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Review Article

The role of anganwadi centres in addressing maternal and child health challenges in rural India

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ABSTRACT

The Integrated Child Development Services (ICDS) scheme is a flagship initiative of the Government of India aimed at improving the health and nutritional status of children under six years of age, along with pregnant and lactating women. At the centre of this programme are anganwadi centres (AWCs), which serve as the primary platform for delivering a range of health, nutrition and early childhood care services in rural areas. However, rural women and children continue to face serious health challenges such as malnutrition, anaemia, low immunization coverage and limited access to health awareness and services. This paper, based on available literature, critically discusses the role played by Anganwadis in addressing these health concerns. It highlights the contributions of AWCs in improving child nutrition, promoting maternal health, supporting immunization drives, and offering basic health education at the community level. At the same time, the paper also points to several gaps and challenges, including poor infrastructure, inadequate staffing, and coordination issues. The paper concludes by stressing the importance of strengthening Anganwadi services for advancing rural public health and recommends policy attention to ensure their effective functioning and long-term sustainability.

Keywords: Integrated Child Development Services, Anganwadi centres, Rural public health, Child nutrition, Maternal health, Policy challenges

INTRODUCTION

Despite significant improvements in healthcare delivery system in India, rural areas often face critical health challenges particularly the women and children.[1] A large segment of the rural population struggles with inadequate access to basic healthcare services due to infrastructural limitations, shortage of trained health care professionals and other barriers like poverty, illiteracy and poor nutrition.[2] Research shows that children in rural areas are more vulnerable to undernutrition, vaccine-preventable diseases and delayed growth and development.[3] Similarly, rural women also face higher risks during pregnancy and childbirth due to late antenatal care, anaemia, and poor awareness of health and hygiene practices.[4,5] In response to these multi-layered issues, the Government of India launched the Integrated Child Development Services (ICDS) scheme in 1975 with aim to promoting the holistic development of children under six years of age and supporting pregnant and lactating women.[6] The scheme operates through a network of Anganwadi Centres (AWCs), which serve as a decentralized platform for delivering essential services like supplementary nutrition, immunization support, health check-ups, referral services, and early childhood care and education.[7] The Anganwadi worker, often a woman from the local community, plays a key role in mobilizing women, disseminating health and nutrition information and connecting families to government health services.[8]

The roles of Anganwadis are significant in the rural areas because formal healthcare institutions are often inaccessible or inadequately equipped there.[9] They act as the first point of contact between rural households and the public health system, making them critical to the success of both preventive and promotive health interventions.[11] Over the years, AWCs have contributed to important outcomes such as increased immunization coverage, improved child growth monitoring and also enhanced awareness of maternal health and nutrition.[12,13] However, studies have also pointed out to persistent challenges in their functioning ranging from inadequate infrastructure and irregular supply of food supplements to lack of training and overburdening of Anganwadi workers.[14]

Given this backdrop, the present paper is conceptualized to critically review and synthesise existing literature on the role of Anganwadi Centres in addressing the health needs among rural children and women. It aims to assess the extent to which Anganwadis contribute to improving rural health outcomes, examine the challenges they face and identify potential areas for policy and programmatic improvement. Authors argue that such an understanding is crucial not only for strengthening the ICDS framework but also for advancing broader public health goals related to nutrition, maternal care and early childhood development in rural India.

METHODS

The present paper is based on a comprehensive review of existing literature that focuses on the role of anganwadi centres (AWCs) in improving the health of rural children and women. The purpose was to gather insights from various scholarly sources to understand both the contributions and limitations of Anganwadis within the broader context of rural health in India.

Scope and inclusion criteria

The paper includes literature that mainly focuses the functioning, impact and challenges of Anganwadi Centres, specifically in relation to maternal and child health outcomes in rural India. Priority was given to peer-reviewed journal articles, government and non-governmental reports, evaluation studies, and policy documents. Studies that focused on integrated health and nutrition services, community-level interventions, and programmatic evaluations under the ICDS framework were also considered relevant.

