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Navigating Digital Challenges in the Fight Against Malnutrition in India

By: Neha[1]

[1]Atmashakti Trust

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Abstract

This article represents the integration of digital solutions in combating malnutrition in India, spotlighting the challenges and potential of the Poshan Tracker app. Despite India's strides in telemedicine and digitalisation, malnutrition persists as a significant public health challenge, primarily affecting women and children. The Poshan Tracker app, launched as part of the Integrated Child Development Scheme (ICDS), holds promise in revolutionizing data collection and healthcare delivery. The application, launched by the Ministry of Women & Child Development, Government of India, in 2021, aims to revolutionize the monitoring and delivery of services in Anganwadis. However, it faces hurdles in adoption and efficacy due to limited digital literacy among frontline workers, notably Anganwadi workers. Anganwadis are the implementing unit of the supplementary nutrition program of ICDS at the village level, where the government of India is committed to establishing one Anganwadi center in a village having a minimum population of 400-800 individuals and after that multiplies 800- one Anganwadi centre.

Anganwadi centres are rural childcare facilities that promote early childhood care and education along with nutrition of pregnant women, lactating mothers, adolescent girls under 19 years, and children up to 6 years. Anganwadi workers are essential to these centres, providing preschool education, supplementary nutrition, health check-ups, immunizations, and growth monitoring for children under six and pregnant and lactating women. They also raise community awareness about health, nutrition, sanitation, and family planning through home visits and educational activities. Additionally, they maintain records, prepare reports, and collaborate with local health workers and agencies to ensure comprehensive service delivery, which is crucial in improving health and educational outcomes in rural areas.
The note underscores the critical role of Anganwadi workers in delivering services to millions, examining the intersection of technology and healthcare. However, their effectiveness is hampered by challenges such as language barriers, connectivity issues, and complex data entry processes associated with the Poshan Tracker app. Moreover, concerns regarding data accuracy, privacy, and Aadhaar linking, where Aadhaar is a form of individual identification in India, highlight the need for a nuanced approach to digital interventions, ensuring inclusivity and accessibility for all beneficiaries.

In advocating for a holistic approach, the note emphasizes the importance of user-centric design, multilingual support, and offline functionality to address the needs of frontline workers and marginalized communities. By fostering collaboration between policymakers, technologists, and grassroots stakeholders, India can bring the transformative potential of digital innovation to realize its vision of a malnutrition-free nation where every child receives the nutrition and care they deserve.

Background

With the emergence of the Internet worldwide, it was first limited to business purposes, not to routine and daily life. In India, despite starting in 1986, public access to the Internet began in 1995.

Telemedicine found its role for the first time in disaster management when NASA first deployed ATS-3 Satellite-Assisted Voice Transmission for rescue operations during the Mexico City earthquake since all terrestrial communication infrastructure was destroyed due to the earthquake. Subsequently, satellite technology was used in telemedicine in all modes of communication and transportation during the 1988 Soviet Armenia earthquake. However, there has been a growing recognition of the need to extend healthcare services to remote locations and underserved communities. This recognition is driven by various factors, including the persistent prevalence of diseases, especially in rural areas, and the government's commitment to achieving universal healthcare coverage through the Ayushman Bharat scheme. Launched in 2018, Ayushman Bharat encompasses Health and Wellness Centres (HWCs) and the Pradhan Mantri Jan Arogya Yojana (PM-JAY). The scheme aims to provide comprehensive healthcare at primary, secondary, and tertiary levels, making healthcare accessible and affordable for all citizens. As a result, delivering healthcare services to remote locations has become an integral part of India's healthcare industry.

Advancements in technology, such as telemedicine and mobile health solutions, have facilitated efforts to reach remote communities. These innovations have enabled healthcare providers to bridge the gap between urban healthcare facilities and rural populations by remotely delivering medical consultations, diagnosis, and treatment. Additionally, community health workers, including Anganwadi workers, play a crucial role in delivering healthcare services to the doorstep of beneficiaries in remote areas.

As a country dealing with many developmental challenges, India faces a particularly daunting task in combating malnutrition. Despite being one of the world's fastest-growing economies and a leader in technological innovation, India continues to struggle with high rates of malnutrition, especially among its most vulnerable populations, including pregnant women, lactating mothers, children, and infants, economically disadvantaged groups and populations. According to the Global Hunger Index 2023, India ranks 111 out of 125 countries worldwide, which is shocking.

