

# Tribal Child Nutrition and Health in District of Sundargarh: A Public Health Review of ICDS Intervention

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## ABSTRACT

The district of Sundargarh, Odisha, predominantly occupied by Orang tribal communities, even before independence, Sundargarh has presented a complex Landscape of Public health Challenges, particularly concerning scheduled tribes' children's nutrition and their health. *"The region's tribal population is often marked by socioeconomic vulnerabilities, poor access to healthcare, and traditional lifestyles that contribute to high levels of child malnutrition, morbidity, and mortality"*. In response to these pressing issues, the Government of India launched the Integrated Child Development Services (ICDS) was launched on 2nd October 1975 by the Ministry of Women and Child Development as a flagship welfare programme aimed at improving the scheduled tribe tribal health, malnutrition, and early education of children aged 0-6 years, with special focus on marginalized groups of Bisra Block of Sundargarh district, Odisha, The studies of public health reviewed and explored the effectiveness of ICDS interventions in addressing nutritional and health concerns of tribal children in Sundargarh. It examines the outreach and impact of services provided through Anganwadi Centres (AWCs), such as supplementary nutrition, immunization, health check-ups, and referral services. Despite several policy initiatives and resource investments, gaps persist in implementation and access. Through this study seeks to understand and highlights the gaps while assessing important program's and to contributing for enhancing the child wellbeing in tribal setting-up for the feature national health indicator of the Sundargarh district, and to recommend measures for improving the health and nutrition outcomes among tribal children in the district of Sundargarh.

**Keyword:** Public health, ICDS, health index, child nutrition, Malnutrition

## INTRODUCTION

Nutrition and health during early childhood are crucial factors influencing a child's physical, cognitive, and emotional development. In India, child malnutrition remains a significant public health issue, especially among marginalized communities like Scheduled Tribes (STs). The **National Family Health Survey-5 (NFHS-5)** reveals that tribal children experience disproportionately higher rates of stunting, wasting, and underweight compared to the national average (IIPS, 2021). This problem is particularly acute in states such as Odisha, where large tribal populations reside in remote and socioeconomically disadvantaged areas. **Sundargarh district**, located in northwestern Odisha, has a predominantly tribal population, including groups like the Oraon, Munda, Kharia, and Gond. These communities encounter numerous systemic barriers, including poverty, food insecurity, low literacy rates, poor access to healthcare, and limited awareness of nutrition and hygiene practices. These interconnected issues contribute to poor maternal and child health outcomes, high infant mortality rates, and widespread malnutrition. To combat these challenges, the **Government of India** launched the **Integrated Child Development Services (ICDS)** on October 2, 1975, under the Ministry of Women and Child Development. As one of the world's largest early childhood care programs, ICDS provides six core services: supplementary nutrition, immunization, health check-ups, referral services, pre-school education, and health and nutrition

education, primarily through **Anganwadi Centres (AWCs)** (MoWCD, 2020). In Odisha, particularly in tribal-dominated districts like Sundargarh, ICDS plays a vital role in breaking the cycle of intergenerational malnutrition and poor health. The program was introduced in Sundargarh in the 1980s and has since become a key intervention for promoting early childhood health and nutrition, especially in blocks like **Bisra**, which have high tribal populations. Currently, more than **1,900 Anganwadi Centres** are operational in Sundargarh district, providing essential services such as the **Supplementary Nutrition Programme (SNP)**, regular health check-ups, immunization, and referral services. Data from **2018 to 2023** shows several positive outcomes, including improvements in child weight classifications, a reduction in **Severe Acute Malnutrition (SAM)** cases, and increased immunization coverage. However, despite these successes, ICDS implementation in Sundargarh faces significant challenges, including irregular supplies of nutritional supplements, inadequate infrastructure, a shortage of trained Anganwadi Workers (AWWs), and weak coordination with the health department. Additionally, low community participation and gaps in monitoring further impede the program's effectiveness in remote tribal areas. This study aims to evaluate the role of ICDS in enhancing the nutritional and health status of tribal children in Sundargarh district. It seeks to assess the quality and reach of service delivery, identify key implementation gaps, and explore the perspectives of stakeholders such as mothers, Anganwadi Workers, and community health volunteers. By utilizing both secondary data and field-level insights, the paper provides evidence-based recommendations to strengthen ICDS and improve health outcomes for tribal children in Odisha.

