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A situational analysis of infant and young child feeding practices in Odisha, India

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Abstract

Infant and Young Child Feeding (IYCF) comprises well-established and widely accepted recommendations for the proper feeding of newborns and children under two years of age. Suboptimal IYCF practices are likely a significant contributing factor to undernutrition in India and Odisha. The purpose of this situational analysis is to achieve the following objectives: 1. Understand the trends of IYCF practices in Odisha, 2. Understand the trends of IYCF practices in India, and 3. Understand various IYCF strategies, policies, and programs using a socioecological model. This involved searching and reviewing available literature, gathering data/reports on IYCF trends, synthesizing findings on trends, and using the socioecological model to understand various interventions and policies on IYCF, and to identify barriers and facilitators to IYCF practices. It was observed that despite an increase in IYCF practices, they are still suboptimal, especially regarding the introduction of complementary foods at the appropriate time and minimum acceptable diet. This area needs to be strengthened. Over the years, various programs, policies, and strategies have been implemented to focus on improving IYCF practices, but still, the IYCF practices in our country are subpar. This review also underscores the need for program and policy actions to improve IYCF practices through a comprehensive approach that encompasses educating individuals, engaging the community, strengthening healthcare infrastructure, and implementing supportive policies, all within the framework of the socioecological model.

Keywords: Infant and young child feeding (IYCF), undernutrition, Odisha, India

Introduction

The first 1000 days of life, from conception to two years, are a crucial and critical period for physical and cognitive development. Infant and Young Child Feeding (IYCF) comprises well-known and widely accepted recommendations for the appropriate feeding of newborns and children under two years of age. These recommendations are essential for ensuring proper nutrition, growth, and development ^[1]. WHO states that nearly half of deaths among children under 5 years of age are linked to undernutrition ^[2]. Globally in 2022, an estimated 149 million children under the age of 5 were affected by stunting, while 37 million were living with overweight or obesity. In India (2019-2021), the prevalence of stunting among children was 35%, wasting was 19.3%, and underweight was 32.1%. During the corresponding period, the state of Odisha demonstrated a prevalence of 31% for stunting, 18.1% for wasting, and 29.7% for underweight ^[3]. It was reported that under-weight among under-five children ranged from 39% to 75%, stunting from 15.4% to 74%, and wasting from 10.6% to 42.3% in different parts of the country ^[4]. Major contributing factors for malnutrition under 5 years of age include poor breastfeeding practices and sub-optimal infant and young child feeding practices ^[5]. Optimizing nutrition early in life - 1st 1000 days of life ensures the best possible start and prevention of malnutrition. Only 34.8% of infants were exclusively breastfed worldwide in 2002. Global strategy for IYCF was developed in 2002 to promote exclusive breastfeeding and complementary feeding. In India adopting the global strategy, National guidelines for IYCF were developed in 2003-2004. A revision of IYCF guidelines was developed in 2013, in which optimal IYCF practices were described. They include:

1. Commence breastfeeding promptly after birth.
2. Exclusively breastfeed for the initial six months (180 days) of life.
3. Introduce complementary foods (solid, semi-solid, or soft foods) after six months of age.

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4. Sustain breastfeeding for 2 years or longer.
5. Administer age-appropriate complementary feeding for children aged 6-23 months while continuing breastfeeding.
6. Ensure active feeding for children during and following illness ^[1].

Since the development of revised IYCF guidelines in 2013, several programs and interventions have been established to focus on infant and young child feeding (IYCF). This study aims to analyze the trends of IYCF practices in Odisha and India, as well as to understand the effectiveness of the various programs and interventions developed to promote IYCF practices.

Methods

The literature review included three major steps. They are:

1. Searching and reviewing the available literature on child nutrition and IYCF practices in India and Odisha.
2. Gathering data/reports on IYCF trends and synthesizing findings on trends in tables
3. Using the socioecological model to understand various interventions and policies on IYCF and to identify barriers and facilitators to IYCF practices.

Socioecological model

The socio-ecological framework is a multilevel conceptualization of health that includes intrapersonal, interpersonal, organizational, environmental, and public policy factors. The socio-ecological framework emphasizes multiple levels of influence and supports the idea that behaviors both affect and are affected by various contexts ^[6, 7].