Sources and search strategy

While preparing for the paper relevant literature was first identified through a systematic search of academic databases like JSTOR, PubMed, Scopus and Google Scholar. Government reports were retrieved from the institutional repositories such as those of NITI Aayog, Ministry of Women and Child Development (MWCD), etc. The keywords used for the search included: "Anganwadi", "ICDS", "rural health India", "maternal and child health", "nutrition services", "community health workers", and "early childhood care in India" etc. Boolean operators and combinations of terms were often used to refine the search and capture relevant studies.

DISCUSSION

Core functions of anganwadis related to health

As discussed in introduction section, Anganwadi Centres (AWCs) under the ICDS scheme are designed to serve as a grassroots mechanism for delivering a basic package of health and nutrition services to rural communities. The core functions of the AWCs are to improve the well-being of children, pregnant and lactating women, particularly in remote and rural areas.[14] These functions, although interlinked but address specific aspects of community health and development.

Supplementary nutrition services

One of the primary responsibilities of Anganwadis is the provision of supplementary nutrition to children under the age of six years and to pregnant and lactating women. This includes take-home rations (THR) or meals aimed at addressing caloric and nutritional deficiencies that are common in rural populations.[15] It is argued that these services are intended not as a substitute for home diets, but as a support mechanism to bridge the existing nutritional gaps and reduce the prevalence of malnutrition, stunting and wasting among children.[16] The food provided is supposed to be locally prepared, culturally appropriate and monitored for quality and adequacy.

Growth monitoring and health check-ups

Anganwadi workers (AWWs) are responsible for regularly monitoring the growth of children by recording their weight, height and mid-upper arm circumference. These growth charts prepared by AWWs help in identifying early signs of malnutrition and developmental delays among the children.[17] Children falling below normal nutritional benchmarks are referred for further medical intervention. Periodic health check-ups, though often dependent on coordination with health departments, are also part of the mandated service package and aim to detect and prevent common illnesses among children and women.[18]

Immunization support and coordination with ASHA/ANMs

Although immunization is primarily a function of the health department, Anganwadi Centres play a crucial role in facilitating it. AWWs work in close collaboration with Accredited Social Health Activists (ASHAs) and Auxiliary Nurse Midwives (ANMs) to ensure that children and pregnant women are mobilized for their routine immunization sessions. Anganwadis often serve as designated sites for immunization drives, making them

essential points of service delivery for rural households.[19,20] The community trust built by AWWs contributes to improving vaccine uptake and addressing resistance or hesitancy among the families.

Nutrition and health education for mothers

Anganwadi workers also play an important role in promoting awareness about nutrition, hygiene, breastfeeding practices and techniques of overall childcare. Through counselling sessions, regular home visits, AWWs disseminate vital information on maternal and child health, safe pregnancy, exclusive breastfeeding, complementary feeding and the importance of sanitation and hygiene.[21] This aspect of their work supports long-term behavioural changes that are essential for improving household health practices, reducing morbidity and mortality rates among women and children. Hence, the health-related functions of Anganwadis reflect a community-based approach to public health that emphasizes prevention, early intervention, and behavioural change. Their proximity to rural households, coupled with their integrative role in the health and nutrition ecosystem, makes them vital to improve the maternal and child health outcomes in the rural areas.

Impact of anganwadi services on rural child health

Anganwadi Centres (AWCs) play a critical role in improving the health and nutritional outcomes of children in rural India. By delivering essential services like supplementary nutrition, growth monitoring and early childhood care, they serve as a foundation for promoting child development and well-being in rural areas. While there is evidence of positive impact, this progress remains uneven across states and is often shaped by factors such as infrastructure quality, staffing levels, funding and administrative supports.

Improvements in child nutrition

Research have shown that ICDS services, specifically supplementary nutrition through Anganwadis, have contributed to reducing the prevalence of undernutrition in children. There has been a gradual decline in stunting and wasting among children under five years of age, particularly in areas where Anganwadis are functional and well-supported.[22,23] For instance, children regularly accessing Anganwadi services have been found to exhibit better weight and height for age indices compared to those not enrolled in the centre.[24] However, these gains remain modest and are often undermined by irregular food supply, poor food quality and delayed growth monitoring.

