health. The study found that digital tools help ASHAs reach larger populations quickly, improve communication, and increase their credibility within the community. However, many workers depend on personal devices and face problems like limited internet access and lack of institutional support. The study says that providing proper infrastructure, financial support, and training can enhance ASHAs' effectiveness as a link between the health system and rural

Thakur et al. (2025), in ***"WhatsApp as Informal Digital Infrastructure for Community Health Workers"*** studied how WhatsApp is used as an informal communication tool by community health workers and supervisors in Bihar for health program activities. The study found that WhatsApp helps in quick information sharing, coordination, peer support, and problem-solving, making it easier to manage fieldwork compared to formal systems. However, it also creates challenges such as information overload, extra work beyond duty hours, privacy concerns, and stress, especially for workers with low digital skills or limited access to devices. The authors conclude that while WhatsApp is a useful support tool, proper guidelines, training, institutional support, and measures to protect workers' well-being are necessary to prevent increased workload and digital inequality.

Vasanthan et al. (2023), in his study, "Digital health interventions for improving access to primary care in India: A scoping review", has investigated digital health interventions targeted at improving access to primary care in India, including the vulnerable population. Digital solutions like telemedicine and mobile health applications, which are used to increase awareness, provide screening and consultations, and deliver services, often with the participation of community health workers, have been found. However, many interventions have been developed from the point of view of the provider with little input from end-users and marginalized populations. There are also certain deficiencies in the development of interventions, including their planning, designing based on scientific data, and evaluation. The authors state that such interventions are necessary for achieving equitable access to primary care in India.

Several studies have highlighted the critical role of frontline health workers, including ASHA and Anganwadi workers, in implementing digital health interventions at the grassroots level (Sharma & Singh, 2021; Kumar & Mehta, 2020). Research suggests that while digital applications such as the POSHAN Tracker have improved monitoring and reporting systems, issues such as inadequate training, technical glitches, and increased workload affect their effective usage.

Overall, the reviewed studies show that digital health technologies have great potential to improve access, efficiency, and quality of healthcare in rural India, especially through frontline workers such as ASHA and Anganwadi staff. Tools like telemedicine, mobile applications, ICT

platforms, and digital training programs enhance service delivery, health awareness, and data management.

Objectives of the study:

- To study the socio-economic conditions of the respondents
- To analyze access and use of digital applications by Anganwadi and ASHA workers
- To understand the role in localized digital empowerment
- To explore the impact of digital services on community

Methodology:

The study adopted a "Descriptive Research Design" with a deductive, quantitative approach to examine the level of digital empowerment among ASHA and Anganwadi workers. For the purpose of the study 100 respondents were chosen, consisting of ASHA and Anganwadi workers from rural areas by selecting purposive sampling technique. Primary data were collected using a self-prepared structured questionnaire. Secondary data were obtained from relevant journals, reports, and official documents. The collected data were analyzed using simple statistical techniques such as percentage analysis to interpret the findings.

FINDINGS AND DISCUSSIONS:

Table 1. Socio – Economic profile of respondents

Sl.No	Particulars	Responses	Frequency	Percentage
1	Age	b) 18–35 years	12	12%
		c) 36–45 years	46	46%
		d) 46–55 years	34	34%
		e) Above 55 years	8	8%
2	Education	a) Primary school	4	4%
		b) SSLC	52	52%
		c) PUC / Diploma	40	40%
		d) Degree and above	4	4%
3	Marital status	a) Single	2	2%
		b) Married	88	88%
		c) Widowed	10	10%
4	Years of work experience	a) Less than 2 years	6	6%
		b) 2–5 years	22	22%

c) 6–10 years	36	36%
d) 11–15 years	24	24%
e) More than 15 years	12	12%

The Table No. 1. shows the socio-demographic profile of the respondents. In terms of age distribution, 46% of the respondents are in the 36 to 45 years age group, while 34% fall into the 46 to 55 years category. About 12% are aged 18 to 35 years, and only 8% are over 55 years. This indicates that most respondents are middle-aged and in their productive working years.

Regarding educational background, 52% have completed SSLC, while 40% have finished PUC or a Diploma. A small number, 4%, have studied up to primary level, and another 4% hold a degree or a higher qualification. This suggests that most respondents have a secondary-level education.

