

Socioeconomic and Geographic Patterns of Stunting, Wasting and Overweight among Children under Five in Bangladesh: A Descriptive Secondary Analysis of MICS 2025

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ABSTRACT

Childhood malnutrition in Bangladesh includes persistent undernutrition alongside emerging overweight. Recent nationally representative data are needed to describe how these outcomes vary geographically and across socioeconomic groups. To describe national and geographic patterns of stunting, wasting, severe wasting, and overweight among children under five years in Bangladesh using aggregate findings from the Bangladesh Multiple Indicator Cluster Survey (MICS) 2025 Preliminary Report, and to examine socioeconomic gradients for the indicators for which the preliminary report provides disaggregated estimates. This study used a descriptive secondary-data analysis with narrative contextualization. Aggregate estimates were extracted from the Bangladesh MICS 2025 Preliminary Report. National prevalence was summarized for stunting, wasting, severe wasting, and overweight; divisional estimates were compared for stunting, wasting, and overweight; and socioeconomic stratification was examined for stunting and wasting by place of residence, household wealth, maternal education, and child age where reported. No individual-level microdata were available to the authors, and no regression, reweighting, or causal analysis was performed. Published literature was used selectively to contextualize observed patterns rather than as a systematically synthesized evidence base. Nationally, 24% of children under five were stunted, 13% were wasted, 2.5% were severely wasted, and 1.7% was overweight. Stunting was highest in Sylhet (32%) and lowest in Khulna (21%); wasting was highest in Rajshahi (15%) and lowest in Dhaka (11%); and overweight was highest in Dhaka (3.4%) and lowest in Rangpur (0.9%). Stunting showed a marked wealth gradient, from 32.0% in the poorest quintile to 10% in the richest, and varied by maternal education from 34% among children of mothers with no/pre-primary education to 10% among children of mothers with higher education. Rural children had higher stunting and wasting prevalence than urban children in the reported summary. MICS 2025 shows persistent geographic and socioeconomic inequalities in child undernutrition, alongside geographic variation in childhood overweight. The findings are descriptive and should not be interpreted as evidence that specific regional or socioeconomic characteristics cause malnutrition. Future analyses using individual-level MICS data should assess adjusted associations and potential pathways.

Keywords: Child malnutrition, geographic disparities, overweight, socioeconomic inequalities, stunting, wasting, MICS 2025 Bangladesh

INTRODUCTION

Child malnutrition remains an important public health concern, with stunting and wasting reflecting different dimensions of undernutrition and overweight representing excess weight relative to height. The coexistence of

undernutrition and overweight within populations is commonly described as the double burden of malnutrition [1, 2].

Bangladesh has made progress in child survival and nutrition, but socioeconomic and geographic inequalities remain important. Earlier analyses of Bangladesh MICS data have identified associations between child stunting and household socioeconomic position, parental education, age, and division [3]. The Bangladesh MICS 2025 was implemented by the Bangladesh Bureau of Statistics (BBS) in collaboration with UNICEF and provides updated nationally representative information on children and women [4].

The present study therefore focuses on a descriptive assessment of the 2025 MICS aggregate findings. The analysis is intended to summarize the distribution of child anthropometric outcomes and to place selected patterns in the context of previous literature. Because the authors did not have access to individual-level MICS 2025 microdata, the study does not estimate independent risk factors or causal effects.

OBJECTIVES

- To describe national prevalence estimates of stunting, wasting, severe wasting, and overweight among children under five years using the Bangladesh MICS 2025 Preliminary Report.
- To describe geographic variation in stunting, wasting, and overweight across the eight administrative divisions.
- To examine reported socioeconomic gradients in stunting and wasting by household wealth, maternal education, place of residence, and child age, where aggregate estimates are available.
- To contextualize the observed patterns using relevant published literature on child malnutrition and nutrition transition.

METHODOLOGY

Study design and methodological positioning

This study was designed as a descriptive secondary-data analysis with narrative contextualization, rather than as a systematic evidence synthesis or systematic review. The primary empirical source was the Bangladesh MICS 2025 Preliminary Report. The term 'evidence synthesis' has therefore been removed from the title and is not used to imply a systematic literature review.

