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A Study on the Impact of Daily Nutritional Intake on the Health Outcomes of Children Living below the Poverty Line in India

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ABSTRACT

Child undernutrition remains a major public health concern in India, particularly among children living below the poverty line (BPL). Adequate daily nutritional intake is essential for healthy physical growth, cognitive development, and immunity; however, persistent poverty, food insecurity, and limited dietary diversity continue to adversely affect child health outcomes. The present study examines the impact of daily nutritional intake on the health outcomes of children living below the poverty line in India using secondary data from the National Family Health Survey (NFHS-5, 2019–21), the latest nationally representative dataset on child nutrition and health. Daily nutritional intake is assessed through indicators such as breastfeeding practices, complementary feeding, dietary diversity, and adequacy of diet, while health outcomes are measured using anthropometric indicators, micronutrient deficiency, and morbidity patterns. NFHS-5 data show that 63.7% of infants aged 0–5 months are exclusively breastfed, but only 45.9% of children aged 6–8 months receive appropriate complementary feeding. Diet quality further declines with age, as just 23% of children aged 6–23 months receive minimum dietary diversity and only 11.3% receive an adequate diet. These nutritional inadequacies are reflected in poor health outcomes, with 35.5% of children under five being stunted, 19.3% wasted, and 32.1% underweight. Additionally, 67.1% of children aged 6–59 months are anaemic, while 7.3% experience diarrhoea and 2.8% suffer from acute respiratory infections. The findings reveal a strong association between inadequate daily nutritional intake and adverse health outcomes among BPL children. The study emphasizes the need for poverty-sensitive nutrition strategies that prioritize consistent, diverse, and nutritionally adequate daily diets through strengthened interventions such as ICDS, Poshan Abhiyaan, and nutrition education initiatives.

***Keywords**: Daily Nutritional Intake, Below Poverty Line (BPL), Child Health Outcomes, Stunting and Wasting, Diet Diversity.*

Introduction

Child nutrition is a critical foundation for healthy development, influencing physical growth, cognitive function, immune system strength, and long-term well-being. In India, where millions of children live in economically vulnerable circumstances, ensuring adequate *daily nutritional intake* remains a significant public health priority. Despite various national nutrition programs and social safety nets, a large proportion of children particularly those from households BPL continue to experience undernutrition and its adverse consequences. Undernutrition among children not only reflects gaps in food access and diet quality but also highlights the deep socioeconomic disparities that shape childhood health outcomes in the Indian context.

According to the National Family Health Survey (NFHS-5, 2019–21)—the most recent and comprehensive source of nationally representative nutrition and health data in India—malnutrition among children under five remains high. The survey shows that about 35.5% of Indian children under five are stunted (a sign of chronic malnutrition), 19.3% are wasted (indicating acute undernutrition), and 32.1% are underweight (reflecting overall nutritional deficiency). These figures illustrate the persistent prevalence of both chronic and acute forms of undernutrition, despite modest improvements compared to previous rounds of the survey.

Dietary practices play a central role in shaping these outcomes. Many children living in poverty lack access to diverse and nutrient-rich foods such as proteins, fruits, vegetables, and dairy products, resulting in diets that are primarily calorie-dense but micronutrient-poor. This limited dietary diversity undermines adequate intake of essential nutrients necessary for optimal physical and cognitive development. Poor daily nutritional intake also increases vulnerability to common childhood illnesses such as diarrhoea and respiratory infections, further compromising health outcomes.

The Indian Government has implemented several interventions aimed at improving child nutrition, including the Integrated Child Development Services (ICDS), Poshan Abhiyaan, and Mid-Day Meal Scheme. These programs target children in vulnerable populations with supplementary feeding, nutrition education, and health services designed to enhance dietary intake and reduce malnutrition. However, the continued high prevalence of undernutrition among BPL children suggests that access alone is insufficient without attention to the quality and consistency of daily diets. Addressing gaps in daily nutrient intake especially diet diversity and regular consumption of nutrient-dense foods is essential to achieving meaningful improvements in child health outcomes.

The study explores the impact of daily nutritional intake on the health outcomes of children living BPL in India. By linking dietary patterns with anthropometric measures and morbidity indicators, the study seeks to identify how variations in everyday nutritional intake influence growth, disease susceptibility, and overall health among economically disadvantaged children. Understanding this relationship is vital for refining national nutrition policies and developing targeted, poverty-sensitive strategies that improve not just food access, but sustained dietary quality for long-term child health and development.

Objectives

- To assess the daily nutritional intake patterns of children living BPL in India.
- To examine the health outcomes of children BPL with reference to nutritional status and morbidity indicators.
- To analyse the relationship between daily nutritional intake and health outcomes among children living BPL.

