

A Study on Nutritional Status and Socio-Economic Determinants among Pre-School Children: A Study at Uparbeda Village Anganwadi Centre, Mayurbhanj District, Odisha

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ABSTRACT

Nutrition during the pre-school years is essential for children's physical growth, brain development, and overall health. Poor nutrition can lead to undernutrition, infections, poor learning ability, and delayed development. Socio-economic conditions such as family income, parental education, occupation, family size, and sanitation greatly influence a child's nutritional status. This study aims to assess the nutritional status of pre-school children and examine the socio-economic factors associated with it in the Uparbeda Village Anganwadi Centre, Mayurbhanj district, Odisha. A cross-sectional study was conducted among 30 pre-school children (3–6 years) selected through simple random sampling. Data were collected using a structured questionnaire, anthropometric measurements (height and weight), and socio-economic information from parents. The findings help identify nutritional problems and support planning of community nutrition interventions.

Key Words : Nutritional status, Pre-school children, Socio-economic factors, Anganwadi centre, Mayurbhanj district

INTRODUCTION

Pre-school children (3–6 years) experience rapid physical and mental development and therefore require adequate nutrition. Proper nutrition during this stage supports healthy growth, cognitive development, immunity, and school readiness. Inadequate nutrition may result in stunting, wasting, underweight, micronutrient deficiencies, and increased susceptibility to infections (Ansuya *et al.*, 2018). In India, malnutrition among children remains a significant public health concern despite several government programmes such as POSHAN Abhiyaan, ICDS, and PM POSHAN. Socio-economic determinants including parental education, occupation, income, family size, sanitation, and food security play an important role in determining children's nutritional outcomes (Gebre *et al.*, 2019; Wolf *et al.*, 2018). Uparbeda Village in

Mayurbhanj district has an Anganwadi Centre that provides supplementary nutrition and preschool education (Radhamani and Rajeev, 2017). Assessing the nutritional status of children attending this centre will provide valuable information for improving child health and nutrition services.

Objectives of the Study:

- To assess the nutritional status of pre-school children attending the Uparbeda Village Anganwadi Centre.
- To assess the nutritional status of pre-school children using anthropometric measurements.
- To study the socio-economic profile of the children's families.
- To identify socio-economic determinants affecting nutritional status.

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Significance of the Study:

- This study will help identify malnourished children.
- Provide information to Anganwadi workers.
- Support nutrition education programmes.
- Assist policymakers in planning interventions.
- Improve child health and development in rural communities.

METHODOLOGY

The study was conducted at the Uparbeda Village Anganwadi Centre, located in Mayurbhanj District, Odisha. The sample size is 30 and the sample were collected through simple random sampling. The data were collected through questionnaire cum interview method. The data were consolidated, tabulated, and analyzed. Statistical tools were used such as frequency and percentage method and graphs to interpretation the findings. The data are presented below in tabular form.

RESULTS AND DISCUSSION**Section 1: Child Demographic and Anthropometric Profiles**

The dataset indicates that the largest cohort of children belongs to the 4-year-old age group, making up 33.3% (n=10) of the total evaluated sample. This is followed closely by 3-year-olds at 26.7% (n=8) and 5-year-olds at 23.3% (n=7). The smallest demographic tier comprises the 6-year-old category at 16.7% (n=5). This structural distribution ensures a balanced representation across the early childhood development spectrum (3 to 6 years), allowing for age-stratified health and nutritional analyses (Table 1 and Fig. 1).

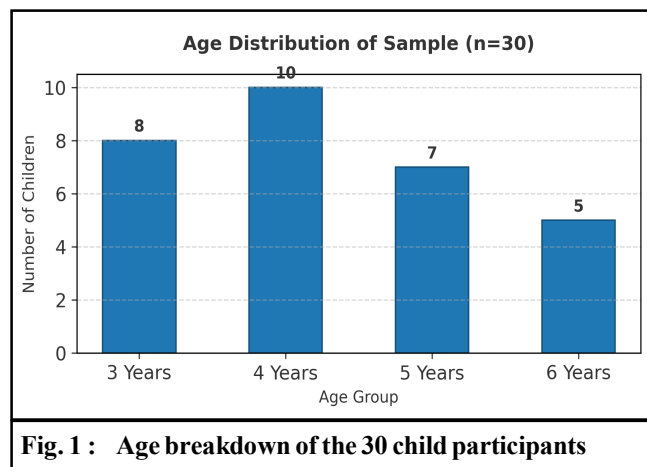
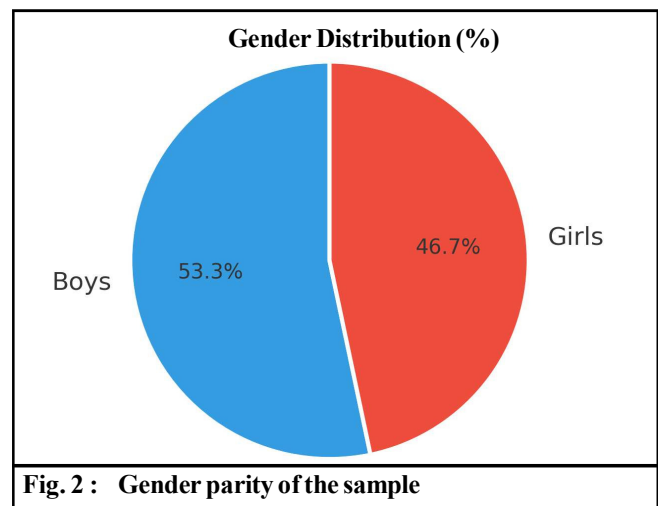