As for marital status, the majority of respondents, 88%, are married. 10% of the respondents are widowed, and just 2% are single. This points to most respondents having family responsibilities alongside their professional roles.

Looking at years of experience, 36% have 6 to 10 years of experience, followed by 24% with 11 to 15 years. Another 12% have over 15 years of experience, while 22% have 2 to 5 years. Only 6% have less than 2 years of experience. This suggests that most respondents are experienced workers.

The findings show that the workforce is mainly middle-aged and moderately experienced, which is beneficial for community engagement and service delivery. Middle-aged workers likely have gained practical knowledge and offer stability in their roles. The educational profile indicates that most workers have basic to moderate formal education, meeting the minimum requirements for ASHA and Anganwadi positions. However, the very low percentage of graduates suggests that further training and skill development could improve service quality and efficiency. The high percentage of married respondents indicates social stability and community acceptance but may also mean they have additional domestic responsibilities that could affect how they manage their workload. Equal representation of ASHA and Anganwadi workers ensures that both key frontline roles are represented, providing a balanced view of the workforce.

Overall, this socio-demographic profile highlights a stable and experienced workforce capable of delivering community-based programs while stressing the need for capacity-building initiatives to enhance professional skills.

Table 2: Digital Access and application usage

Sl.No	Particulars	Mean Value
1	I own a personal smartphone for my work.	M = 3.00

2	I regularly use mobile applications for official work	M =3.10
3	I have received training to use digital applications.	M= 3.00
4	The mobile applications provided are user-friendly.	M= 2.18
5	I use government health and welfare apps (e.g., RCH, NCD, e-Sanjeevani, ABHA)	M =3.08
6	Technical issues (network/app errors) affect my digital work.	M=3.96

Table 2 highlights the usage of digital application of respondents, the 50% of the Anganwadi workers do not use personal phones because they receive government smartphones. In contrast, ASHA workers mainly rely on their personal or family phones due to inactive SIM cards.

Regarding the regular use of mobile applications for social work, responses were again divided. The mean value is (M=3.1), shows a slightly positive but generally neutral stance. This indicates that regular use of digital applications is not consistent among respondents.

A significant majority, 80%, reported receiving training in digital applications. Despite the reported mean value is (M= 3.00) the response distribution clearly shows that most respondents have undergone some form of digital training. Hence, the gap between training and regular use suggests that training may not effectively translate into practical skills or confidence. The perception of mobile applications as user-friendly shows a negative trend with a mean value of (M=2.18). This suggests that usability issues may limit effective digital engagement and reduce service delivery efficiency. On the other hand, the use of government health and welfare applications shows a positive trend. Half of the respondents strongly agreed that they use such applications, and the mean value is (M= 3.8), indicates moderate use of official digital platforms. The findings suggest that while some workers have access to personal smartphones and have received training, digital access and usage remain moderate. The fact that only half of the respondents own smartphones suggests a potential barrier to effective digital service delivery. Training programs seem to reach most workers; however, low confidence and limited user-friendliness of applications may hinder full use of digital tools. Moderate use of government apps shows some engagement, but gaps in practical adoption persist. Technical issues, especially network problems or app errors, further obstruct effective digital work. Overall, the findings highlight the need for better digital infrastructure, user-friendly applications, ongoing technical support, and continued training to improve the efficiency and effectiveness of frontline workers in delivering digital health and welfare services.

Table 3 : Digital skills and Beneficiary Access

Sl. No.	Particulars	Mean Value
1	I feel confident using a smartphone for official work	M = 2.3

2	Beneficiaries in my area have access to smartphones.	M= 3.08
3	Internet connectivity in my work area is adequate	M= 3.48
4	Beneficiaries are aware of digital health and welfare services	M= 3.7
5	Women beneficiaries need more digital support.	M = 3.9
6	Elderly beneficiaries face difficulty using digital services	M = 3.9

The data presented in Table 3 indicates significant concerns regarding digital confidence and infrastructural readiness among frontline workers. Respondents (44% strongly disagreed and 18% disagreed) with mean (M=2.3), reported lacking confidence in using smartphones for official purposes, which means they still need training for using application as only a small percentage (10%) expressed confidence. This suggests that while digital devices are available, functional digital competency remains limited.