Early childhood care and development

In addition to nutritional support, AWC also play important role in providing non-formal preschool education and early stimulation, which are essential for cognitive and socio-psychological development in the children. Early exposure to play, learning activities and social interaction at Anganwadi Centres has been associated with improved school readiness and learning outcomes.[25] The presence of a regular caregiver, often from the same village and locality, helps in building a trusting environment for children. However, the quality of early childhood education at AWCs remains highly variable and depends largely on the training and motivation of the Anganwadi worker and other staffs.

Challenges in service delivery

Despite their potential, AWCs face several implementation challenges that often hinder the full realization of their impact. Poor infrastructure such as lack of clean water, sanitation and safe kitchen facilities continues to affect service delivery in many centres.[26] The absence of dedicated buildings and overcrowding are common in several states. Human resource shortages, low wages, irregular training, and the excessive administrative burden on Anganwadi workers also weaken the delivery of health and nutrition services.[27] Moreover, Anganwadi workers are often expected to manage a wide range of responsibilities from maintaining records to mobilising families for immunization without adequate support.

Regional variations in outcomes

The effectiveness of Anganwadi services varies significantly across regions, influenced by factors such as governance quality, state-level investment, community participation and local innovations. States like Tamil Nadu and Kerala have demonstrated relatively stronger ICDS performance, with comparatively better infrastructure, frequent training and local food procurement systems.[28] In contrast, states with weaker institutional capacity or remote geographies, like Jharkhand or Chhattisgarh, continue to struggle with basic implementation.[29] These variations highlight the need for more context-specific approaches in ICDS planning and monitoring. So while Anganwadis have made notable contributions to rural child health, their full potential remains unrealised due to systemic constraints. Strengthening the infrastructure, ensuring timely delivery of services and empowering frontline workers are essential to sustain and deepen their impact on child health and development in rural areas.

Impact on women's health and empowerment

Anganwadi Centres (AWCs) play an important role not only in promoting child health but also in addressing the health and well-being of rural women, particularly during their pregnancy and lactation. Through their targeted services and community-based approach, Anganwadi Centres contribute to improved maternal health, greater health awareness and the gradual empowerment of rural women. Although their primary directive is service delivery, their presence and activities often lead to broader social change by engaging women in local governance, collective action and knowledge-sharing.

Support for maternal health and safe motherhood

The services provided in AWCs directly support pregnant and lactating women through supplementary nutrition, regular health check-ups (in coordination with health workers) and referrals for antenatal care. These interventions are critical in rural areas, where access to healthcare is often limited by distance, cost and social constraints.[30] Regular provision of food supplements during pregnancy has been linked to better birth outcomes, including reduced incidence of low birth weight and maternal anaemia.[31] The Anganwadi worker also helps in identifying high-risk pregnancies and ensuring timely referrals to health facilities, thereby contributing to safer motherhood.

Role in increasing health awareness among rural women

A key contribution of Anganwadi Centres lies in their ability to act as spaces of informal learning for women. Through group meetings, counselling sessions and home visits, Anganwadi workers educate rural women on health concerns such as nutrition during pregnancy, breastfeeding, immunization schedules, hygiene practices, family planning and recognising signs of maternal and infant illness.[32] These regular interactions not only improve knowledge but also encourage women to adopt healthier practices at home. Over time, such knowledge dissemination has been shown to increase the utiliztion of public health services, improve care-seeking behaviour, and reduce dependence on harmful traditional practices.[33]

Indirect role in women's empowerment and community participation

Beyond health services, Anganwadi Centres contribute indirectly to women's empowerment. By encouraging women to step outside the domestic sphere and engage with public programmes, AWCs foster a sense of collective identity and participation among the rural women. Research shows that participation in mothers' meetings or nutrition days is one of the first experiences of public engagement and exposure to government services for many rural women.[34] Moreover, the employment of local women as Anganwadi workers and helpers creates opportunities for income, recognition and leadership within the community.[35] These roles challenge traditional gender norms and inspire other women to seek employment or participate in local institutions such as self-help groups and panchayats. In addition, AWCs often become venues for convergence with other women-focused schemes, such as the Self-Help Group movement, Mahila Arogya Samitis, or village health sanitation and nutrition committee, strengthening their function as community-level support spaces. These indirect pathways of empowerment, though less frequently documented, are integral to long-term social change.

