Leveraging Technology for Improved Service Delivery: Anganwadi Workers in Malappuram Bridge Digital divide to Utilize Communication Technologies

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Abstract: The research explores the integration of communication technologies by AWWs in Malappuram, Kerala, to enhance service delivery by bridging the digital divide. Anganwadi centers, a cornerstone of India's Integrated Child Development Services (ICDS), play a pivotal role in maternal health and Early Childhood Care and Education (ECCE). This study investigates how Anganwadi workers leverage smart phones, internet-based tools, and other communication technologies to overcome challenges in service delivery, improve efficiency, and ensure better health and nutrition outcomes for beneficiaries. Through in-depth interviews, surveys, and case studies, the research highlights the transformative potential of technology in grassroots healthcare delivery, examines the role of interpersonal face to face communication and provides recommendations for scaling these innovations across India.

Keywords: Anganwadi Worker, ICDS, Digital Divide, Anganwadi, Health Communication.

1. INTRODUCTION

Integrated Child Development Services (ICDS), plays a vital role in delivering essential healthcare, nutrition, and early childhood education in Indian Rural Setting. Established in 1975, the ICDS program is delivering its services through a wide network of Anganwadi Centers staffed by Anganwadi Workers (AWWs), who not only serve as frontline health and nutrition providers, but also there in the forefront to deliver various central and state government schemes and providing awareness in various social concerns particularly for women and children in rural and urban underserved areas.

The Term Anganwadi Derived from Two terms, *Angan* –Which means Courtyard and *Wadi* meaning Garden or shelter. Anganwadi can be literally translated as "courtyard shelter" or a nurturing space in the community. The meaning of the term anganwadi can be conceived as its original vision of providing healthcare, nutrition, and early education in an accessible, community-based setting—often within or near a village courtyard. Anganwadi Workers (AWWs) are female frontline workers who promote the activities of ICDS through Anganwadi Centers. They are selected from within the community, which helps them for the better involvement in the society. Despite their critical role, AWWs face numerous challenges, including being technology migrants from first generation learners, limited digital resources, shortages in frequent trainings on communication and technology, socio-political barriers, and multiple record-keepings, which hinder their ability to deliver optimal services.

In recent years, the rapid developments of digital communication technologies, especially the boom of Smartphone and its usage has presented an opportunity to integrate the activities of Anganwadi Workers with. The integration of smartphones, and applications such as WhatsApp and POSHAN Tracker, and other digital tools has the potential to enhance service delivery, improve data accuracy, and facilitate real-time monitoring of health and nutrition programs. Majority of the AWWs are digital migrants and first generation learners, as the basic qualification for the post of AWW is Matriculation. The adoption of these technologies is not uniform, and many AWWs—particularly in rural areas—struggle with digital literacy, poor internet connectivity etc.

The study focuses on Malappuram district in Kerala, a region with a unique socio-cultural landscape and a long-standing history of progressive healthcare initiatives. The first ICDS project in Kerala was launched in Vengara Block, Malappuram, in 1975, making this district a leader in early childhood and maternal health involvements.

2. NEED FOR THE STUDY

Through this study, an effort is made to find out the effectiveness in the usage of digital technology, especially smartphones by Anganwadi workers in Malappuram District. And also tries to connect the educational qualification, age and effectiveness of smartphone usage to analyze bridging of digital divide by Anganwadi workers. The Research design is descriptive and analytical. The study was done primarily to recognize the technology involvement of first generation anganwadi workers in the efforts of the ICDS programme for implementing technology for their service delivery.

3. OBJECTIVES OF THE STUDY

- To assess the impact of smartphone technologies on service delivery and beneficiary outcomes.
- To explore the effectiveness of smartphone usage among Anganwadi workers for the service delivery.
- To evaluate the areas of focus for the improved service delivery of ICDS programme.

4. REVIEW OF LITERATURE

Arunima (2021) in her study "The knowledge of anganwadi services in the community and the problems of Anganwadi workers". The study examines the understanding of community on Anganwadi services. The study adopted a mixed-method approach by taking sequential explanatory research in both quantitative and qualitative phases. The Study concludes that majority of the society believe that children and pregnant women are the key beneficiaries of services provided by Anganwadi. However, the majority of the people do not know about the referral services and nutrition and health education services from Anganwadi.

Sil (2023) in his study Exploring Anganwadi Centers in Panisagar R.D. Block: Issues, Challenges and Solutions. The study investigates the operational landscape of Anganwadi shedding light on a multitude of issues and challenges that hinder their effectiveness. descriptive cross- sectional survey is used for data collection. The study concludes with the recommendation to Introduce frequent interactions between Anganwadi workers and their supervisors to facilitate better implementation of ICDS schemes.

Malatesh et al. (2019) in their study Knowledge and Skill of Anganwadi Workers in Growth Monitoring in an Urban Slum of Central Part of Karnataka assess the knowledge and skill of Anganwadi workers regarding growth monitoring of under-five years' children in a selected urban slum. The cross sectional study using structured questionnaire, found that AWWs had inadequate knowledge and skills in growth monitoring, with many failing to weigh children below 3 years regularly and missing the opportunity to screen them for malnutrition. Additionally, many AWWs did not have sufficient knowledge of growth charts and did not adjust the Salter scale correctly.

Bhagia et al. (2020) in their study Effectiveness of various health education methods amongst primary healthcare workers of western Uttar Pradesh, Delhi (National Capital Region), India: A promotive intervention study assess the effectiveness of various health education methods for improving oral health knowledge of accredited social health activists (ASHA) and Anganwadi workers of Muradnagar Block, Ghaziabad-Delhi NCR. The promotive interventional study found that the combination method was the most effective in improving oral health knowledge of study population followed by posters and pamphlets and the least effective method was PowerPoint presentation.