Literature search methods

Several sources were used to identify materials for the literature review. Electronic databases like Pubmed and Google Scholar, official websites of various organizations in India for program reports. Our primary inclusion criterion included studies and reports presenting data on children under 2 years of age and their mothers.

The review encompasses the following types of studies/reports:

1. Survey and surveillance reports on Infant and Young Child Feeding (IYCF) practices.
2. Descriptive and qualitative studies on IYCF practices and nutrition in India and Odisha.
3. Studies on interventions to enhance IYCF practices in India and Odisha.
4. Official documents outlining the policies and interventions from the NHM portal.

Data extraction methods

The data on Infant and Young Child Feeding (IYCF) indicators and nutrition indicators are sourced from the National Family Health Survey (NFHS). NFHS is a

comprehensive survey conducted in India to gather data on various health and demographic indicators. It provides valuable insights into areas such as fertility, child health, family planning, maternal and child mortality, nutritional status, and more. The survey is conducted under the auspices of the Ministry of Health and Family Welfare (MoHFW), Government of India, with technical assistance provided by the International Institute for Population Sciences (IIPS) and financial support from international entities such as USAID, UNICEF, and UNFPA. NFHS has been conducted in five rounds since 1992-93, with the latest round, NFHS-5, taking place from 2019 to 2021 ^[8].

Results and Discussion

Indicators for Infant and Young Child Feeding (IYCF) practices in India:

1. **Early initiation of breastfeeding:** This is the proportion of infants who were breastfed within one hour of birth.
2. **Exclusive breastfeeding:** This is the proportion of infants aged 0-5 months who are fed exclusively with breast milk.
3. **Introduction of solid, semi-solid, or soft foods:** This refers to the percentage of infants between 6 and 8 months old who are consuming solid, semi-solid, or soft foods.
4. **Minimum acceptable diet:** This is a composite indicator that includes the minimum dietary diversity (MDD) and minimum meal frequency (MMF).
 - **MDD:** This is the proportion of children aged 6-23 months who receive foods from 4 or more food groups.
 - **MMF:** This is the proportion of children aged 6-23 months who receive complementary foods at least the minimum number of times as per their age.

Recommended feeding frequency as per age is

- 2 times for breastfed infants aged 6-8 months
- 3 times for breastfed children aged 9-23 months
- 4 times for non-breastfed children aged 6-23 months

Trends of IYCF practices in Odisha

Early initiation of breastfeeding and exclusive breastfeeding is now becoming a common practice in Odisha. There has been an increment in breastfeeding practices over the years. Early breastfeeding initiation has observed a significant rise (24.9% to 67.5%) from 1998-99 to 2015-16. Even though a slight decrease was observed from 2015-16 to 2019-21, Odisha has higher rates of breastfeeding practices compared to the national average. Complementary feeding practices increased over the years but the progress is less consistent. A minimum acceptable diet indicator was introduced from NFHS 4 with 8.9% of children receiving a minimum acceptable diet in 2015-16. There was an improvement to 20.1% by NFHS 5, although still relatively low, pointing to ongoing challenges in ensuring adequate diet quality and quantity.