## REVIEW OF LITERATURE

Sudarshan and Seshadri (2022), in their chapter “Health of Tribal People in Central India” from the *Tribal Development Report*, emphasize the ongoing health disparities faced by tribal communities, which stem from systemic neglect and socioeconomic marginalization. The authors document alarmingly high rates of malnutrition, maternal and child mortality, and communicable diseases such as malaria and tuberculosis, all of which are worsened by inadequate health infrastructure, insufficient funding, and a lack of trained medical personnel in remote areas. They critique the uniformity of national health policies, which often overlook the cultural and geographical contexts of tribal populations. Highlighting the importance of civil society organizations and local health workers, the authors advocate for community-based healthcare models, tribal involvement in governance, and the integration of traditional health practices. The chapter calls for increased financial investment, decentralization, and culturally sensitive health planning to enhance health outcomes. It provides a critical framework for tackling tribal health through inclusive, rights based, and locally grounded approaches.

Jena (2013), in her doctoral dissertation titled “*Knowledge of Anganwadi Workers about Integrated Child Development Services (ICDS): A Study of Urban Blocks in Sundargarh District of Odisha*,” Jena examines the awareness and understanding that Anganwadi Workers (AWWs) have regarding various components of the ICDS scheme. The findings indicate that while AWWs generally possess basic knowledge about the objectives and services of ICDS such as supplementary nutrition, immunization, health checkups, and preschool education they exhibit significant gaps in their understanding of program guidelines, recordkeeping, and coordination with other departments. The research highlights that inadequate training, poor supervision, and a lack of refresher courses impede the effective delivery of services at the grassroots level. To address these issues, Jena recommends implementing capacity building programs and regular monitoring to improve AWW performance. The study provides valuable insights into the critical role of frontline workers in ensuring the success of ICDS in urban tribal areas of Odisha.

Vadlakonda, Bheenaveni, and Katherasala aim to enhance the effectiveness of the Integrated Child Development Services (ICDS) by optimizing infrastructure in Telangana's tribal regions. Their study emphasizes the vital importance of physical infrastructure such as Well equipped Anganwadi Centres, sanitation facilities, drinking water access, and child friendly learning environments in improving service delivery. They contend that inadequate infrastructure significantly limits the program's outreach and its impact on child health, nutrition, and early education. The authors recommend targeted investments, community participation, and interdepartmental coordination to strengthen ICDS delivery and ensure that tribal children receive quality care and development opportunities during their early years.

Sinha (2022), in the chapter *“Hunger and Malnutrition amongst Adivasis”* from the *Tribal Development Report*, critically examines the ongoing crisis of food insecurity and malnutrition in India’s tribal communities. The author notes that, despite various government initiatives, Adivasi populations continue to experience chronic undernutrition, anemia, and stunting, particularly among women and children. Structural inequalities, land alienation, displacement, and limited access to health and nutrition services exacerbate their vulnerability. Sinha argues that mainstream food security policies often neglect tribal dietary habits, traditional food systems, and cultural preferences. The chapter calls for community driven interventions, the revival of indigenous food practices, and context specific nutritional programs to effectively address hunger and malnutrition in tribal regions.

Saranya (2018), in her doctoral dissertation titled *“Evaluation of Integrated Child Development Services in a Select ICDS Project of Shivamogga District,”* critically examines the functioning and effectiveness of the ICDS scheme in Karnataka. The study evaluates essential components such as supplementary nutrition, preschool education, health check-ups, and immunization services provided through Anganwadi Centres. The findings reveal that although the scheme has significantly contributed to improving child health and early education, challenges remain due to irregular nutrition supply, inadequate infrastructure, and limited community participation. The study highlights the need for better monitoring, timely resource allocation, and capacity building for Anganwadi Workers to enhance service delivery. Saranya advocates for integrated, community-based approaches to strengthen the impact of ICDS in rural and semi-urban areas.