Data source

Aggregate data were obtained from the Bangladesh Multiple Indicator Cluster Survey (MICS) 2025 Preliminary Report published by the Bangladesh Bureau of Statistics in collaboration with UNICEF.⁴ The survey used a multistage, stratified cluster sampling design based on the 2022 Population and Housing Census. The preliminary report included 62,980 sampled households, 24,680 identified children under five years, and complete anthropometric measurements for 23,357 children.

Data extraction and analysis

The authors manually extracted reported prevalence estimates and subgroup values from the relevant MICS 2025 summary tables. The extraction domains were: national prevalence; administrative division; place of residence; household wealth quintile; maternal educational level; and child age group. Estimates were entered into summary tables and compared descriptively using percentages and absolute percentage-point differences where appropriate. No individual-level dataset was available; therefore, no multivariable regression, hypothesis testing, calculation of new sampling weights, confidence intervals, or causal modeling was undertaken.

Anthropometric definitions

Anthropometric indicators followed the WHO Child Growth Standards.⁵ Stunting was defined as height-for-age Z-score (HAZ) <-2 SD; wasting as weight-for-height Z-score (WHZ) <-2 SD; severe wasting as WHZ <-3 SD; and overweight as WHZ $>+2$ SD.

Narrative contextualization of published literature

Published literature was used selectively to interpret the descriptive findings. The literature was not searched or selected using a systematic review protocol, and no pooled estimate, formal quality assessment, or systematic synthesis was performed. References were selected for direct relevance to Bangladesh child malnutrition, socioeconomic inequalities, anthropometric standards, and the broader nutrition transition. Accordingly, literature-derived explanations are presented as contextual interpretations rather than as demonstrated explanations of the MICS 2025 geographic differences.

RESULTS

National prevalence

According to the MICS 2025 Preliminary Report, 24.0% of children under five were stunted, 13.0% were wasted, 2.5% were severely wasted, and 1.7% was overweight [4].

Indicator	Definition	Prevalence (%)
Stunting	HAZ <-2 SD	24
Wasting	WHZ <-2 SD	13
Severe wasting	WHZ <-3 SD	2.5
Overweight	WHZ $>+2$ SD	1.7

Geographic variation

Across the eight divisions, stunting was highest in Sylhet (32.0%) and lowest in Khulna (21.0%). Wasting was highest in Rajshahi (15.0%) and lowest in Dhaka (11.0%). Overweight was highest in Dhaka (3.4%) and lowest in Rangpur (0.9%). These are descriptive geographic differences and do not establish regional causes.

Division	Stunting (%)	Wasting (%)	Overweight (%)
Barishal	26	13	1.4
Chattogram	26	14	1.2
Dhaka	22	11(Lowest)	3.4 (Highest)
Khulna	21.0 (Lowest)	13	1.1
Mymensingh	25	12	1.3
Rajshahi	23	15(Highest)	1.2
Rangpur	23	14	0.9 (Lowest)
Sylhet	32.0 (Highest)	14	1.6
National	24	13	1.7

Socioeconomic and demographic stratification

The preliminary report provides socioeconomic stratification for stunting and wasting, but not a comparable wealth- or maternal-education breakdown for overweight in the summary tables used here. Stunting declined from 32.0% in the poorest wealth quintile to 10.0% in the richest quintile. By maternal education, stunting was 34.0% among children whose mothers had pre-primary/no education and 10.0% among those whose mothers had higher education. Rural children had higher reported stunting (25.0%) and wasting (13.0%) than urban children (22.0% and 12.0%, respectively). Because comparable socioeconomic estimates for overweight were

not available in the preliminary summary tables, no socioeconomic gradient for overweight is inferred in this manuscript.