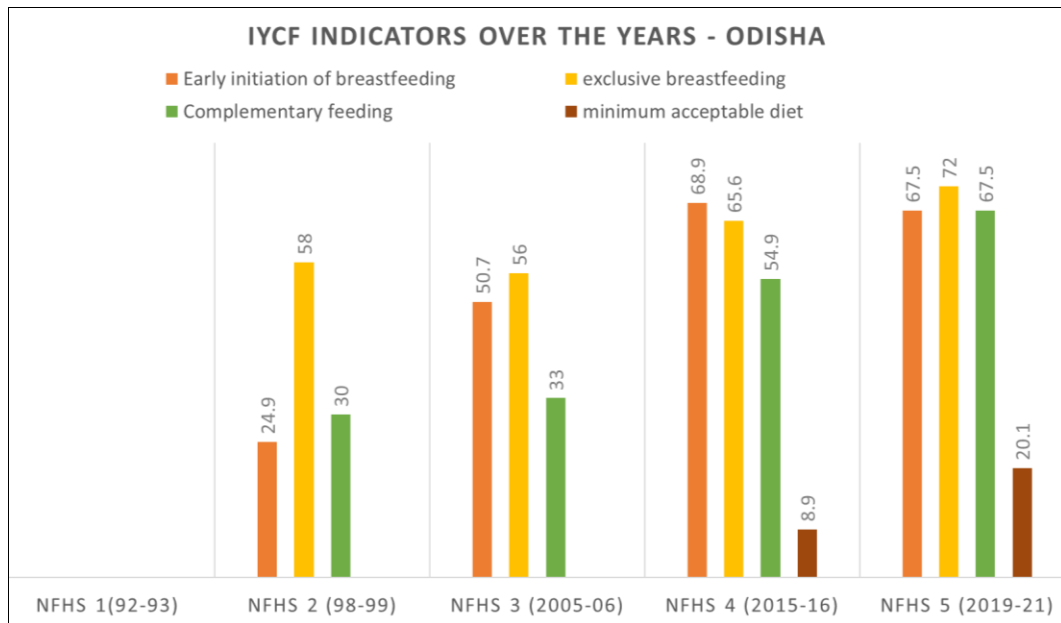


Fig 1: Trends of IYCF indicators over the years in Odisha

Trends of IYCF practices in India

Early initiation of breastfeeding increased significantly from 9.5% in NFHS 1 to 41.8% in NFHS 5, reflecting improved awareness and practices surrounding early breastfeeding. Exclusive breastfeeding has shown substantial growth, rising from 46.3% in NFHS 1 to 63.7% in NFHS 5, indicating that more infants are exclusively breastfed for the recommended period. Complementary feeding showed

variability, starting at 35% in NFHS 2, peaking at 52.7% in NFHS 3, and finally settling at 45.9% in NFHS 5, showing a moderate improvement but with fluctuations. Minimum acceptable diet remains a key challenge, with marginal improvement from 8.7% in NFHS 4 to 11% in NFHS 5, suggesting ongoing difficulties in ensuring an adequate diet for young children.