Against this backdrop, the digital revolution presents opportunities and challenges in the fight against malnutrition. The emergence of telemedicine and digital health technologies holds promise in enhancing healthcare delivery, real-time data collection, and evidence-based decision-making.

Case of Poshan Tracker App in Combating Malnutrition in India

Introduction

India has the highest prevalence of anaemia globally, with over 57% of women aged 15-49 and more than 67% of children aged 6-59 months affected. The slow improvement in nutrition indicators highlights the ongoing need for effective interventions. India continues to

face significant challenges with malnutrition. According to the National Family Health Survey (NFHS-5), the prevalence of underweight children has decreased by 3.7 percentage points, stunted children by 2.9 percentage points, and wasted children by 1.7 percentage points between 2015-16 and 2019-21. Despite this progress, malnutrition remains a critical issue. Currently, about 35.5% of children under five years are stunted, 32.1% are underweight, and 19.3% suffer from wasting, as per the UN India report. These statistics underscore the critical need for targeted interventions to improve child nutrition and health. To combat malnutrition in India and ensure supplementary nutrition to pregnant women, lactating mothers, and children under six years. The Government of India launched a flagship program in 1975. The Integrated Child Development Scheme (ICDS) was further implemented by Anganwadi centres at the village level. Each Anganwadi has been assigned an Anganwadi worker and a helper. There are currently 1.4 million registered Anganwadi centers in India, which are further run by 1.35 million Anganwadi workers and 0.92 million Anganwadi helpers.

The Poshan Tracker application, a mobile-based initiative by the Ministry of Women & Child Development, Government of India, introduced in 2021, holds the promise of transforming how services are monitored and delivered in Anganwadis across the country. However, its full potential remains to be tapped as only 1.1 million of the total number of Anganwadis have access to smartphones, highlighting a significant gap in implementation and utilization.

Role of Anganwadis

The Anganwadi centers ensure supplementary nutrition and the overall health of more than 100 million beneficiaries, including 77.1 million children under six years of age. Anganwadis are responsible for providing supplementary nutrition to beneficiaries, including hot-cooked meals. They monitor children's overall growth and nutrition by tracking their height and weight. Additionally, they offer primary education to children aged 3 to 6 years, promoting cognitive learning and teaching.

Anganwadi workers also handle reporting and data collection, visit villages to track the status of beneficiaries, and supplement iron and folic acid tablets to combat anaemia in pregnant and lactating women and adolescent girls. They organize education and awareness programs in the village to improve health and nutrition knowledge in the community.

An Anganwadi worker is a community resident responsible for 1000 individuals in a specified area village. They must undergo four months of intensive training programs organized by the Ministry of Women and Child Development of India and the Ministry of Health and Family Welfare India. The minimum educational requirement is typically a high school diploma (10th grade). Preference is often given to women from the local community who understand the local culture and language, ensuring they can effectively communicate and engage with the beneficiaries. The selection process includes an application, written tests, and interviews conducted by the relevant government department, often the Women and Child Development Department. Training programs are provided to newly selected Anganwadi workers to equip them with the necessary nutrition, health, early childhood education, and community engagement skills. This training ensures they are well-prepared to fulfill their diverse responsibilities in the community. This limited educational background, coupled with the rapid digitalization of healthcare services, has created a significant learning

gap for these workers, making it challenging to effectively use digital tools like the Poshan Tracker app.

The Digitalization of the Data in Anganwadi Centres

The Pradhan Mantri Poshan Shakti Nirman (PM-POSHAN) program, initiated in 2018 with the CAS (Common Application software), aimed to digitize data on nutrition and activities. This comprehensive profiling of Anganwadi centres and real-time data collection significantly reduced malnutrition and anaemia. Under the program, smartphones were distributed to Anganwadi workers, enabling them to upload real-time data of beneficiaries and other activities, thereby enhancing the efficiency of healthcare and nutrition services in a Poshan Tracker Application.

For Anganwadi workers, uploading data on the application portal daily is mandatory. If data is not uploaded, the workers are marked absent.

Initially, the application was only in English. However, after one of the Anganwadi workers filed a petition, the High Court of Bombay ordered that it be user-friendly, including in English. Now, the application is available in 22 Indian languages.

Poshan Tracker: A Digital Challenge

"I do not know much about the application. I ask my son to enter the data," says 50-year-old Bimla Mallick, an Anganwadi worker in a remote village in the Daringibadi block of Kandhmal district, Odisha. She has shown her vulnerability while doing this data entry work, and she has no previous experience using smartphones.