Table 1 : Gender Distribution of the Sampled Children		
Gender	Number (Frequency)	Percentage (%)
Boys	16	53.3
Girls	14	46.7
Total	30	100.0

Gender distribution analysis shows a relatively equal gender split within the sample pool: Boys account for 53.3% (n=16) while Girls constitute 46.7% (n=14). This near 1:1 ratio serves as an excellent foundation for research, mitigating gender bias and ensuring that subsequent nutritional, growth, and development findings apply equitably across both sexes within the Anganwadi environment (Fig. 2).



The weight-for-age metrics disclose that while a majority of the children (60.0%, n=18) maintain a normal nutritional status relative to standard growth baselines, a significant sub-population of 30.0% (n=9) is categorized as underweight. Additionally, 10.0% (n=3) exhibit overweight indicators. The combined prevalence of underweight and overweight individuals points toward a critical dual burden of malnutrition, highlighting the acute need for customized, targeted dietary supplements and maternal nutritional counselling at the community level (Table 2 and Fig. 2).

Table 2 : Nutritional Status based on Weight-for-Age Indicators		
Nutritional Status (Weight-for-Age)	Number (Frequency)	Percentage (%)
Normal	18	60.0
Underweight	9	30.0
Overweight	3	10.0
Total	30	100.0

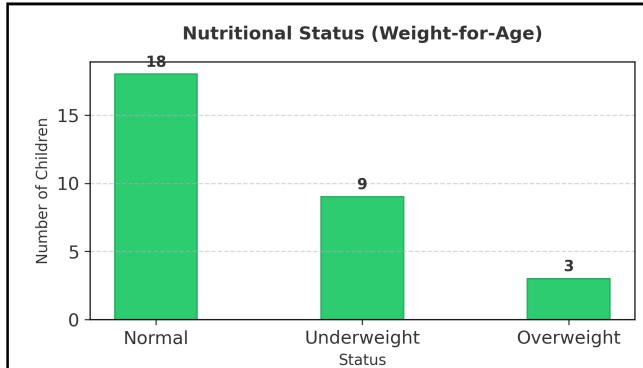


Fig. 3 : Graphical evaluation of nutritional distribution status

Height-for-age indicators serve as the primary marker for chronic undernutrition and stunting. In this sample, 66.7% (n=20) display normal height metrics, whereas 33.3% (n=10) fall under the 'Stunted' category. Stunting highlights long-term, systemic nutritional deficits or repeated instances of early childhood illnesses. This high stunting prevalence confirms that early interventions targeting macro- and micro-nutrient intake are required to prevent irreversible linear growth delays (Table 3).

Table 3 : Height Status based on Height-for-Age Indicators (Stunting)

Height-for-Age Category	Number (Frequency)	Percentage (%)
Normal	20	66.7
Stunted	10	33.3
Total	30	100.0

Section 2: Family Socio-Economic and Environmental Dynamics

Socio-demographic data reveals that 33.3% (n=10) of parents have attained a primary level education, and 30.0% (n=9) completed secondary schooling. However, 20.0% (n=6) of the sample population remain illiterate, while only 16.7% (n=5) achieved higher educational credentials. Parental literacy is a major upstream determinant of child well-being, directly dictating health

Table 4 : Distribution of Parents' Primary Educational Attainment

Education Level	Number (Frequency)	Percentage (%)
Illiterate	6	20.0
Primary Education	10	33.3
Secondary Education	9	30.0
Higher Education	5	16.7
Total	30	100.0

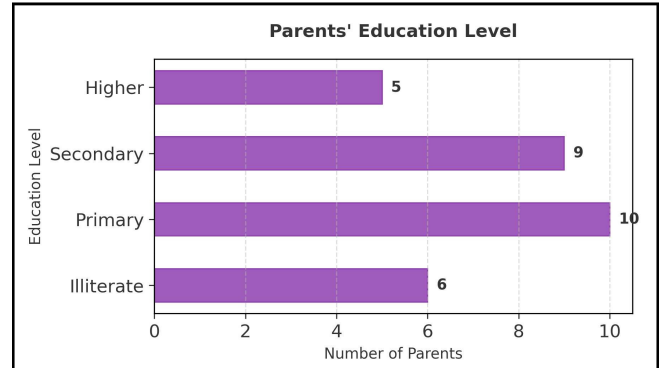


Fig. 4 : Parents' maximum educational attainment breakdown

literacy, modern hygiene practices, and households' economic stability (Fig. 4 and Table 4).