Methodology

The present study examines the impact of daily nutritional intake on the health outcomes of children living below the poverty line in India using nationally representative data drawn from the National Family Health Survey (NFHS-5, 2019–21). NFHS-5 provides comprehensive information on child nutrition, health status, and household characteristics across the country. The analysis focuses on children under five years of age and incorporates key indicators such as dietary diversity, feeding practices, stunting, wasting, underweight, anaemia, and morbidity, including diarrhoea and respiratory infections. Descriptive and analytical techniques are employed to assess patterns of daily nutritional intake and their association with child health outcomes. In addition, relevant socioeconomic and environmental factors—such as maternal education, sanitation facilities, and access to healthcare services—are included to better understand their role in shaping the nutritional and health status of children.

Breastfeeding Practices and Early Nutrition

Breastfeeding constitutes the foundation of daily nutrition during infancy and plays a vital role in ensuring adequate nutrient intake and immunity. NFHS-5 data show that 63.7% of infants aged 0–5 months are exclusively breastfed. Although this reflects an improvement compared to earlier surveys, a considerable proportion of infants—particularly from BPL households—are still deprived of exclusive breastfeeding. Factors such as maternal undernutrition, lack of awareness, early return to work, and limited access to healthcare counselling often influence breastfeeding practices in poor households. Inadequate breastfeeding compromises the child's daily nutrient intake during the most critical phase of growth and increases vulnerability to infections and undernutrition.

Complementary Feeding Practices

As children transition beyond six months of age, complementary feeding becomes necessary to meet increased nutritional requirements. According to NFHS-5, only 45.9% of children aged 6–8 months receive complementary foods along with breast milk. This indicates that more than half of children do not receive timely or appropriate complementary feeding. Among BPL families, complementary foods are often delayed or nutritionally insufficient due to food insecurity, poverty, and limited dietary knowledge. Such feeding gaps result in calorie and protein deficiencies and contribute to acute forms of undernutrition such as wasting and underweight.

Diet Diversity and Adequacy of Daily Intake

Diet diversity is a crucial indicator of diet quality and micronutrient sufficiency. NFHS-5 highlights that only 23% of children aged 6–23 months receive minimum dietary diversity, while a mere 11.3% receive an adequate diet that meets both diversity and meal frequency standards. These findings reveal a severe inadequacy in daily nutritional intake among young children, particularly those living BPL. BPL households largely depend on cereal-based diets with minimal inclusion of pulses, fruits, vegetables, dairy products, eggs, or meat. This lack of diversity leads to deficiencies in essential micronutrients such as iron, calcium, vitamin A, and zinc, increasing the risk of anaemia, stunting, and frequent illness.

Table 1: Daily Nutritional Intake Indicators among Children (NFHS-5)

Nutritional Indicator	Age Group	Percentage (%)
Exclusive breastfeeding	0–5 months	63.7
Complementary feeding	6–8 months	45.9
Minimum diet diversity	6–23 months	23.0
Adequate diet	6–23 months	11.3

Source: National Family Health Survey-5 (2019–21)

The above table 1 clearly indicate that while early breastfeeding practices show moderate progress, daily nutritional intake deteriorates as children grow older, especially in BPL households. The sharp decline in complementary feeding, diet diversity, and diet adequacy reflects persistent socioeconomic barriers, food insecurity, and limited nutrition awareness. These patterns confirm that children living BPL face significant challenges in achieving consistent and adequate daily nutrition, which directly affects their growth and health outcomes. The results emphasize the need for nutrition strategies that focus on improving daily dietary quality and diversity rather than relying solely on intermittent supplementation.

Anthropometric Indicators of Child Health

Anthropometric measures such as stunting, wasting, and underweight are widely used to assess the nutritional and health status of children. NFHS-5 reveals that 35.5% of children under five years of age are stunted, indicating chronic undernutrition resulting from prolonged inadequate dietary intake and repeated illness. Stunting is particularly prevalent among children from BPL households, where food insecurity, poor maternal nutrition, and limited healthcare access persist. Chronic undernutrition during early childhood has irreversible effects on physical growth and cognitive development.

In addition, 19.3% of children under five are wasted, reflecting acute undernutrition caused by recent nutritional deprivation or illness. Wasting is a serious condition associated with a higher risk of child mortality, especially in poor households where access to timely medical care is limited. Furthermore, 32.1% of children are underweight, highlighting the combined effects of chronic and acute nutritional deficiencies. These indicators collectively demonstrate that a significant proportion of children living BPL continue to experience poor growth outcomes due to insufficient daily nutrition.

Micronutrient Deficiency and Anaemia

Micronutrient deficiencies, particularly anaemia, represent a major public health concern among children in India. According to NFHS-5, 67.1% of children aged 6–59 months are anaemic. Anaemia is largely caused by inadequate intake of iron-rich foods, poor diet diversity, and low absorption due to frequent infections. Children from BPL households are especially vulnerable, as their daily diets often lack pulses, green leafy vegetables, eggs, meat, and fortified foods.