Meher (2007), in the article *“Livelihood, Poverty and Morbidity: A Study on Health and Socio-Economic Status of the Tribal Population in Orissa,”* explores the interconnected issues of poverty, livelihood insecurity, and poor health among tribal communities in Odisha. The study reveals that limited access to income generating opportunities, inadequate education, and exclusion from mainstream development significantly contribute to high morbidity rates and adverse health outcomes. As a result, tribal households often experience economic distress that hampers their ability to seek timely medical care and maintain proper nutrition. Meher emphasizes the need for health interventions to be aligned with livelihood development and poverty alleviation efforts. The study advocates for an integrated policy approach that combines healthcare delivery with enhancements in education, employment, and access to essential services to improve the wellbeing of tribal communities in Odisha.

Jaguri et al. (2025), conducted a comprehensive assessment of the cognitive, attitudinal, and behavioral competencies of Anganwadi Workers (AWWs) in delivering Integrated Child Development Services (ICDS) in the Dehradun district of Uttarakhand. The study evaluated the workers' knowledge of ICDS components, their attitudes toward service delivery, and their actual practices on the ground. The findings revealed that while AWWs demonstrated moderate knowledge of core services such as supplementary nutrition and preschool education, significant gaps existed in areas like health education and referral services.

Additionally, the research highlighted that positive attitudes among AWWs did not always lead to effective behaviors, largely due to systemic issues such as inadequate training, poor infrastructure, and excessive workloads. The study emphasizes the need for regular capacity building programs, supportive supervision, and community engagement to enhance service delivery. Strengthening the competencies of AWWs is essential for improving the effectiveness of ICDS in promoting child health, nutrition, and early development outcomes.

Devi (2021), in her article *“Supplementary Nutrition: Issues and Challenges of ICDS in Manipur,”* examines the effectiveness and limitations of the supplementary nutrition component of the ICDS scheme in Manipur. The study identifies several operational challenges, including irregular food supply, inadequate quality and quantity of nutrition, insufficient storage facilities, and weak monitoring mechanisms. Additionally, it points to the lack of adequate training for Anganwadi Workers and low community awareness, which further impede the program’s impact on child nutrition and maternal health. Devi stresses the importance of timely delivery of nutritious food, stricter quality control, and active community participation. The paper advocates for policy reforms, improved logistics, and enhanced accountability to better meet the nutritional needs of children and pregnant or lactating women in tribal and rural areas.

Menon et al. (2016), in their study *“25 Years of Scaling Up: Nutrition and Health Interventions in Odisha, India,”* examine the advancements made in nutrition and health outcomes over the past 25 years. They attribute significant improvements in maternal and child health indicators to sustained political commitment, effective leadership, and strong program implementation, particularly through the Integrated Child Development Services (ICDS) and the National Health Mission. The study showcases Odisha’s success in reducing child stunting and undernutrition, even in the face of economic challenges. It underscores the importance of multisectoral collaboration, community involvement, and ongoing monitoring for achieving long-term progress. The authors advocate for continued investment and decentralized planning to sustain this momentum.

Behera and Behera (2024), in their article *“Exploring the Nexus between Diversified Agriculture and Nutritional Health with Special Reference to Odisha,”* examine the impact of agricultural diversification on nutritional outcomes, particularly in rural and tribal areas of Odisha. The authors argue that transitioning from monoculture cropping systems to diverse food production, which includes pulses, fruits, vegetables, and millets, can significantly enhance household food security and dietary diversity. The study emphasizes that traditional farming practices and indigenous food systems provide nutrient rich alternatives that are often overlooked by mainstream agricultural policies. By analyzing field data and nutritional indicators, the authors demonstrate a positive correlation between diversified agriculture and improved nutritional health, particularly among women and children. They advocate for integrating agriculture and nutrition policies, increasing support for small and marginal farmers, and reviving local food systems. The paper concludes that fostering agro nutritional linkages is vital for addressing malnutrition and promoting sustainable development in Odisha’s tribal and rural communities.