Hence, while the primary focus of Anganwadis remains service delivery, their work has far-reaching implications for women's health and empowerment in rural areas. Strengthening these centres with adequate resources, training, and convergence with other schemes can further amplify their transformative potential for women's lives.

Institutional challenges and ground realities

While AWCs are designed to serve as a vital link between rural population and essential health and nutrition services, their functioning is often constrained by deep-rooted institutional challenges. These barriers, both structural and operational, significantly affect the reach, quality, and impact of services delivered through the ICDS framework. Understanding these ground-level realities is essential to interpret the uneven performance of Anganwadis.

Gaps in infrastructure, staffing and training

Many Anganwadi Centres in rural areas operate under severe infrastructural constraints. A large number function out of rented or dilapidated buildings without access to basic amenities like clean drinking water, toilets, or dedicated cooking spaces.[36,37] The lack of proper storage facilities and safe utensils further compromises the quality of food served. In some states, AWCs operate without electricity or adequate ventilation, affecting both health services and preschool activities. Staffing shortages and lack of professional training also continue to undermine service delivery. Anganwadi workers (AWWs) and helpers are often overburdened with multiple responsibilities from maintaining records to mobilising community participation without sufficient compensation or institutional support.[38] Most AWWs receive only basic, one-time training, with limited opportunities for skill upgradation in health, nutrition counselling, or early childhood education. In addition, contractual employment conditions, low honorarium and delayed payments impact motivation and accountability.

Monitoring and accountability issues

Another challenge lies in the inadequate mechanisms for monitoring and supervision of AWCs. Although Anganwadi workers are required to maintain detailed registers and submit periodic reports, there is limited on-ground verification or feedback on service quality. Supervisory staff at the block or district level are often overburdened and unable to carry out regular field visits.[39] As a result, issues such as inaccurate data reporting, poor service coverage, or misuse of resources often go unnoticed. Moreover, performance evaluation is frequently limited to administrative targets rather than outcome-based indicators like improvement in nutritional status or health awareness. The absence of community-level grievance redressal mechanisms further limits transparency and citizen engagement in monitoring the scheme.

Coordination with other schemes

Anganwadis are meant to function in coordination with other public health and nutrition initiatives, such as the National Rural Health Mission (NRHM), Poshan Abhiyaan, and Janani Suraksha Yojana (JSY). However, weak inter-departmental collaboration often leads to duplication of efforts, inefficient resource use, and gaps in service delivery.[40] For instance, while immunization and health check-ups are ideally supported by ASHAs and ANMs under NRHM, coordination meetings and joint outreach activities between departments are often irregular or poorly documented. Similarly, while Poshan Abhiyaan (National Nutrition Mission) was launched to strengthen convergence and improve monitoring through the use of technology (like the Common Application Software), implementation has been inconsistent. Many Anganwadi workers lack smartphones or digital literacy, leading to delays in data entry and misreporting.[41] These coordination challenges point to the need for better integration of schemes, clear role definition among frontline workers, and stronger institutional frameworks for convergence. While the vision of Anganwadis as holistic community health and development centres remains relevant, their functioning is often compromised by structural inadequacies, fragmented accountability and institutional silos. Addressing these challenges requires not only greater investment but also deeper administrative reform and capacity-building at the local level.

Innovations, best practices and policy interventions

Over the years, several innovations and policy reforms have emerged to strengthen the role and functioning of Anganwadi Centres (AWCs). These include state-level adaptations to local needs, efforts to enhance community participation, and national policy shifts aimed at improving service quality and system integration. Collectively, these developments demonstrate the evolving nature of the ICDS framework and offer important lessons for future implementation.

State-specific innovations

Many states have introduced innovative models to address local challenges in Anganwadi service delivery. For example, Tamil Nadu has consistently ranked high in ICDS performance due to decentralised food procurement, strong monitoring systems and the better infrastructure investment.[42,43] The state's use of central kitchens and regular training for Anganwadi workers has set a benchmark for other regions. In Chhattisgarh, the Suposhan Abhiyaan initiative integrates nutrition gardens (kitchen gardens) within or near AWCs to promote local production of fruits and vegetables, thereby improving the nutritional diversity of meals served.[44] Such practices also foster community involvement and awareness about dietary diversity. Some states, such as Telangana and Andhra Pradesh, have adopted digital tracking systems where Anganwadi workers use mobile applications to record children's nutritional data, monitor service delivery, and update beneficiary lists in real time.[45] This use of ICT tools enhances accountability, reduces paperwork, and enables data-driven decision-making.