Anaemia adversely affects physical stamina, immune function, and cognitive development. Anaemic children are more likely to experience fatigue, reduced learning ability, and increased susceptibility to infections. The high prevalence of anaemia among poor children indicates that daily nutritional intake is insufficient not only in calories but also in essential micronutrients required for healthy development.

Morbidity Patterns among Children

Poor nutritional status significantly increases the risk of illness among children. NFHS-5 reports that 7.3% of children under five experienced diarrhoeas in the two weeks preceding the survey, while 2.8% showed symptoms of acute respiratory infection (ARI). These illnesses are more frequent and severe among children living in poverty due to weakened immunity, unsafe drinking water, poor sanitation, and unhygienic living conditions.

Recurrent episodes of diarrhoea and respiratory infections further worsen nutritional status by reducing appetite, nutrient absorption, and overall dietary intake, thereby creating a vicious cycle of illness and undernutrition. In BPL households, delayed treatment and limited access to healthcare services often prolong illness duration, negatively affecting child health outcomes.

Table 2: Health Outcomes of Children under Five Years (NFHS-5)

Health Indicator	Percentage (%)
Stunted (low height-for-age)	35.5
Wasted (low weight-for-height)	19.3
Underweight (low weight-for-age)	32.1
Anaemia (6–59 months)	67.1
Diarrhoea (last 2 weeks)	7.3
Acute respiratory infection (ARI)	2.8

Source: National Family Health Survey-5 (2019–21)

The above table 2 clearly indicate that children living BPL experience poor health outcomes across multiple dimensions, including growth failure, micronutrient deficiencies, and increased morbidity. High levels of stunting, wasting, underweight, and anaemia reflect sustained inadequacies in daily nutritional intake, while frequent illness further compounds nutritional deprivation. These results underscore the urgent need for comprehensive nutrition and health interventions that ensure consistent, adequate daily nutrition along with improved healthcare and living conditions for children from economically disadvantaged households.

Association between Diet Adequacy and Growth Outcomes

NFHS-5 data reveal that only 11.3% of children aged 6–23 months receive an adequate diet, while a significantly larger proportion suffer from growth-related nutritional deficiencies. At the national level, 35.5% of children are stunted, 19.3% are wasted, and 32.1% are underweight. The coexistence of low diet adequacy and high levels of growth failure strongly indicates a direct relationship between insufficient daily nutrition and poor physical development.

Children from BPL households are particularly vulnerable, as their daily diets often lack sufficient calories, proteins, and micronutrients needed for sustained growth. Chronic inadequacy in daily intake leads to stunting, which reflects long-term nutritional deprivation. Similarly, acute shortfalls in daily food consumption, often caused by food insecurity or illness, contribute to wasting and underweight. These findings suggest that irregular or nutritionally poor daily diets significantly impair growth outcomes among economically disadvantaged children.

Daily Nutrition and Micronutrient Deficiency

Micronutrient intake is a critical component of daily nutrition, and its deficiency has serious health implications. NFHS-5 reports that 67.1% of children aged 6–59 months are anaemic, highlighting a widespread micronutrient crisis. Anaemia is closely associated with poor daily intake of iron-rich and fortified foods, limited diet diversity, and low consumption of animal-source foods, fruits, and vegetables.

Among BPL households, daily diets are often dominated by staple cereals with minimal inclusion of iron-rich foods such as pulses, green leafy vegetables, eggs, meat, and fortified products. As a result, children fail to meet their daily micronutrient requirements, leading to high anaemia prevalence. Anaemic children often experience fatigue, reduced immunity, delayed cognitive development, and poor learning ability. The high burden of anaemia alongside low diet adequacy reinforces the strong link between poor daily nutrition and adverse micronutrient-related health outcomes.