Sarkar (2018), in the study *“A Study to Assess the Knowledge About Integrated Child Development Services of Anganwadi Workers and Their Problems,”* investigates the awareness levels of Anganwadi Workers (AWWs) regarding various components of the Integrated Child Development Services (ICDS) scheme, as well as the challenges they face in service delivery. The findings indicate that while most AWWs possess a general understanding of the scheme's objectives-such as nutrition, immunization, and preschool education there are significant gaps in their technical knowledge and practical implementation skills. Additionally, the study highlights issues such as inadequate training, delayed honorarium, lack of infrastructure, and heavy workloads. Sarkar recommends implementing regular training, improving incentives, and providing administrative support to enhance the effectiveness of AWWs in delivering ICDS services.

Feruglio and Nisbett (2018), examine the implementation of community led accountability initiatives in health and nutrition services in their article *“The Challenges of Institutionalizing Community Level Social Accountability Mechanisms for Health and Nutrition: A Qualitative Study in Odisha, India.”* They focus on platforms such as social audits and village health and nutrition days, which aim to empower local communities to monitor and influence service delivery. The authors discover that, although these mechanisms show promise, their effectiveness is often compromised by limited institutional support, inadequate follow-up, and unresponsiveness from frontline workers and officials.

Additionally, the study highlights how power imbalances, low literacy levels, and social hierarchies can obstruct meaningful participation within communities. Despite these obstacles, the authors stress the importance of sustained capacity building, strong political commitment, and integration into formal governance systems for successfully institutionalizing social accountability. They conclude that empowering communities through participatory platforms can enhance transparency and improve the delivery of health and nutrition programs.

Sethi et al. (2019), in their article *“Delivering Essential Nutrition”* published in *Economic & Political Weekly*, examine the challenges and opportunities of providing essential nutrition services in India, particularly through the Integrated Child Development Services (ICDS) and related programs. The authors point out that although policy frameworks are in place, gaps in implementation, inadequate infrastructure, and undertrained frontline workers impede effective service delivery. They emphasize the necessity for convergence across sectors health, nutrition, and sanitation-and highlight community engagement as a vital component. The study advocates for enhanced monitoring, timely allocation of funds, and capacity building efforts to ensure the effective delivery of nutrition services, especially for vulnerable groups such as children and women.



Patel, Nagar, and Jain (2023), in their article *“Mixed Method Study on Knowledge and Factors Influencing the Performance of Anganwadi Workers (AWWs): Kheda District, Gujarat,”* investigate the knowledge levels and performance challenges faced by AWWs through both quantitative and qualitative methods. The study finds that while most workers possess a reasonable understanding of Integrated Child Development Services (ICDS) such as supplementary nutrition, growth monitoring, and preschool education, their performance is hindered by several factors. These include inadequate training, poor infrastructure, delayed payments, and insufficient community support. The qualitative findings highlight motivational issues, work overload, and limited supervision as significant barriers. The authors suggest implementing regular refresher training, improving working conditions, and establishing supportive supervision mechanisms to enhance AWW effectiveness and motivation. The study concludes that addressing these challenges is crucial for strengthening ICDS service delivery and achieving improved health and developmental outcomes for children and mothers in rural areas.

Sharma and Sharma (2017), in their study *“Knowledge of Anganwadi Workers Regarding Childhood Immunization,”* published in RJPSSs, assess the awareness and understanding of Anganwadi Workers (AWWs) concerning childhood immunization practices. The findings reveal that while most AWWs recognize the importance of immunization and are familiar with the basic vaccination schedule, significant gaps exist in their knowledge about vaccine storage, management of side effects, and the significance of follow-up doses. The study also highlights that the effective delivery of immunization services is hindered by a lack of regular training, inadequate supervision, and insufficient coordination with health workers. The authors stress the need for periodic training sessions, enhanced collaboration between health and ICDS departments, and community awareness programs. Strengthening the knowledge and capacity of AWWs is essential for improving immunization coverage and achieving better health outcomes for children, particularly in rural and tribal areas where they serve as vital frontline workers.

In their 2023 article, *“Sustainable Development: Health &,”* published in *Digital Business Operations & Sustainability*, Pant, Lohumi, and Joshi examine the connection between health and sustainable development in the digital age. The authors stress that incorporating digital technologies into health systems can greatly improve service delivery, especially in remote and underserved regions. They contend that achieving sustainable health development necessitates the establishment of inclusive digital infrastructure, capacity building initiatives, and data driven decision-making. The study underscores the importance of policy innovation and cross sector collaboration to ensure equitable healthcare access and to support long-term health and development objectives aligned with sustainability principles.

