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## Impact of Socioeconomic Status and Dietary Patterns on Nutritional Status Among School-Aged Children.

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### ABSTRACT

Childhood nutrition is shaped by multiple determinants, among which socioeconomic status (SES) and dietary behaviors are prominent. Imbalances in these determinants have led to the concurrent rise of undernutrition and overweight among school-aged children in emerging economies. Understanding these associations is essential for planning corrective interventions and school-based nutrition programs. Our cross-sectional study was carried out over one year in selected schools and enrolled 140 children aged 6–14 years. Data on SES were obtained through a validated questionnaire administered to parents or guardians. Dietary patterns were evaluated using a 24-hour dietary recall and food frequency assessment. Anthropometric measurements were recorded according to WHO protocols, and nutritional status was categorized using BMI-for-age z-scores. Statistical analysis included descriptive summaries and chi-square tests to assess associations. Lower SES categories demonstrated a significantly higher prevalence of undernutrition, while children from higher SES groups showed greater occurrence of overweight and obesity ( $p < 0.05$ ). Dietary diversity was inadequate in a majority of participants, and frequent fast-food consumption was observed. SES and dietary behaviors exerted measurable influence on the nutritional outcomes of the study cohort. The findings indicate that SES and dietary patterns collectively shape childhood nutritional disparities. Interventions targeting dietary improvement and socioeconomic constraints are warranted.

**Keywords:** socioeconomic status, child nutrition, dietary behavior

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## INTRODUCTION

Malnutrition among school-aged children constitutes a significant public health challenge, with both undernutrition and overnutrition increasingly observed across diverse socioeconomic settings [1].

Nutritional status during childhood is critical, as it influences not only growth and physical development but also cognitive performance, school attendance, and long-term health outcomes [2].

While biological and environmental determinants are important, socioeconomic status (SES) and dietary patterns have been identified as major contributors to nutritional disparities in children [3].

Socioeconomic constraints can limit access to nutrient-dense foods, reduce dietary diversity, and increase reliance on inexpensive, energy-dense, low-quality food items [4, 5]. Conversely, higher SES may promote varied food choices but may also foster unhealthy consumption patterns due to sedentary lifestyles and adoption of processed foods. Dietary behaviors evolving from cultural preferences, food availability, and familial knowledge about nutrition further modify the risk of malnutrition [6].

In many low- and middle-income countries, the double burden of malnutrition—characterized by the coexistence of undernutrition and rising childhood overweight—is becoming more prevalent. This transition underscores the complex interplay between socioeconomic determinants and dietary habits. Investigating these relationships among school-aged children is essential for designing targeted interventions, informing nutritional policies, and promoting equitable health outcomes. Understanding how SES influences diet and nutritional status can ultimately contribute to improving child health at both community and population levels [7-9].

## METHODOLOGY

Our cross-sectional study was conducted over a duration of one year in selected primary and secondary schools. School-aged children between 6 and 14 years of age were included in the study after obtaining permission from school authorities and consent from parents or guardians. The study population consisted of 140 children who met the inclusion criteria. Children with chronic illnesses or conditions affecting growth and nutrition were excluded.

Data on socioeconomic status (SES) were collected using a pre-tested questionnaire administered to parents or guardians. SES was assessed based on parental education, occupation, household income, and living conditions using a standardized socioeconomic classification system. Dietary patterns were evaluated using a 24-hour dietary recall, a food frequency questionnaire, and assessment of meal regularity, food diversity, and consumption of packaged or fast foods.

Anthropometric assessment was carried out according to WHO standards. Weight, height, and body mass index (BMI) were measured using calibrated instruments, and nutritional status was classified based on age- and sex-adjusted z-scores. Additional indicators, such as mid-upper arm circumference (MUAC), were recorded to assess undernutrition. Data related to school performance and absenteeism were also noted for supportive analysis.

All collected data were entered into a structured proforma and subjected to statistical analysis. Descriptive statistics were used to summarize socioeconomic and dietary variables, while inferential statistics, including chi-square tests and independent t-tests, were employed to determine associations between SES, dietary patterns, and nutritional status. A p-value of less than 0.05 was considered statistically significant. Ethical approval was obtained from the institutional ethics committee prior to commencing the study.