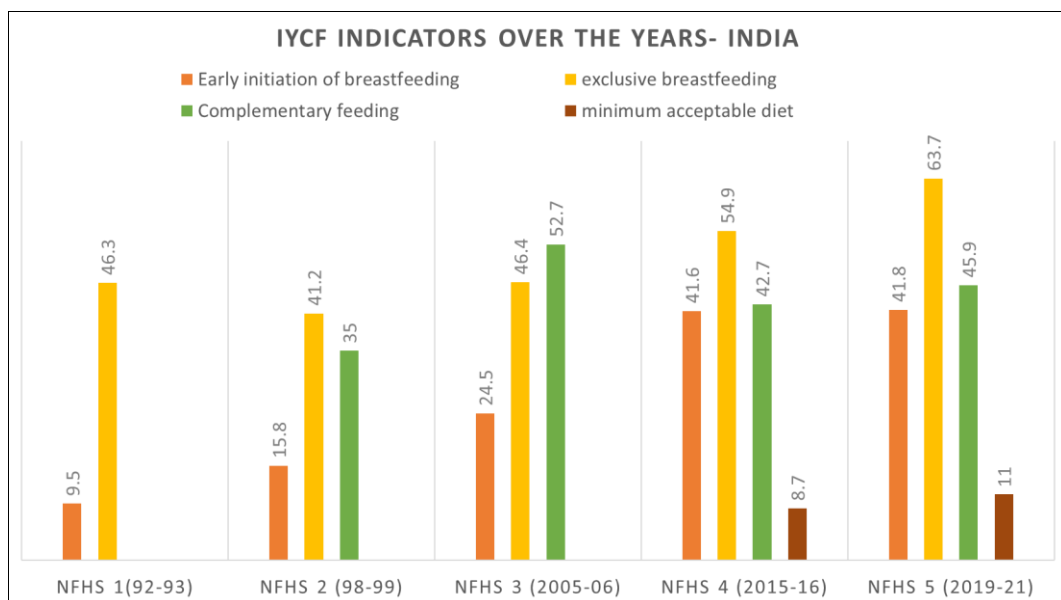


Fig 2: Trends of IYCF indicators over the years in India

Current IYCF strategies, policies, and programs

The Indian government has prioritized nutrition since the 1970s, implementing various programs to support it. One of the largest initiatives is the Integrated Child Development Services (ICDS) scheme, launched in 1975 by the Ministry of Women and Child Development. This scheme offers a range of services, including supplementary nutrition, immunization, health check-ups, referral services, preschool education, and nutrition and health education. The Anganwadi centers, integral to the ICDS, play a crucial role in promoting Infant and Young Child Feeding (IYCF)

practices by providing counseling and education to mothers about breastfeeding and complementary feeding [9]. Additionally, the Infant Milk Substitutes, Feeding Bottles, and Infant Foods (Regulation of Production, Supply, and Distribution) Act, 1992, commonly known as the IMS Act, is a significant legislation aimed at promoting breastfeeding and ensuring the safe and adequate nutrition of infants through appropriate feeding practices. An amendment to this act was made in 2003 [10]. In 2004, national guidelines on Infant and Young Child Feeding (IYCF) practices were first developed and later revised in 2013 [1, 11]. The National

Food Security Act (NFSA) aims to provide subsidized food grains to about two-thirds of India's population, with specific provisions focusing on maternal and child nutrition. The act mandates that every pregnant and lactating mother is entitled to receive free meals during pregnancy and for six months post-delivery through local Anganwadi centers, ensuring access to adequate nutrition. Children aged 6 months to 6 years are entitled to free meals through the Integrated Child Development Services (ICDS) scheme to meet their nutritional needs ^[12].

Furthermore, the Maternity Benefit Act of 1961 was amended in 2017 to extend maternity leave from 12 weeks to 26 weeks, allowing mothers more time to exclusively breastfeed for the first six months, as recommended by the World Health Organization (WHO). Additionally, establishments with 50 or more employees are mandated to provide crèche facilities, enabling working mothers to breastfeed during work hours ^[13]. Launched in 2016 by the Ministry of Health and Family Welfare in collaboration with ICDS, the MAA program aims to promote breastfeeding through advocacy and capacity-building at the community level. MAA enhances the skills of healthcare providers and AWWs in breastfeeding counseling and support. It encourages community participation and leverages ICDS infrastructure to reach mothers and families with critical IYCF messages ^[14].

In 2017, the Ministry of Health and Family Welfare introduced national guidelines for lactation management centers in public health facilities. These guidelines aim to promote early initiation of breastfeeding and establish Lactation Support Units (LSU), Lactation Management Units (LMU), and Comprehensive Lactation Management Centers (CLMC). These guidelines not only promote breastfeeding practices but also guide expressed breast milk and donor milk collection. The primary goal is to ensure the quality and safety of donor human milk (DHM), with recommendations to minimize the risk to recipients. At the

LSU level, skilled lactation support and counseling are provided, while at the LMU expression of the mother's own milk storage and dispensing of milk and CLMC levels, storage and dispensing of milk, and processing of donor human milk are carried out. CLMC is the level where donation of Human milk and its storage will be done.

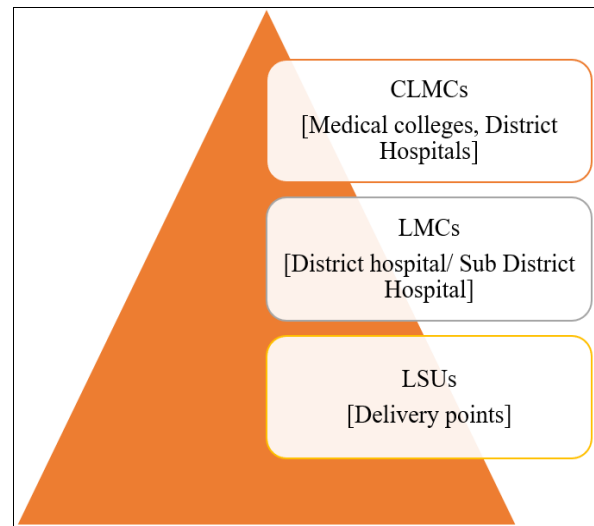


Fig 3: Depicting levels of facility-based lactation management

Poshan Abhiyaan, launched in 2018, is a flagship program of the Government of India to improve nutritional outcomes for children, adolescents, pregnant women, and lactating mothers. It focuses on reducing malnutrition through a multi-sectoral approach, integrating efforts from various departments and ministries to address the underlying causes of poor nutrition. The program promotes IYCF practices through behavior change communication, community mobilization, and awareness campaigns like the Jan Andolan (People's Movement) for nutrition ^[15].