Cherian et al (2019) In their study Empowerment of Anganwadi Workers in Oral Health Care: A Kerala Experience assess the knowledge and practice of oral health care among the AWWs of the Pulikeezh block Panchayath before and after an oral health education training. The study concludes that Empowered women are recognizably key agents in the change process who can play an effective role for health promotion.

5. METHODOLOGY

Survey method is used to find the objectives of the study. A Structured questionnaire is used to collect the responses from Anganwadi Workers. The sample size is 60 Anganwadi Workers from various parts of the district, as the universe sampling is Anganwadi Workers from Malappuram District. Target samples are Anganwadi workers, irrespective of their age or educational qualification were observed for the study. Well-structured and close ended questionnaire were issued among the samples, through Survey heart –online survey platform. The simple random sampling was done to collect the opinion.

6. DATA ANALYSIS AND INTERPRETATION

Data analysis is a systematic process of inspecting, cleaning, transforming, and modeling data with the goal of discovering useful information, informing conclusions, and supporting decision-making.

The collected data from Anganwadi Worker respondents are analyzed with different work experience category from less than 15 years to above 30 years with 5 year intervals. The total sample size is 60.

Table 6.1 Experience of Anganwadi Worker

Experience of Anganwadi Worker	**Total**	**%**
Less than 15 years	0	00
15-20 years	24	40%
21-25 years	12	20%
26-30 years	8	13%
More than 30 years	16	27%
Total	**60**	**100%**

From the Table 6.1 shows that Most Anganwadi Workers (40%) have 16-20 years of experience**,** indicating a moderately experienced workforce. No workers have less than 15 years of experience**,** suggesting high retention of long-serving workers**.** A significant portion (26.7%) has over 30 years of experience**,** highlighting a group of highly experienced workers who may be nearing retirement**.** Mid-level experience (21-25 and 26-30 years) is less represented (33%)**,** possibly indicating a gap in middle-career retention. 38% of anganwadi workers have >30yrs experience, and 92% having >20 Years, indicating a well experienced group of Anganadi Workers are deployed in the field.it also indicates most of them are above the age of 38.

Table 6.2 Educational Qualification

Qualification	**Number of Workers**	**Percentage (%)**
10th Standard	36	60%
12th Standard	12	20%
Graduate (Degree)	8	13.3%
Post Graduate	4	6.7%
Total	**60**	**100 %**

From the Table 6.2 shows that Majority (36 out of 60) have only a 10th-grade education, suggesting that most Anganwadi workers enter the role with minimal formal schooling. Only 12 workers (20%) have 12th-grade education, 8 (13.3%) are graduates, and 4 (6.7%) hold post-graduate degrees. Graduates/Post-graduates (12 total) may adapt faster to technology but are underrepresented.

Table 6.3 Usage of Smart Gadgets for job and personal uses

Device Usage	Number of Workers	Percentage (%)
Smartphone + Computer	4	6.7%
Smartphone + Normal Mobile (Dual Use)	12	20%
Smartphone Only	44	73.3%

From the Table 6.3 shows that Majority of the Anganwadi Workers are fully depended on smartphones indicating that most of them have successfully migrated to the latest technologies, which makes it easier to merge with technology integration of ICDS service delivery, especially the dedicated POSHAN Tracker application. 20% of the Anganwadi workers are still stand as the late majority or laggards who hesitates to migrate to smartphones. They are using Smartphones only for accessing POSHAN Tracker application. 6.7% are using both computers and smartphones.

Table 6.4 Better Communication and Data Collection method

	Communication and Data collection from beneficiaries	Communication and reporting with Supervisor
Normal Phone calls	12 (20%)	12 (20%)
Through WhatsApp/ other mobile applications	23 (38%)	17 (28%)
Both	25 (42%)	31 (52%)

From the Table 6.4 shows that Majority of the Anganwadi workers prefers a combined use of both Normal Phone calls and Messaging applications like WhatsApp for better and effective communication. A combined method of direct oral communication with Text based communication through Whatsapp chat etc. the category which hesitates to use smartphone are only preferred with Normal Phone calls for communicating with Beneficiaries and Supervisors (20%).

Table 6.5 Challenges in Using Communication Technologies for Service Delivery

	Count	Percentage
Shortage of Smart Device/Smooth Internet Access	44	73 %
Lack of trainings on Effective usage of Communication technologies	16	27 %
No Challenges	0	00 %

From the Table 6.5 shows that Even though the usage of Communication technologies is fare, majority of the Anganwadi worker feels that their usage of technology needs to be more polished, through proper trainings (27%) There is a significant number of Anganwadi workers feels shortage of Devices or Smoother internet for more effective service delivery.

Table 6.6 Effective method of Communication with Beneficiaries

	Count	Percentage
Over phone	4	07 %
Direct Face-to- Face	52	86 %
Makes no difference	4	07 %

From the Table 6.6 shows that Even though there is proper and effective usage of Communication technologies, Majority of the Anganwadi Workers are more relied on Direct Face to Face Communication over technology assisted Communication (86%) which highlights the importance of direct communication for more effective information transmission.

7. CONCLUSION

The study highlights the transformative potential of anganwadi Workers from first generation learners to effective users of technology. The major role of this transformation owes to the implementation of Digital inititatives by ICDS including POSHAN Tracker Application, which is used to track the daily base activities of an Anganwadi Center and an Anganwadi Worker. By addressing existing challenges and leveraging innovative solutions, experience of Angawadi workers in Malappuram district can serve as a model for other regions aiming to enhance grassroots healthcare delivery through technology.

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