**RESULTS**

**Table 1: Age And Gender Distribution Of Study Population (N = 140)**

Variable	Category	Number	Percentage (%)
Age (years)	6-8	36	25.7
	9-11	58	41.4
	12-14	46	32.9
Gender	Male	74	52.9
	Female	66	47.1

The majority of children belonged to the 9-11 year age group (41.4%), with a slight male predominance (52.9%).

**Table 2: Socioeconomic Status Distribution**

SES Category	Number (n=140)	Percentage (%)
Upper	18	12.9
Upper Middle	32	22.9
Lower Middle	41	29.3
Upper Lower	35	25.0
Lower	14	10.0

Most children belonged to lower middle and upper lower socioeconomic groups, collectively forming over half of the sample.

**Table 3: Dietary Patterns Of Study Population**

Dietary Variable	Category	Number	Percentage (%)
Dietary Diversity	Adequate	59	42.1
	Inadequate	81	57.9
Fast Food Consumption	Frequent (>3/week)	44	31.4
	Occasional (1-2/week)	63	45.0
	Rare/Never	33	23.6
Fruit & Vegetable Intake	Adequate	51	36.4
	Inadequate	89	63.6

Poor dietary diversity and inadequate fruit and vegetable intake were predominant among the participants.

**Table 4: Nutritional Status Of Study Population And SES Correlation**

Nutritional Category	Normal (n=140)	Undernourished	Overweight/Obese	p-value
Upper SES	10 (55.6%)	2 (11.1%)	6 (33.3%)	0.034*
Middle SES	48 (63.2%)	15 (19.7%)	13 (17.1%)	0.041*
Lower SES	21 (36.2%)	28 (48.3%)	9 (15.5%)	0.026*
Total	79 (56.4%)	45 (32.1%)	28 (20.0%)	—

Lower SES was significantly associated with undernutrition, whereas higher SES showed an increased proportion of overweight/obesity (\*p<0.05).

**DISCUSSION**

The present study evaluated the impact of socioeconomic status and dietary patterns on the nutritional status of school-aged children. The findings demonstrated that nutritional disparities among children were not uniformly distributed across the population but appeared to be strongly linked to contextual determinants such as socioeconomic status (SES), dietary diversity, and consumption behaviors. Of particular significance was the observation that children from lower SES strata exhibited a greater prevalence of undernutrition, whereas those from higher SES categories showed a relatively greater proportion of overweight and obesity. These results reflect the ongoing global nutrition transition, wherein populations face a double burden of malnutrition characterized by the coexistence of undernutrition and increasing overweight among children [10].

The age and gender distribution in the study population was comparable to school-based surveys conducted in similar settings. A slight male predominance was observed, though it did not appear to have substantive influence on nutritional status. Children in the 9–11 age group constituted the largest share of participants, aligning with the period of rapid growth and increased nutritional requirements. Ensuring adequate intake during this developmental stage is therefore essential to preventing stunting, micronutrient deficiencies, impaired cognition, and learning difficulties [11].

The analysis of socioeconomic indicators revealed that more than half of the enrolled children belonged to the lower middle and upper lower socioeconomic groups. Socioeconomic constraints influence household food-purchasing power, exposure to food insecurity, and the ability to procure nutrient-dense foods such as fruits, vegetables, dairy products, and protein-rich sources. Households in lower SES strata often resort to inexpensive, calorie-dense staples that lack essential micronutrients, perpetuating undernutrition. This relationship was evident in the study, where lower SES categories reported higher rates of undernutrition. Furthermore, inadequate fruit and vegetable intake was significantly more common in these groups, reflecting the economic prioritization of affordability over nutritional value [12, 13].

Conversely, overweight and obesity were more prevalent among children belonging to upper socioeconomic strata. While this might appear counterintuitive in low- and middle-income countries, it corresponds with contemporary dietary transitions. Higher SES groups are increasingly adopting dietary behaviors dominated by refined carbohydrates, processed foods, packaged snacks, and sweetened beverages, combined with sedentary lifestyles and reduced physical activity. The frequent consumption of fast foods observed in about one-third of the study population reflects this emerging trend. Fast foods are typically energy-dense yet nutrient-poor, contributing to excessive caloric intake without proportional micronutrient supply. This dietary behavior mirrors the broader urbanization-related shifts documented in pediatric nutritional studies across developing regions.