Role of community participation and local governance

The involvement of the local community, especially women, is crucial to the effectiveness of Anganwadi services. In several districts, Village Health Sanitation and Nutrition Committees (VHSNCs) and local panchayats have taken active roles in monitoring AWCs, supporting infrastructure development, and ensuring food quality.[46,47] Community-based monitoring, when done regularly, helps in identifying gaps, improving transparency, and increasing ownership of services. Mothers' committees and self-help groups (SHGs) have also been mobilised in some areas to participate in menu planning, maintain cleanliness, and support the daily functioning of AWCs.[48] Such participatory models create a sense of shared responsibility and help in building trust between service providers and beneficiaries.

Policy shifts under poshan 2.0

In recent years, national policy has sought to strengthen and restructure ICDS through the launch of Poshan Abhiyaan (2018) and its consolidation into Mission Poshan 2.0 (2021). These initiatives aim to address persistent malnutrition through better convergence of services, real-time monitoring and community mobilization.[49] Poshan 2.0 emphasizes digital tracking through the Common Application Software (CAS), use of growth monitoring devices, and attention to underweight and anaemic women and children. It also promotes community awareness via Rashtriya Poshan Maah and Poshan Pakhwada celebrations.[50]

However, implementation of these reforms varies across states due to differences in infrastructure, digital literacy among the Anganwadi workers and administrative support. While the intention of Poshan 2.0 is to create an integrated and tech-enabled delivery system, the ground realities often involve gaps in training, delays in hardware distribution and data overload on frontline workers.[51] So, the evolving landscape of innovations and policy reforms reflects a growing recognition of the central role Anganwadis play in improving rural health and nutrition. Encouraging local adaptations, promoting community ownership and ensuring consistent policy support are key to strengthening these centres and realising their full potential.

CONCLUSION

Anganwadi Centres (AWCs) continue to serve as a cornerstone of rural public health and nutrition. Through their integrated services under the ICDS scheme, these centres have made significant contributions to improving the health and development of children and supporting the

well-being of pregnant and lactating women. Their deep community embeddedness, local accessibility and focus on the early years of life position them as one of the most inclusive and far-reaching welfare interventions in rural areas. However, as this paper has shown, the impact of Anganwadis remains constrained by persistent challenges related to infrastructure, staffing, training, accountability, and coordination with allied schemes. Regional variations and social inequalities further compound these challenges by affecting the reach and quality of services. Despite these limitations, the fundamental design and purpose of Anganwadis often remain sound and their potential for transforming rural health outcomes is far from exhausted.

Policy recommendations

To unlock this potential, improved policy commitment is required, focusing on three key areas. First, capacity building and workforce support must be strengthened through more frequent and updated training for Anganwadi workers and helpers in health, nutrition counselling, and early childhood education. Their honorariums should be revised to reflect the scale and complexity of their responsibilities, complemented with job security and career progression opportunities. Second, infrastructure and resource strengthening must be prioritized by investing in clean water, toilets, safe kitchens, and dedicated learning spaces, while ensuring the timely supply of nutritious food, growth-monitoring equipment, and digital tools. State-level innovations such as kitchen gardens, mobile-based data tracking and decentralised food procurement can also be scaled up where feasible. Third, monitoring, accountability and convergence need to be reinforced by strengthening on-ground supervision through trained staff and community-based monitoring mechanisms by promoting integration between Anganwadis, health services (ANMs, ASHAs), schools, and local governance for coordinated planning. Technology should be used thoughtfully so that it supports rather than burdens workers, with digital literacy built into ongoing training programmes. In conclusion, Anganwadis are more than just service delivery points but they are vital social spaces that have the potential to reshape the health and well-being of rural areas. With strategic investment, thoughtful reforms and meaningful community engagement, they can become truly transformative institutions for generations to come.

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