The financial data highlights substantial economic vulnerability across the cohort: nearly half of the households (46.7%, n=14) earn a monthly income below ¹ 10,000, placing them under considerable economic strain. Another 33.3% (n=10) occupy the middle-tier of ¹ 10,001–20,000, and only 20.0% (n=6) bring in more than ¹ 20,000 monthly. This low-income concentration severely limits a family's capacity to purchase diverse, premium-quality dietary options, confirming the critical role of Anganwadi centres in providing free, nutritious meal support (Table 5 and Fig. 5).

Table 5 : Monthly Family Income Distribution

Monthly Income Level (Rs.)	Number (Frequency)	Percentage (%)
Below 10,000	14	46.7
10,001 – 20,000	10	33.3
Above 20,000	6	20.0
Total	30	100.0

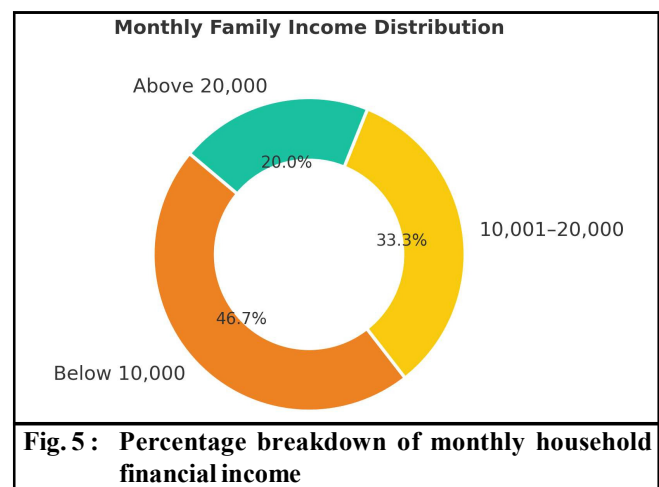


Fig. 5 : Percentage breakdown of monthly household financial income

A majority of the children reside within nuclear family configurations (60.0%, n=18), while the remaining 40.0% (n=12) live in traditional joint family systems. Family types often influence caregiving dynamics; joint families can provide an extended network of shared childcare responsibilities, whereas nuclear households may face structural childcare shortages if both primary parents are forced to engage in daily wage labour (Fig. 6).

Table 6 : Distribution of Family Typologies

Family Typology	Number (Frequency)	Percentage (%)
Nuclear Family	18	60.0
Joint Family	12	40.0
Total	30	100.0

Section 3: Clinical Observations and Daily Behaviour Metrics

The physical observation matrices yield mixed insights into the daily habits and health status of the children. Positively, 80.0% (n=24) of the children arrived at the centre in clean clothing, and an overwhelming 86.7% (n=26) demonstrated high alertness and physical activity during class hours. However, a significant gap was observed in hand hygiene, as 36.7% (n=11) failed to wash their hands properly before consuming meals. Lastly, 16.7% (n=5) showed active clinical signs of physical illness (such as coughing, runny nose, or skin lesions), emphasizing the need for regular health screenings and comprehensive hygiene education

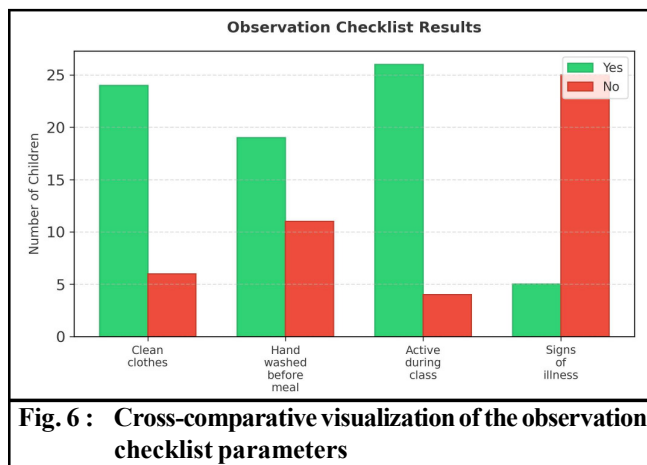


Fig. 6 : Cross-comparative visualization of the observation checklist parameters

Table 7 : Outcome Checklist of Standard Behavioural and Health Observations

Observation Parameters	Yes (Count)	Yes (%)	No (Count)	No (%)
Cleanliness of clothes	24	80.0	6	20.0
Hand washing practice before meals	19	63.3	11	36.7
Active engagement/alertness during class	26	86.7	4	13.3
Visible active signs of illness	5	16.7	25	83.3

programs (Fig. 6 and Table 7).

Conclusion:

Good nutrition is the foundation for healthy growth and development during early childhood. Socio-economic factors strongly influence children's nutritional status. This study at the Uparbeda Village Anganwadi Centre will help understand local nutritional problems and contribute to improving child nutrition through community-based interventions and government programmes.

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