Similarly, in other parts of the country, the literacy of the Anganwadi workers has yet to be studied before such applications are launched. Considering the remote parts of India, Internet connectivity is a significant challenge. Without the Internet, there is a possibility of keeping the beneficiary's data offline for three days. However, after three days, if the workers do not get access to the Internet, the data upload will vanish automatically. There is a likelihood of alteration in the quality of the data collection. Once the data is uploaded, the workers cannot alter or modify it for the wrong entries.

With the Poshan Tracker app and smartphones, Anganwadi workers are still required to maintain physical records of each data point. These records are further kept in 17-18 registers daily, including data on **Take Home Ration** under Supplementary Nutrition Programme, height-weight of children up to 6 years, nutrition to pregnant and lactating women and adolescent girls, vaccination, hot cooked meals provided every day, home visits to beneficiaries, and more. This manual data entry process is time-consuming and prone to errors, highlighting the need for more efficient digital tools and streamlined data management systems.

Despite their best efforts, the Anganwadi workers face numerous challenges in their crucial roles. Maintaining multiple types of information in registers, including data on beneficiaries, distribution, activities, and growth monitoring charts of individual children, is daunting. The constant struggle to disseminate this data to the different layers of administration remains a significant challenge, with a threat of losing the data due to network issues, underscoring the

need for more efficient systems. Moreover, the digitization of the data makes it complex for the village-level Anganwadi worker who is merely earning an honourary amount ranging from 2500 to 5000 INR ($30-$60).

The Relevance of the Application

The POSHAN Tracker app, launched as part of India's Poshan Abhiyan (National Nutrition and Mission) initiative, has significantly improved access to healthcare and nutrition services in rural and remote areas. The app enables community health workers (CHWs) to track and monitor individuals' health and nutrition status, especially women and children. CHWs use the app to record weight, height, and haemoglobin levels, which helps detect malnutrition and other health issues early.

The Poshan Application has challenged the lives of Anganwadi workers, who have changed their role from primary caretakers of children to data entry agents at the village level. Many times, the application does not work, and they cannot open it due to network errors. Additionally, the smartphones distributed by the administration needed to be more sufficient to manage the application. The application is too heavy, which requires enough storage space in the phone, but due to its size, the regular phone cannot perform the functions.

At the beneficiary level, the government has mandated linking the beneficiary's Aadhar cards to receive supplementary nutrition and Anganwadi services. As per the Unique Identification Authority of India (UIDAI), out of 77.1 million children, only 36% of the children have Adhaar card enrolment. The linking is compulsory to access the services. This violates the "Right to Food" under Article 21 of the Indian Constitution, which mandates the universalization of entitlements.

The Real-Time Data and Accuracy

A common problem arises when it comes to beneficiary data: it does not migrate itself. For example, a child who was enrolled under the 0-3 years category does not migrate when reaching the age of 3 years and one day. The Anganwadi worker has to do a fresh entry for the child, which is a duplication of work and data. The application was mandated to keep track of the malnutrition rate, but it does not disclose the data of malnourished children; however, the reality is quite different.

Conclusion

Integrating digital solutions like the Poshan Tracker app represents a significant milestone in India's battle against malnutrition, leveraging digital technology to enhance healthcare delivery and nutrition services. It allows for better tracking of nutritional status and ensures that services reach those who need them most. It epitomizes a paradigm shift towards evidence-based policy-making and data-driven interventions. By harnessing real-time data on nutrition and healthcare services, policymakers can chart informed strategies, allocate resources judiciously, and monitor program effectiveness with unprecedented precision. However, implementing the Poshan Tracker app faces several challenges that need to be addressed to harness its potential fully. Limited digital literacy among frontline workers, connectivity issues in remote areas, and complex data entry processes are significant barriers. While the app holds promise in facilitating real-time data collection and monitoring, its

efficacy is contingent upon addressing these underlying obstacles and ensuring equitable access to essential services.

These challenges can be overcome by investing in a user-centric approach, providing multilingual support, and ensuring offline functionality to cater to the needs of the workers. Additionally, enhancing training programs, streamlining data management systems, and fostering collaboration between policymakers, technologists, and grassroots stakeholders are crucial steps. India can leverage the transformative potential of digital innovation, ensuring that every child receives the nutrition and care they deserve, ultimately moving closer to the vision of a malnutrition-free nation.

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