The findings show that access to smartphones among beneficiaries is moderate.. This indicates that although many beneficiaries own smartphones, access is not universal, and some individuals may still lack personal devices or rely on shared phones. The mean value is (M=3.08) further supports that smartphone availability is at an average level in the area.

Regarding internet connectivity, responses suggest mixed experiences. This implies that internet services may be reliable in some locations but weak or unstable in others. Such inconsistency can affect the effective use of digital services. The mean value is (M= 3.48) indicates a moderate level of adequacy rather than strong satisfaction.

The data also indicate that awareness of digital health and welfare services among beneficiaries is relatively high. A large percentage of respondents strongly agreed that beneficiaries are aware of these services, although some remained neutral or disagreed. This suggests that awareness programs have reached many people, but gaps still exist among certain groups. The mean value is (M= 3.7), reflects a generally positive level of awareness in the community.

There is a strong consensus that women beneficiaries require additional digital support. Most respondents either agreed or strongly agreed with this statement, indicating that women may face greater challenges in accessing or using digital technologies. These challenges may include limited digital skills, restricted access to devices, or social and cultural barriers. The high mean value is (M=3.9) clearly highlights the perceived need for targeted digital empowerment initiatives for women.

These findings indicate that frontline workers face challenges in confidence and skills related to digital tools, which can affect the efficiency of service delivery. Although some beneficiaries have access to smartphones, internet connectivity remains a significant barrier, limiting the reach of digital services. Moderate awareness among beneficiaries shows that information about digital health and welfare programs has reached the community, but vulnerable groups such as women and the elderly still need additional support to access these services effectively. This emphasizes the importance of capacity-building initiatives for workers and targeted assistance programs for beneficiaries to improve digital inclusion and service delivery at the community level.

Table 4 : The level of support provided by frontline workers to beneficiaries

Sl. No	Particulars	Mean Value
1	Beneficiaries depend on me to access digital services	M =3.84
2	I frequently assist beneficiaries with digital services	M = 3.3
3	I use my personal phone to help beneficiaries	M = 2.8
4	Beneficiaries voluntarily approach me for digital help	M = 3.6
5	Lack of digital literacy is a major challenge for beneficiaries.	M = 3.7
6	I feel adequately trained to support beneficiaries digitally	M = 2.8

Table 4 highlights the level of support provided by frontline workers to beneficiaries in accessing digital services. About 8% strongly agreed and 68% agreed, while 24% remained neutral. This shows that most beneficiaries rely on external support rather than accessing services independently. The high mean value is(M=3.84) reflects a strong level of dependence, suggesting limited digital self-sufficiency among beneficiaries.

Responses regarding frequent assistance to beneficiaries with digital services were mixed indicates that although some workers regularly provide support, others may not do so frequently, possibly due to workload, time constraints, or varying levels of need among beneficiaries. The mean value (M=3.3) suggests a moderate level of assistance overall.

The use of personal phones to help beneficiaries appears to be common but not universal, this neutrality may indicate occasional use or uncertainty about how often personal devices are used for official purposes. The mean value (M= 3.6) suggests that personal phones play an important role in facilitating digital access, especially where beneficiaries lack devices.

Lack of digital literacy among beneficiaries was widely recognized as a major challenge, result pattern suggests that many respondents observe digital skill gaps among beneficiaries, though some may perceive the issue as varying across individuals. The mean value (M= 3.7), indicates that digital illiteracy is a significant barrier to effective use of digital services.

Finally, responses show limited confidence among workers regarding their own digital training, the mean value is (M=2.4), This suggests that many workers feel insufficiently prepared to provide digital support, highlighting a need for additional training and capacity-building programs. The moderate mean value further reflects uncertainty and lack of strong confidence in digital preparedness.

Table.5. Impact of digital services

Sl. No	Particulars	Mean Value
1	Digital services have improved access to healthcare	M = 3.5
2	Digital systems save time in service delivery	M = 2.8
3	Digital empowerment has improved transparency in services	M = 3.8
4	Beneficiaries trust digital services more now	M = 3.2
5	Digital initiatives have positively impacted the community.	M = 3.7
6	More training and support are needed for effective digital service delivery	M = 3.9

Table 5 presents respondents views on impact of digital services regarding improvement in access to healthcare. This indicates that although digital services have improved healthcare access for some beneficiaries, a large proportion has not experienced a clear change. The mean value is (M= 3.5), which falls above the midpoint of the scale, indicates a moderate level of agreement, suggesting that respondents generally perceive some improvement, but not to a strong extent.