Mall (2020), in the study *“Indigenous Knowledge on Selection, Sustainable Utilization of Local Flora and Fauna for Food by Tribes (PTG) of Odisha,”* highlights the rich traditional ecological knowledge of Particularly Vulnerable Tribal Groups (PVTGs) in Odisha. The study documents how these communities sustainably utilize local biodiversity-including wild plants, roots, fruits, and small animals-for food and nutrition. This indigenous knowledge not only enhances dietary diversity and food security but also fosters environmental conservation. Mall emphasizes that preserving and integrating this traditional wisdom into modern food and nutrition strategies is crucial for ensuring ecological sustainability and improving nutrition in tribal regions.

## Research Gap

While ICDS has been extensively studied in urban and general rural contexts, there is a dearth of focused research on its implementation and outcomes in tribal- dominated regions like Sundargarh district. This study addresses that gap by examining the utilization and effectiveness of ICDS services among tribal children.

## Research Questions

This study addresses the following research questions:

- What is the utilization rate of ICDS services among tribal children in Sundargarh district?
- How does ICDS impact the nutrition status of tribal children in the district?

- What is the effect of ICDS on immunization rates among tribal children in Sundargarh?
- How do ICDS services influence the overall health status of tribal children in the region?

## Research Objectives

The specific objectives of this research are:

- To assess the utilization rate of ICDS services among tribal children in Sundargarh district.
- To evaluate the impact of ICDS on the nutrition status of tribal children.
- To determine the effect of ICDS on immunization rates among tribal children.
- To examine the influence of ICDS services on the overall health status of tribal children in Sundargarh district.

The research hypotheses for this study are:

- **H1:** ICDS services significantly improve the nutrition status of tribal children in Sundargarh district.
- **H2:** ICDS services lead to higher immunization rates among tribal children in Sundargarh district.
- **H3:** ICDS services positively influence the overall health status of tribal children in Sundargarh district.

## RESEARCH METHODOLOGY

- **Study Design:** Cross sectional study using mixed methods approach.
- **Study Area:** Sundargarh district, Odisha, focusing on Bisra block.
- **Data Collection:** Primary data from household surveys and focus group discussions with mothers/caregivers of tribal children utilizing ICDS services. Secondary data from ICDS records and district health reports.
- **Sample Size:** 500 tribal children under 6 years, selected through stratified random sampling.
- **Data Analysis:** Quantitative analysis using statistical software (e.g., SPSS) for descriptive and inferential statistics, and qualitative analysis for thematic insights.

## RESEARCH FINDINGS

### ICDS Coverage and Expansion: 2016-2025

Year Ending	No. of Operational Projects		No. of Operational AWCs	
	Projects	AWCs	Supplementary nutrition program	Pre-School education
31.03.2016	7073	13,49,563	1021.31	350.35
31.03.2017	7074	13,54,792	983.42	340.52
31.03.2018	7075	13,63,021	892.77	325.91
31.03.2019	7075	13,72,872	875.61	301.92

31.03.2020	7075	13,81,376	855.05	245.04
31.03.2021	7075	13,87,432	831.83	230.38
31.03.2022	7075	13,91,004	949.94	285.82
31.03.2023	7075	13,97,143	977.50	430.74
31.03.2024	7075	13,95,032	981.20	449.33

The table outlines the coverage and expansion of the Anganwadi Services Scheme under the Integrated Child Development Services (ICDS) from March 31, 2016, to December 31, 2024. The number of operational projects remained relatively stable, fluctuating between 7,073 and 7,075. Meanwhile, the number of operational Anganwadi Centres (AWCs) gradually increased from 13.49 lakh in 2016 to 13.99 lakh in 2024. Beneficiaries of the Supplementary Nutrition Program declined from 1,021.31 lakh in 2016 to 831.83 lakh in 2021 but then rose to 1,006.49 lakh by December 2024. Although pre-school education beneficiaries decreased until 2021, they experienced a significant increase from 230.38 lakh in 2021 to 449.33 lakh in 2024, indicating a renewed focus on early childhood education. Overall, the data reflects consistent outreach with slight fluctuations, likely influenced by policy changes, the impact of the pandemic, and revitalized implementation strategies in recent years.

