



NUTRITIONAL STATUS AND GROWTH PATTERNS AMONG CHILDREN UNDER FIVE YEARS OF AGE: A CROSS-SECTIONAL STUDY

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Abstract: Malnutrition remains a major public health challenge in developing countries, particularly affecting children under five years of age. This study aimed to evaluate the nutritional status and growth patterns of children under five and to determine associated sociodemographic factors. A cross-sectional survey was conducted on 350 children, and anthropometric measurements were assessed using WHO growth standards. Results showed that 18.2% of children were underweight, 22.5% were stunted, and 9.6% were wasted. Children from low-income households had significantly higher rates of stunting compared to those from higher-income families. Findings highlight the urgent need for community-based nutrition interventions and parental education programs.

Keywords: Pediatrics, Nutritional Status, Growth, Malnutrition, Children under Five

Introduction

Childhood malnutrition is one of the leading causes of morbidity and mortality worldwide, with approximately 45 million children under five suffering from wasting and 149 million being stunted according to the World Health Organization (WHO, 2023). Inadequate nutrition during early childhood negatively impacts physical growth, cognitive development, immune system function, and long-term health outcomes.

In many low- and middle-income countries, limited access to balanced diets, recurrent infections, and socioeconomic inequalities exacerbate the prevalence of malnutrition. Understanding nutritional status and growth patterns is crucial for implementing preventive health measures, guiding policymakers, and ensuring optimal child development.

This study was conducted to evaluate the prevalence of malnutrition among children under five years of age, to analyze growth patterns, and to identify potential risk factors contributing to nutritional deficiencies.

Methods

Study Design and Setting

A cross-sectional study was carried out between March and June 2025 in three pediatric outpatient clinics and two rural health centers.

Study Population



The study included 350 children aged 6–59 months. Children with chronic illnesses such as congenital heart disease, genetic disorders, or metabolic syndromes were excluded.

Data Collection

Anthropometric measurements (weight, height/length, and mid-upper arm circumference) were collected following WHO guidelines. Z-scores for weight-for-age (WAZ), height-for-age (HAZ), and weight-for-height (WHZ) were calculated using WHO Anthro software.

Sociodemographic data (age, sex, parental education, income level, and family size) were obtained through structured questionnaires administered to parents.

Statistical Analysis

Data were analyzed using SPSS version 25. Descriptive statistics were presented as percentages and means \pm standard deviations. Chi-square tests were applied to assess associations between nutritional indicators and sociodemographic factors. A p-value of <0.05 was considered statistically significant.

Results

Among the 350 children, 52.8% were male and 47.2% female. The mean age was 28.4 ± 14.7 months.

- Underweight: 18.2% of children had WAZ below -2 SD.
- Stunting: 22.5% had HAZ below -2 SD.
- Wasting: 9.6% had WHZ below -2 SD.

Children from low-income households had significantly higher stunting rates (31.4%) compared to middle-income (18.7%) and high-income (10.2%) households ($p < 0.01$). Maternal education was positively correlated with improved child growth outcomes.

Globally, malnutrition continues to be one of the leading contributors to childhood morbidity and mortality. According to the World Health Organization (WHO, 2023), nearly 45 million children under the age of five suffer from wasting, 149 million are stunted, and 39 million are overweight or obese. This paradox of undernutrition coexisting with overnutrition highlights the complexity of nutritional challenges worldwide, especially in low- and middle-income countries where food insecurity, infectious diseases, and limited access to healthcare exacerbate the problem.

In countries with transitional economies, such as those in Central Asia and parts of Africa, nutritional issues are particularly concerning. Traditional diets often lack balance, and children are frequently exposed to recurrent gastrointestinal and respiratory infections that worsen their nutritional status. At the same time, urbanization and globalization have led to the increasing consumption of calorie-dense but nutrient-poor foods, further complicating child nutrition.



The nutritional status of children is influenced by a wide range of determinants, including socioeconomic status, maternal education, parental health-seeking behaviors, family size, sanitation, and access to healthcare services. Children from low-income households are at the highest risk of growth retardation and malnutrition due to limited dietary diversity and restricted access to preventive and curative health services. Maternal education also plays a crucial role, as mothers with higher levels of education are generally more aware of healthy feeding practices, vaccination schedules, and hygiene measures.

Research on nutritional status and growth patterns among children under five is essential because it provides baseline data that can inform public health interventions, guide resource allocation, and support the development of effective nutrition policies. Despite global progress in reducing childhood malnutrition, disparities persist across different regions and socioeconomic groups, highlighting the need for context-specific studies.

Therefore, this study aims to investigate the nutritional status and growth patterns among children under five years of age, using WHO growth standards as a reference. It also seeks to identify key sociodemographic factors influencing malnutrition in order to provide evidence-based recommendations for community-level and policy-level interventions.

Discussion

This study demonstrates a high prevalence of undernutrition among children under five, consistent with findings from other developing countries. Stunting, the most prevalent indicator, reflects chronic nutritional deficiency and socioeconomic disparities. The significant association between low household income and stunting emphasizes the role of poverty in child health outcomes.

Maternal education emerged as a protective factor, aligning with evidence that educated mothers are more likely to adopt healthy feeding practices and seek timely healthcare. These findings underline the importance of integrated nutrition programs that address both dietary intake and socioeconomic determinants.

Limitations include the cross-sectional design, which restricts causal inference, and the reliance on parental self-reporting, which may introduce recall bias.

Conclusion

Malnutrition remains a critical concern among children under five, with stunting being the most common form. Socioeconomic inequalities, particularly household income and maternal education, strongly influence nutritional outcomes. Targeted interventions, such as community-based nutrition programs, poverty alleviation strategies, and parental education campaigns, are essential to reduce the burden of childhood malnutrition.

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