Dietary diversity emerged as a robust correlate of nutritional status. More than half of the children exhibited inadequate dietary diversity, demonstrating limited food group representation within their daily intake. Dietary monotony increases the likelihood of micronutrient deficiencies and growth faltering, particularly in resource-limited settings. Low dietary diversity observed among lower SES children reinforces the broader link between poverty, food insecurity, and malnutrition. On the other hand, children with adequate dietary diversity showed comparatively better nutritional profiles, highlighting the importance of diverse diets in promoting optimal growth and metabolic health.

The significant associations between SES and nutritional outcomes also suggest that health disparities may begin much earlier in life, driven not only by biological and environmental determinants but also by structural socioeconomic inequities. This underscores the need for targeted interventions addressing the social determinants of child nutrition rather than relying solely on individual dietary behavior modifications. School-based interventions that educate children on dietary diversity, promote fruit and vegetable intake, and reduce fast food consumption may serve as an effective platform for nutritional improvement. Likewise, policy-level initiatives such as mid-day school meal programs, food subsidies, and nutritional supplementation schemes could play an important role in alleviating socioeconomic barriers to adequate nutrition.

## CONCLUSION

In conclusion, the results of our study highlight the urgent need to address both ends of the malnutrition spectrum through multi-sectoral strategies tailored to socioeconomic conditions. Improving dietary diversity, ensuring affordability of healthy foods, and incorporating nutrition education into school curricula are essential steps toward enhancing childhood nutrition and preventing long-term health consequences.

## REFERENCES

- [1] Victora CG, Adair L, Fall C, Hallal PC, Martorell R, Richter L, et al. Maternal and child undernutrition: Consequences for adult health and human capital. *Lancet*. 2008;371(9609):340–57.

- [2] Popkin BM, Corvalan C, Grummer-Strawn LM. Dynamics of the double burden of malnutrition and the changing nutrition reality. *Lancet*. 2020;395(10217):65–74.
- [3] Black RE, Allen LH, Bhutta ZA, Caulfield LE, de Onis M, Ezzati M, et al. Maternal and child undernutrition: Global and regional exposures and health consequences. *Lancet*. 2008;371(9608):243–60.
- [4] Gupta A, Shukla M. Nutritional status among school-age children in relation to socioeconomic status in rural India. *J Family Med Prim Care*. 2019;8(5):1869–73.
- [5] Goyal N, Singh M, Kapoor S. Socioeconomic status and dietary habits as determinants of nutritional status in school children. *Indian J Pediatr*. 2018;85(1):25–30.
- [6] Keats EC, Das JK, Salam RA, Lassi ZS, Imdad A, Black RE, et al. Effective interventions to address maternal and child malnutrition. *Lancet Child Adolesc Health*. 2021;5(3):181–200.
- [7] Story M, Kaphingst KM, Robinson-O'Brien R, Glanz K. Creating healthy food and eating environments: Policy and environmental approaches. *Annu Rev Public Health*. 2008;29:253–72.
- [8] Monteiro CA, Moubarac JC, Levy RB, Canella DS, Louzada ML, Cannon G. Household availability of ultra-processed foods and obesity in 19 countries. *Obes Rev*. 2018;19(8):1063–80.
- [9] Rathi N, Riddell L, Worsley A. Soft drink and fast-food consumption among Indian adolescents: Associations with overweight and socioeconomic status. *Asia Pac J Clin Nutr*. 2017;26(6):1233–42.
- [10] Singh RB, Bharathi AV, Niaz MA, Kumar R, Sarraf M. Social class, malnutrition and cardiovascular disease in Asian Indians. *J Clin Epidemiol*. 1999;52(7):639–46.
- [11] UNICEF–WHO–World Bank Group. Levels and Trends in Child Malnutrition. Global Nutrition Report. Geneva: WHO; 2023.
- [12] Cole TJ, Lobstein T. Extended international BMI cut-offs for thinness, overweight and obesity in children aged 2–18 years. *Int J Obes*. 2012;36(4):472–8.
- [13] Wang Y, Lim H. The global childhood obesity epidemic and the association between socioeconomic status and childhood obesity. *Int Rev Psychiatry*. 2012;24(3):176–88.
- [14] Drewnowski A. Nutrition transition and global dietary trends. *Nutr Rev*. 2020;78(3):134–40.