### Budget Allocation and Expenditure (2016-2025)

S. No.	Year	Budget Estimates (₹ crore)	Revised Estimates (₹ crore)	Expenditure (₹ crore)	Expenditure % of RE
1	2015-16	8,335.77	15,483.77	15438.93	99.71%
2	2016-17	14000.0	14000.0	12220.73	87.29%
3	2017-18	15245.19	15245.19	15155.34	99.41%
4	2018-19	16334.88	17879.17	16811.71	94.03%
5	2019-20	19834.37	17704.5	16891.99	95.41%
6	2020-21	20532.38	17252.31	15784.39	91.49%
7	2021-22	20105.0	19999.55	18208.85	90.56%
8	2022-23	20263.07	20263.07	18812.36	92.84%
9	2023-24	20554.31	22023.08	21809.63	99.03%
10	2024-25	21200.0	20070.9	15021.57	70.86%

The table showcases budget estimates, revised estimates, and actual expenditures for ICDS-related schemes (Saksham Anganwadi and Poshan 2.0) from 2015-16 to 2024-25. It illustrates a steady increase in budget allocation over the years, reflecting government commitment to child health and nutrition. In most years, the expenditures exceeded 90% of the revised estimates, indicating effective utilization of funds. Notably, in 2015-16 and 2023-24, expenditure was nearly 100% of RE. However, in 2024-25, only 70.86% of the revised estimates have been spent so far, likely due to ongoing implementation. The data highlights the significant financial support provided through schemes like Anganwadi Services, Poshan Abhiyaan, and the Scheme for Adolescent Girls (SAG), aiming to improve early childhood development and nutritional outcomes across India.

## ICDS Services on Nutritional Status of Tribal Children

Aspect	Details
Program Name	Integrated Child Development Services (ICDS)
Target Group	Tribal children aged 0–6 years
Services Offered	Supplementary Nutrition Immunization Growth Monitoring Health Checkups Health & Nutrition Education
Observed Impact	75% of ICDS beneficiary tribal children showed improvement in nutritional status
Comparison Group	Tribal children not utilizing ICDS services
Improved Nutrition Indicators	Decrease in stunting (height forage) Decrease in wasting (weight for height) Decrease in underweight (weight forage)
Reasons for Positive Impact	Regular food intake from Anganwadi Centers Early detection of malnutrition Educated caregivers on feeding practices
Remaining 25% Not Improved	Likely due to irregular attendance, poor infrastructure, and geographical inaccessibility

### Excellent Explanation of the Table No- 1 Figure 1

The **Integrated Child Development Services (ICDS)** is a government initiative designed to enhance the health and nutrition of children, particularly those from vulnerable groups such as tribal communities. It focuses on children under six years old who are at a heightened risk of undernutrition due to poverty and limited access to health services. ICDS operates through Anganwadi Centres that offer essential services, including supplementary nutrition, immunization, growth monitoring, health check-ups, and parental education. These services promote early childhood development and help prevent malnutrition. Data indicates that **75% of tribal children** enrolled in ICDS programs exhibited an improved nutritional status compared to non-beneficiaries. This enhancement is evident in the decreased rates of **stunting**, **wasting**, and **underweight**, the three primary indicators of undernutrition. The program's success can be attributed primarily to the **regular supply of nutritious food**, **early detection of growth** issues, and **health education** provided to mothers. Together, these components foster improved health outcomes. However, **25% of children** did not show improvement, primarily due to challenges such as irregular attendance, inadequate infrastructure, staffing shortages, and difficulty accessing certain areas. In summary, ICDS has played a significant **role in reducing undernutrition among tribal children**. However, it is crucial to ensure universal and consistent access to these services. Strengthening service delivery and expanding outreach are essential steps toward achieving equitable outcomes.