Socio-Demographic Characteristic	Stratum / Sub-Group	Stunting (%)	Wasting (%)
Place of Residence	Urban	22	12
	Rural	25	13
Household Wealth Quintile	Poorest (Lowest 20%)	32	—*
	Second	28	—
	Middle	24	—
	Fourth	18	—
	Richest (Highest 20%)	10	—
Maternal Educational Level	Pre-primary or None	34	14
	Primary Education	29	14
	Secondary Education	22	12
	Higher Education	10	10
Child Age Group	0–5 months	—	11
	6–11 months	—	12
	12–23 months	—	13
	24–35 months	—	13
	36–47 months	—	13
	48–59 months	—	14
*Em-dashes (-) indicate data points not explicitly disaggregated in the preliminary summary table.			

DISCUSSION

Socioeconomic inequalities

The MICS 2025 aggregate findings show a clear descriptive socioeconomic gradient in stunting. The difference between the poorest and richest wealth quintiles and the difference across maternal education categories are consistent with previous Bangladesh evidence linking socioeconomic position and parental education with child stunting [3]. However, the present analysis cannot determine whether wealth or maternal education independently explains the observed differences because individual-level covariates were unavailable.

Geographic variation

Sylhet had the highest reported stunting prevalence, while Rajshahi had the highest reported wasting prevalence. Previous Bangladesh research has also identified geographic differences in child stunting, including higher risk in Sylhet [3]. Environmental, seasonal, livelihood, food-security, sanitation, and service-access factors may contribute to geographic variation, but these mechanisms were not measured in the present aggregate analysis. They should therefore be regarded as plausible contextual explanations rather than demonstrated causes.

Geographic variation in overweight

Dhaka had the highest reported prevalence of childhood overweight among the eight divisions, while Rangpur had the lowest. The coexistence of undernutrition and overweight is consistent with the broader double burden of malnutrition described in the international literature [1, 2]. Literature on nutrition transition and ultra-processed food environments can provide context for urban dietary change, but the MICS 2025 aggregate data used here do not contain sufficient information to attribute the Dhaka estimate to specific dietary, physical-activity, or marketing mechanisms [6].

Public Health Implications

The findings support continued attention to socioeconomic inequalities in child undernutrition and to geographic differences in anthropometric outcomes. Public-health planning may consider poverty-sensitive nutrition and social-protection measures, maternal and caregiver support, and context-specific services in areas with higher reported burdens. The observed variation in overweight also supports maintaining surveillance of excess weight in urban and other populations. These implications should be interpreted as policy-relevant considerations rather than as interventions proven by this descriptive study.

STRENGTHS AND LIMITATIONS

Strengths include the use of recent nationally representative MICS 2025 aggregate data, simultaneous description of stunting, wasting, severe wasting, and overweight, and explicit examination of geographic and available socioeconomic stratification. The study also clearly separates empirical MICS findings from contextual interpretation.

Several limitations should be considered. First, the analysis is based on a preliminary aggregate report; values may be revised in the final survey report. Second, individual-level microdata were not available, preventing adjusted analyses, formal statistical testing, and assessment of confounding. Third, the preliminary summary tables did not provide comparable socioeconomic stratification for overweight, so no such gradient was estimated. Fourth, the literature component was narrative and selective rather than systematic; therefore, the manuscript does not claim to provide a comprehensive evidence synthesis. Finally, the cross-sectional aggregate data do not support causal inference, and geographic contextual explanations should not be interpreted as demonstrated determinants.

CONCLUSION

The Bangladesh MICS 2025 Preliminary Report indicates substantial national and geographic variation in childhood stunting, wasting, and overweight, with pronounced socioeconomic differences in stunting and differences in wasting by residence and maternal education. The present study is a descriptive secondary-data analysis with narrative contextualization, not a systematic evidence synthesis. The findings identify patterns that warrant further investigation but do not establish causal mechanisms. Individual-level analyses of the final MICS 2025 dataset, when available, would be valuable for estimating adjusted associations and exploring pathways underlying geographic and socioeconomic inequalities.

Ethics

The study used publicly available aggregate secondary data and did not involve recruitment, interviews, biological specimens, or access to identifiable individual-level records. No individual participant could be identified from the data used for this analysis.

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