In terms of time efficiency, shows that many respondents do not experience time savings and may even face delays due to technical or procedural issues. The mean value, (M= 2.8), which is below the neutral midpoint, indicates a low level of agreement, confirming that digital systems are not widely perceived as time-efficient.

With respect to transparency, the mean value is, (M=3.8) indicates a high level of agreement, showing that transparency is one of the more positively perceived outcomes of digital initiatives.

Regarding trust in digital services, distribution of that opinions are divided and that a substantial proportion still lack confidence in digital platforms. The mean value is (M= 3.2) reflects a moderate but uncertain level of agreement, suggesting that trust is developing but not yet firmly established.

The results also indicate that digital initiatives have had a positive impact on the community, it suggests that although some benefits are recognized, many respondents have not clearly

observed community-wide changes. The mean value (M= 3.7) indicates a moderately high level of agreement, pointing to a generally positive but cautious perception of impact.

Finally, there is strong agreement that more training and support are required for effective digital service delivery. It was clearly highlighted the need for capacity building among service providers. The mean value (M= 3.9), which is close to the upper end of the scale, indicates a very high level of agreement, emphasizing that additional training and support are considered essential. In support to the above result, the other study agrees, that digital health has strong potential to transform healthcare in India, its success depends on inclusive policies, robust infrastructure, capacity building, and collaborative efforts to ensure equitable access and ethical implementation (**Rana et al. 2024).**

SUGGESTIONS

Based on the findings of the study, it is recommended that regular and targeted digital training programs be provided to frontline workers.

A significant proportion of workers fall within the age groups 36–45 years (46%) and 46–55 years (34%), with an additional 8% above 55 years. Many of these workers may not be fully comfortable with digital technologies, and tailored training can enhance their confidence, skills, and efficiency in delivering digital services. Such programs would ensure that workers are better equipped to support beneficiaries effectively.

The study also highlights the need for improved digital infrastructure. Poor internet connectivity was reported as a major barrier in several working areas. Providing reliable network facilities and technical solutions would allow workers to deliver services without interruptions, improving overall service quality. In addition, ASHA workers face challenges due to the use of personal devices, including costs for phone recharge and device maintenance. Unlike Anganwadi workers, who are provided with government-issued phones, ASHA workers bear these expenses themselves. Providing financial support or official devices would alleviate this burden and allow them to focus on service delivery more effectively.

Another key recommendation is the revision of the honorarium and salary structure for ASHA workers. Irregular and inadequate payments were reported, which negatively affect motivation and job satisfaction. A transparent and timely payment system, along with periodic salary increments, would improve morale and retention. Improved compensation could also attract more educated individuals into the workforce, strengthening overall service delivery and quality.

The study also found that dual documentation, requiring workers to maintain both manual and digital records, creates excessive workload and reduces efficiency. Streamlining the documentation process to a single system would save time and reduce stress for frontline workers. Similarly, monitoring and evaluation mechanisms need to be strengthened. Currently, supervisors provide guidance only when contacted, which delays problem resolution. A structured evaluation and feedback system would ensure timely support and continuous improvement in performance.

In conclusion, there is a need for targeted digital literacy initiatives for beneficiaries, particularly women and elderly populations. Enhancing their digital skills would promote inclusion, reduce dependency on workers, and improve independent access to services. Alongside this, establishing a reliable technical support system, such as helplines or troubleshooting assistance, would allow immediate resolution of issues, ensuring smooth and uninterrupted digital service delivery.

CONCLUSION

The study highlights that while digital health initiatives have enhanced efficiency and transparency among ASHA and Anganwadi workers, comprehensive digital empowerment has not yet been achieved. Persistent challenges, including low digital self-efficacy, inadequate internet infrastructure, financial constraints, dual documentation practices, and unequal access to digital resources, limit the effectiveness of digital service delivery. These findings emphasize that digital transformation in rural health systems cannot rely on technological interventions alone. Sustainable and inclusive digital empowerment requires systemic reforms, including institutional support, capacity-building through training, equitable provision of digital tools, infrastructure enhancement, and active community engagement. Addressing these structural and operational factors is essential to strengthen frontline health workers, improve service delivery, and promote inclusive and sustainable development in rural communities.

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