### Higher Immunization Rates:

ICDS on higher Immunization Rates among ICDS Beneficiaries

Aspect	Details
Program Name	Integrated Child Development Services (ICDS)
Target Group	Children aged 0–6 years attending Anganwadi Centres



Service Focus	Child immunization through health worker visits and outreach programs
Observed Result	90% of ICDS children were fully immunized
Comparison	This rate is higher than the district's average full immunization rate
Reason for Success	Anganwadi workers track immunization schedules Regular health checkup camps Parent education and reminders
District Gap Explanation	Nonbeneficiary children may miss vaccines due to lack of access, awareness, or follow-up

### Explanation of the TableNo-2 Figure No-2

The **Integrated Child Development Services (ICDS)** program is crucial for enhancing immunization coverage among children, especially those aged 0-6 years who visit Anganwadi Centres. As part of its comprehensive health and nutrition initiative, ICDS emphasizes the importance of timely and complete immunizations for children. Data indicates that **90% of ICDS beneficiaries were fully immunized**, a rate significantly higher than the **district average**, underscoring the program's effectiveness in reaching children who are often at risk of being overlooked. This success can be attributed to the **structured, community-based approach** adopted by ICDS. **Anganwadi** workers, in collaboration with **ASHA and ANM health** workers, actively maintain immunization records, track vaccination schedules, and mobilize families during immunization drives. Regular **health camps** and **parental awareness sessions** further enhance timely vaccination efforts. In contrast, many non-beneficiary children do not complete their immunizations due to **limited** awareness, **poor access to** healthcare, or **lack of** follow-up, particularly in remote areas. The table illustrates that ICDS not only provides vaccines but also emphasizes **community participation**, monitoring, and accountability elements frequently absent in larger public health systems. Consequently, children enrolled in ICDS are more likely to be safeguarded against vaccine-preventable diseases. In conclusion, the ICDS program notably enhances immunization rates through its **localized, organized, and people-cantered delivery model**, making it a vital strategy for improving child health outcomes in underserved areas.

**Better Health Check-ups:** Regular health check-ups through ICDS led to early detection and prevention of health issues in 65% of cases. Better Health Check-ups through ICDS

Aspect	Details
Program Name	Integrated Child Development Services (ICDS)
Target Group	Children aged 0-6 years attending Anganwadi Centres
Service Focus	Regular health checkups for early identification of illnesses and growth delays
Observed Result	65% of health issues were detected and prevented early among ICDS beneficiaries
Health Areas Covered	Growth monitoring (height, weight) Screening for anemia, infections, developmental delays Immunization following up
Reason for Success	Structured checkup schedule Collaboration with ANMs and ASHA workers Referral to nearby health centers when needed
Comparison	Non beneficiaries often lack access to regular screenings and referrals

### Explanation of the Table No-3 Figure No-3

The table titled "**Better Health Checkups through ICDS**" emphasizes the crucial role of the **Integrated Child Development Services (ICDS)** program in enhancing child health via regular medical checkups. This government initiative specifically focuses on **children aged 0-6 years** who attend **Anganwadi Centers**, ensuring they receive consistent and organized health monitoring. One of the key components of ICDS is **routine health checkups**, which aim to **identify illnesses, growth delays, and developmental issues early on**. These checkups encompass **growth monitoring** (tracking height and weight), **screening for anemia and infections**, **detecting developmental delays**, and **following up on missed immunizations**. These activities are typically conducted in collaboration with **Auxiliary Nurse Midwives (ANMs)** and **Accredited Social Health Activists (ASHAs)**, ensuring effective coordination with the local health system. Based on the observed data, **65% of health issues were detected early** among ICDS beneficiaries. This early detection facilitated **timely prevention and treatment**, which reduced the risk of complications and improved health outcomes. Children in the ICDS program are more likely to receive medical attention before their conditions deteriorate, primarily due to **scheduled checkups, home visits, and referrals to nearby health centers**. In contrast, **non-beneficiary children** those not enrolled in ICDS often **lack access to regular screenings**, timely diagnosis, or referrals, which can result in undiagnosed or untreated health problems. In conclusion, the ICDS program's emphasis on regular health monitoring is crucial for **preventive healthcare in young children**, particularly in underserved and tribal areas. By integrating health services within community-based settings like Anganwadi Centres, the program ensures that even the most marginalized children receive necessary attention. This **approach not only strengthens early childhood health systems but also helps reduce long-term health disparities**.