Fig 4: Depiction of acts regarding IYCF practices over the years in India

Table 1: Various IYCF strategies, policies, and programs in India

Year	Program/intervention/Policy	Organization	Comments on focused areas and beneficiaries
1975	Integrated Child Development Scheme (ICDS)	Ministry of Women and Child Development	The supplementary nutrition program (SNP) coverage in 2018-19 is estimated to be 46% for children (aged 0-71 months) ^[16]
1993	Baby-Friendly Hospital Initiative (BFHI)	United Nations Children's Fund (UNICEF) and World Health Organization (WHO)	To promote breastfeeding in health facilities that provide maternity services. Only 40 hospitals as of now (2024) are currently BFHI accredited in India ^[17] .
2004	National Guidelines on IYCF	Ministry of Women and Child Development	It focuses on the early initiation of breastfeeding, exclusive breastfeeding, and complementary feeding. Dietary diversity, minimum acceptable diet, and challenges in IYCF practices were not fully addressed.
2005	National Rural Health Mission (NRHM)	Ministry of Health and Family Welfare	It helped in strengthening MCH services. It promoted institutional deliveries which in turn increased early initiation of breastfeeding and counselling. The introduction of Accredited Social Health Activists (ASHAs) is a game-changer.
2013	Revised National Guidelines on IYCF	Ministry of Women and Child Development	Optimum IYCF practices were given. Introduction of dietary diversity and minimum acceptable diet. Guidelines included for IYCF practices in challenging situations like HIV, illness in mother and/or child, low birth weight. Limitations include no mention of IYCF practices in cleft palate/lip conditions or preterm infants.
2016	Mothers' Absolute Affection (MAA)	Ministry of Health and Family Welfare	Focuses on promoting breastfeeding through counseling, support services, and mass media campaigns in health care facilities.
2017	The Pradhan Mantri Matru Vandana Yojana (PMMVY)	Ministry of Women and Child Development	The cash incentives provided under PMMVY support mothers in practicing exclusive breastfeeding and following optimal IYCF practices. Not implemented in Odisha.
2018	Prime Minister's Overarching Scheme for Holistic Nutrition (POSHAN)	Ministry of Women and Child Development with the Ministry of Health and Family Welfare and Ministry of Education	Poshan Abhiyaan is a flagship program of the Government of India aimed at improving nutritional outcomes for children, adolescents, pregnant women, and lactating mothers.
2021	POSHAN 2.0 and Saksham Anganwadi	Ministry of Women and Child Development with the Ministry of Health and Family Welfare and Ministry of Education	To promote local produce, millet, and nuts. Poshan tracker. Jan Andolan movement.

In Odisha, The Pradhan Mantri Matru Vandana Yojana (PMMVY) has not been implemented. Mamata scheme under the Ministry of Women and Child Development is being implemented. This scheme promotes ANC visits, Institutional deliveries, early initiation and exclusive breastfeeding, IYCF counseling, and practices. Other schemes include Nutrigarden (Mo upakari Bagicha) to promote local produce and dietary diversity. Mamata Diwas and Annaprashan Diwas to promote Optimal complementary feeding practices ^[18, 19].

Socioecological model - IYCF practices and Policies/strategies/programs in India

The socioecological model (SEM) serves as a comprehensive framework for comprehending the diverse levels of influence on Infant and Young Child Feeding (IYCF) practices in India. These levels include individual behaviors, interpersonal relationships, community dynamics, organizational influences, and policy factors. It is summarised in the table below.