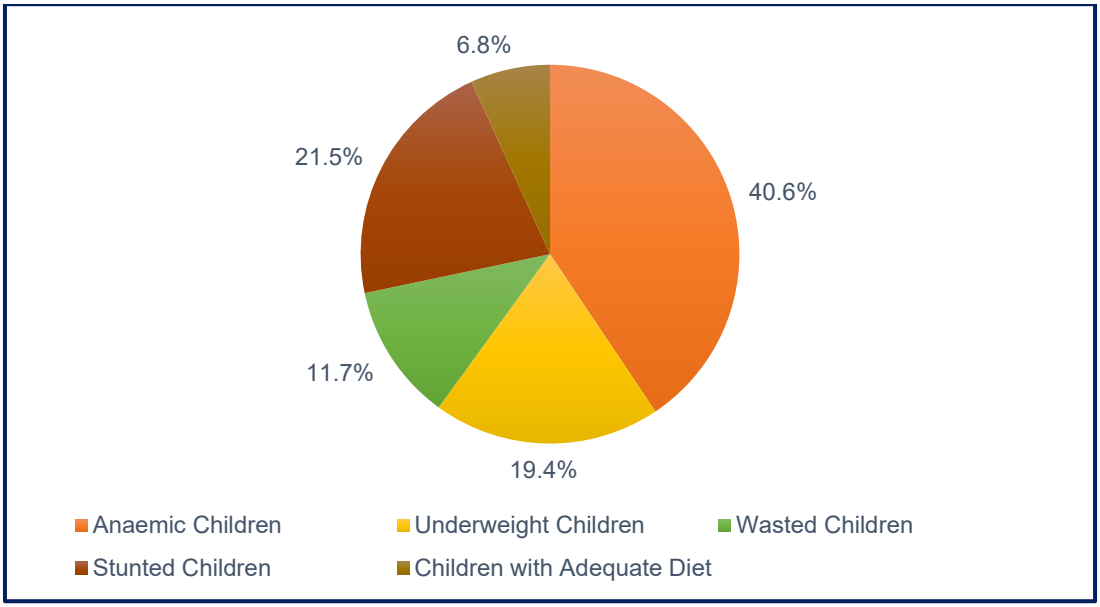

Fig 1: Distribution of Nutritional Intake and Health Outcomes Among Children (NFHS-5)

The Fig. 1 illustrates the imbalance between adequate nutrition and adverse health outcomes. While only a small proportion of children receive an adequate daily diet, much larger shares of the child population suffer from stunting, underweight, wasting, and anaemia. This visual representation clearly supports the finding that poor daily nutritional intake is strongly associated with negative health outcomes among children living BPL.

Daily Nutrition, Morbidity, and the Vicious Cycle of Undernutrition

Inadequate daily nutrition weakens the immune system, making children more susceptible to infections. NFHS-5 data show that 7.3% of children experienced diarrhoea and 2.8% suffered from acute respiratory infections (ARI) in the two weeks preceding the survey. These illnesses are more common and severe among children from BPL households due to poor nutrition, unsafe living conditions, and limited healthcare access.

Frequent illness further reduces appetite and nutrient absorption, worsening nutritional status and creating a vicious cycle of undernutrition and disease. Children with inadequate daily diets are less able to recover from infections, leading to repeated episodes of illness and further growth faltering. This cyclical relationship demonstrates that improving daily nutritional intake is essential not only for preventing malnutrition but also for reducing childhood morbidity.

Results and Discussion

The results of the present study clearly indicate that inadequate daily nutritional intake is strongly associated with poor health outcomes among children living BPL in India. Analysis of NFHS-5 (2019–21) data reveals that although breastfeeding practices show moderate improvement, there is a sharp decline in complementary feeding, diet diversity, and overall diet adequacy as children grow older. Only 11.3% of children aged 6–23 months receive an adequate diet, highlighting serious gaps in daily nutritional intake among economically disadvantaged households. This inadequacy is reflected in adverse anthropometric outcomes, with 35.5% of children being stunted, 19.3% wasted, and 32.1% underweight, indicating the coexistence of chronic and acute undernutrition.

The findings further demonstrate a high burden of micronutrient deficiency, particularly anaemia, affecting 67.1% of children aged 6–59 months. Poor diet diversity, low intake of iron-rich foods, and frequent infections contribute significantly to this condition. In addition, morbidity patterns such as diarrhoea and acute respiratory infections are more prevalent among undernourished children, reinforcing the vicious cycle between poor nutrition and illness. Children from BPL households, due to limited access to healthcare, sanitation, and nutrition awareness, are especially vulnerable to this cycle.

Overall, the results confirm a strong relationship between daily nutritional inadequacy and negative health outcomes. The discussion underscores that nutritional interventions must move beyond supplementary or occasional feeding and focus on ensuring consistent, diverse, and adequate daily diets. Strengthening existing programs such as ICDS, school meals, and community-based nutrition education with a focus on diet quality can play a crucial role in improving child health outcomes and breaking the intergenerational cycle of poverty and malnutrition in India.

Conclusion

The study concludes that inadequate daily nutritional intake is a major contributor to poor health outcomes among children living BPL in India. NFHS-5 data reveal that low diet adequacy and limited dietary diversity are closely associated with high levels of stunting, wasting, underweight, anaemia, and increased childhood morbidity. Although breastfeeding practices show some improvement, significant gaps persist in complementary feeding and overall daily diet quality. These findings indicate that food access alone is insufficient without ensuring consistent, diverse, and nutritionally adequate daily intake. The study emphasizes the need to strengthen nutrition interventions such as ICDS and school meal programmes with a greater focus on daily diet quality, nutrition education, and household-level awareness to improve child health outcomes and reduce persistent nutritional inequalities among BPL populations.

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