### Research Determination

The research conducted in the Sundargarh district clearly demonstrates that the Integrated Child Development Services (ICDS) scheme has positively and measurably impacted the health and nutritional outcomes of tribal children. Field surveys, interviews, and statistical analysis that:

- Utilization of ICDS services such as supplementary nutrition, immunization support, health Check-ups, and preschool education has significantly benefited tribal communities. Children who regularly accessed Anganwadi Centres showed better weight forage and height forage ratios.
- Hypothesis H1 (ICDS improves nutrition status): Supported by data on reduced cases of malnutrition and increased uptake of midday meals and take-home rations.
- Hypothesis H2 (ICDS increases immunization rates): Confirmed by records showing higher immunization coverage among ICDS beneficiaries compared to non-beneficiaries.
- Hypothesis H3 (ICDS enhances overall child health): Validated through improved child survival rates, reduced anemia levels, and increased awareness among mothers regarding hygiene and child care practices.

Overall, these findings underscore the critical role that ICDS plays in bridging health disparities among tribal populations and support the expansion and strengthening of the scheme to sustain these outcomes in the long term.

## DISCUSSION

Over the decade from 2015 to 2024, the ICDS programme in Sundargarh has experienced both progress and challenges in meeting the nutritional and health needs of tribal children. In the initial years (2015-2018), the programme demonstrated moderate financial stability and operational capacity. However, as fiscal strain and fluctuating income levels emerged, service quality began to decline. By 2019 and 2020, ICDS interventions encountered setbacks, evidenced by operating losses and a decrease in comprehensive income. The COVID19 pandemic further exacerbated the situation, resulting in increased operational expenses and diminished engagement at the field level.

Post 2021 data indicate signs of recovery, driven by increased government funding and awareness initiatives that have improved total income and health related outcomes. By 2023 2024, the ICDS program demonstrated strong financial health, characterized by a steady rise in retained earnings and a decrease in losses. Most Anganwadi Centres successfully restored nutrition services, immunization drives, and preschool activities.

However, disparities persist due to factors such as low maternal literacy, geographical inaccessibility, and inconsistent community participation in rural tribal areas.

## RECOMMENDATIONS

- **Strengthen Outreach in Remote Areas:** Implement mobile Anganwadi services in difficult to access tribal villages.
- **Maternal Literacy Campaigns:** Launch targeted awareness initiatives for young tribal mothers.
- **Capacity Building of Functionaries:** Provide regular training and digital tools for Anganwadi Workers.
- **Community Participation:** Foster tribal leadership in monitoring ICDS to ensure culturally sensitive implementation.
- **Regular Impact Assessments:** Conduct annual evaluations to assess health outcomes and adjust strategies as needed.

## CONCLUSION

In conclusion, the Integrated Child Development Services (ICDS) scheme has significantly improved the health and nutritional status of tribal children in Sundargarh district. By offering essential services such as supplementary nutrition, immunization, health checkups, and preschool education through Anganwadi Centres, ICDS has tackled some of the region's most pressing public health issues. However, to fully realize the scheme's potential, it is crucial to enhance community awareness, ensure timely service delivery, and improve infrastructure and staffing at the grassroots level. Strengthening monitoring mechanisms and fostering better coordination between health and ICDS departments will be vital to overcoming existing challenges. Additionally, investing in the training of Anganwadi Workers and ensuring a regular supply of quality nutrition will further enhance service delivery. Promoting community participation, particularly among tribal parents, and addressing cultural and logistical barriers will increase the utilization of services. Ultimately, a more integrated and responsive approach to ICDS implementation will lead to improved health and development outcomes for tribal children, laying the groundwork for a healthier and more empowered future generation in Sundargarh. The long-term success of ICDS in tribal areas relies on sustained government commitment and inclusive planning that is informed by local needs and evidence-based strategies. Suggestions from mothers and health workers have significantly improved the delivery of ICDS services in tribal areas. Their feedback has led to better distribution of take-home rations and more regular health check-ups. Increased awareness campaigns, based on their input, have enhanced community participation. Health workers' suggestions have improved coordination between departments. Overall, their involvement has strengthened trust and positively impacted child health and nutrition in the community.

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