Table 2: Socioecological model

Level	Influences	Programs/initiatives
Individual	Knowledge, attitudes, and behaviors of mothers/caregivers	Janani Suraksha Yojana (JSY), MAA,
Interpersonal	Family support, healthcare workers	VHNDs, Home-Based Newborn Care (HBNC),
Community	Social norms, peer support	ICDS, Mamata Diwas, Annaprashan Diwas, Jan Andolan,
Organizational	Health facilities, workplaces	BFHI, Maternity Benefit Act
Policy	National policies, international guidelines	Poshan Abhiyaan, National Food Security Act, IMS Act

Promoting Infant and Young Child Feeding (IYCF) practices in India necessitates a comprehensive approach that encompasses educating individuals, engaging the community, strengthening healthcare infrastructure, and implementing supportive policies, all within the framework of the socioecological model.

Implications of the SocioEcological Model to improve IYCF practices in India

Holistic Interventions: The Social-Ecological Model (SEM) serves as a valuable framework for identifying intervention points across multiple levels, including individual education, family support, community

mobilization, organizational practices, and policy enforcement. By addressing these factors concurrently, we can cultivate a supportive environment for mothers and families, ultimately facilitating sustained behavior change.

Customized Strategies: Utilizing the SEM allows for the development of tailored strategies that are context-specific. For example, urban interventions might prioritize workplace lactation support, whereas rural programs may need to address traditional beliefs and engage influential community figures, such as village elders.

Strengthening Interconnections: It is essential to recognize the interconnectedness among different levels of intervention. For instance, policy changes, such as enhancements to maternity leave, can significantly influence organizational practices, such as support for breastfeeding in the workplace, thereby affecting individual behaviors. This understanding is key to achieving synergistic improvements in Infant and Young Child Feeding (IYCF) practices.

Monitoring and Evaluation: The SEM can also guide the evaluation of interventions by analyzing the impact of changes at one level on others. For example, assessing the effect of training programs for health workers (organizational level) on breastfeeding rates (individual level) provides valuable insights for refining and scaling effective strategies.

Sustainability: By targeting multiple levels, interventions based on the SEM framework can foster more sustainable behavior change. When mothers receive education (individual level) alongside family support, community encouragement, and policy advocacy, the likelihood of maintaining positive practices significantly increases.

Recommendations

It is important to effectively implement existing programs such as POSHAN 2.0, ICDS, PMMVY, MAA, BFHI and the IMS Act. It is crucial to evaluate health programs and identify and rectify any gaps. The Infant and Young Child Feeding (IYCF) guidelines should be revised to align with various programs and to address challenging situations such as feeding in cleft palate/lip and for preterm infants. Strengthen the Jan Andolan movement by involving community leaders and influencers in promoting optimal IYCF practices to address cultural barriers and change traditional practices. To promote breastfeeding practices at the facility level under the Baby Friendly Hospital Initiative, a 4-day training session is to be conducted for all the hospital maternity staff including doctors and nursing officers. The Breastfeeding Promotion Network of India (BPNI) has a pool of course directors and program trainers for the training session. Under the Mothers Absolute Affection program, IYCF training to be conducted for Auxillary Nurse Midwife (ANM). Emphasize the proper usage of existing resources, promote local produce, and advocate for dietary diversity, including the promotion of millet.

Conclusion

Our analysis of current data and literature on Infant and Young Child Feeding (IYCF) practices in Odisha and India has revealed important trends and challenges. While we

have observed an overall increasing trend in all IYCF indicators, the progress in complementary feeding and minimum acceptable diet has been less consistent. Despite efforts to promote institutional deliveries and implement the Baby-Friendly Hospital Initiative (BFHI), rates of early initiation of breastfeeding and exclusive breastfeeding remain low. Programs such as PMMVY, POSHAN, and ICDS aim to provide nutritious meals and promote complementary feeding, but the current rates of minimum acceptable diet and complementary feeding are suboptimal. This emphasizes the need for concentrated efforts to promote optimal IYCF practices. Targeted interventions should prioritize the education and awareness of mothers, families, and healthcare providers. It is crucial to address barriers such as insufficient knowledge, cultural beliefs, and inadequate support systems to enhance these practices.

Conflict of Interest

Not available.

Financial Support

Not available.

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