

Child Food Poverty among Children Aged 6-23 Months in Bangladesh: Prevalence, Inequalities and Associated Factors Using MICS 2025

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Abstract

Background

For children's growth and development, adequate dietary diversity throughout the supplemental feeding period (6–23 months) is crucial; yet many children in low- and middle-income countries, including Bangladesh, do not exceed the necessary diversity thresholds.

Methods

This study estimated the prevalence and correlates of child food poverty, which is defined as consuming 0–4 food categories based on an eight-food-group dietary variety score, using data from the Bangladesh Multiple Indicator Cluster Survey 2025, which focused on 6757 children aged 6–23 months. Complex samples were used in analyses. Adjusted odds ratios for child food poverty are calculated using logistic regression, considering variables such as age, sex, residence, division, mother education, and household wealth.

Results

A weighted prevalence of child food poverty was found to be 64.2%, with 20.9% experiencing severe poverty and 43.3% experiencing moderate poverty. The average score for dietary diversity was 3.89 out of 8. Pulses, nuts, and seeds were consumed at the lowest rate (18.1%), followed by dairy products (32.2%). Younger children (ages 6–8 months), children from low-income homes, and mothers with low levels of education were important characteristics linked to increased likelihood of food poverty. Living in an urban area has been shown to protect against food poverty.

Conclusion

Nearly two out of every three children in Bangladesh between the ages of six and twenty-three months suffer from child food poverty, which is highly correlated with age, maternal education, and household wealth. The main nutritional gap that needs to be addressed is supplemental feeding practices rather than staple food access.

Introduction

Child food poverty indicates a lack of access to nutritious and varied diets for children aged 6–23 months, highlighting dietary deprivation over the last 24 hours during a crucial developmental stage (Inusah et al., 2026). Children consuming three to four food categories daily are classified as experiencing moderate child food poverty, while those with access to only two are deemed to be in severe child food poverty. Key factors contributing to severe child food poverty include inadequate

feeding habits, food instability, household poverty, and limited access to nutrient-dense foods(Yemane et al., 2025). The first two years of life are crucial for promoting health and development and preventing stunting, with significant length decline occurring during the complementary feeding period from 6 to 23 months(White et al., 2017). Early childhood survival, growth, cognitive development, and general health all depend on adequate nutrition. Particularly during the first two years, adequate food intake is necessary because of the rapid growth of the body and brain. Children require a variety of age-appropriate, nutrient-dense supplemental foods in addition to breast milk because breast milk alone is insufficient after six months(Rahman et al., 2023). Children in low- and lower-middle-income countries exhibit the lowest intake of fruits, vegetables, eggs, and meat, highlighting inequities related to income level and socioeconomic status(Ricardo et al., 2023).

Globally, only 28% of children aged 6–23 months meet the indicator for Minimum Dietary Diversity (MDD), indicating a concerning level of nutritional inadequacy in diets worldwide(Organization, 2023).

92% of children aged 6–23 months experienced severe or moderate food poverty(Belay et al., 2026). Low dietary intake among children is critically low, with only 4 out of 49 countries reporting over 50% of infants and young children meeting Minimum Dietary Diversity (MDD). Significant inequalities exist, particularly in MDD based on region, rural or urban residence, and wealth, with sub-Saharan Africa at 18% and Latin America and the Caribbean at 54%(Baye & Kennedy, 2020). Children in low- and lower-middle-income countries exhibit the lowest intake of fruits, vegetables, eggs, and meat, highlighting inequities related to income level and socioeconomic status. One in four children worldwide, 181 million children under five, lives in acute food poverty, which is defined as consuming no more than two of the eight food groups. With almost 64 million infected children in South Asia alone, the situation is especially bad in sub-Saharan Africa and South Asia, where 68% of affected children reside. It's interesting to note that more than half of children living in extreme food poverty come from middle-class or wealthier households(*Child Food Poverty | UNICEF, 2024*). UNICEF defines severe child food poverty as children who consume two or fewer food categories. Poverty, food costs, and caregiver knowledge are some of the structural elements that are connected to this problem. The intricacy of nutritional deprivation is highlighted by the fact that many children in higher wealth groups also suffer from severe food poverty, despite the fact that the majority of affected children originate from impoverished households(*Child Food Poverty | UNICEF, 2024*). Maternal and child health in Bangladesh has significantly improved yet feeding issues with infants and young children still exist. The transition from exclusive nursing to supplemental feeding is essential since children's nutritional demands are greatly impacted by the quantity and range of foods they eat. Bangladesh's minimum acceptable diet for children aged 6 to 23 months and dietary diversity are still inadequate(Kundu et al., 2022). Evidence from the BDHS 2017–2018 shows that only 34.7% of children aged 6–23 months met the minimum acceptable diet. Factors positively associated with meeting this standard include older age, higher maternal education, working mothers, greater media exposure, and adequate antenatal care from skilled providers(Shaun et al., 2023). Examining the national and subnational distribution of MAD reveals significant socioeconomic and education-related inequalities, as well as notable geographic variation. Determinants of MAD include maternal employment and antenatal care utilization(Rahman et al., 2023). Bangladesh's dietary diversity

highlights significant socioeconomic and geographical inequalities. The 2017–2018 Bangladesh Demographic and Health Survey (BDHS) estimated a 37.47% prevalence of minimum dietary diversity (MDD) among children, with household wealth and maternal education as key factors influencing this inequality. A separate analysis identified a 34.70% prevalence of minimum acceptable diet (MAD), emphasizing urban-rural disparities and the importance of maternal education and antenatal care. Projections indicate persistent disparities through 2030 without stronger interventions. The 2025 Bangladesh Multiple Indicator Cluster Survey (MICS) reports that 64.8% of children experience some level of food poverty and reveals a decrease in MAD prevalence to 29.5%. This new data, offering more detailed measures of deprivation, is critical for understanding the nutritional status of children in Bangladesh, indicating both the urgency of addressing food poverty and the need for targeted interventions.

The prevalence of overall, moderate, and severe child food poverty among children aged 6–23 months is estimated in this study using data from the Bangladesh MICS 2025. Concentration indices and decomposition analysis are used to look at socioeconomic, maternal education, and regional disparities in these outcomes. To find factors at the individual, household, and community levels that are independently linked to child food poverty, Complex Samples Logistic Regression is employed. The results provide relevant evidence to guide Bangladesh's efforts to enhance complementary feeding methods.

Methods

Study design and data source

This study used secondary data from the Bangladesh Multiple Indicator Cluster Survey 2025 (MICS 2025), a nationally representative household survey implemented within the global MICS programme. The survey was designed to generate population-level indicators on child health, nutrition, infant and young child feeding, education, protection, disability, water, sanitation and household living conditions. The present analysis was conducted as a cross-sectional study of children aged 6–23 months using the child-level dataset.

All analyses incorporated the complex survey design so that point estimates and variance estimates reflected the survey structure. The SPSS Complex Samples plan specified the child sampling weight (chweight), sampling stratum (stratum), and primary sampling unit (PSU), with sampling with replacement used as the variance-estimation assumption. The same design specification was applied consistently to descriptive estimates, bivariate analyses, and multivariable regression, thereby accounting for unequal selection probabilities, stratification, and clustering in the estimation of standard errors, 95% confidence intervals, and design-adjusted tests.

Study population

The analytical population comprised children aged 6–23 completed months, corresponding to the complementary-feeding period for which the dietary diversity score and child food poverty outcome were operationalized. The final analytic sample comprised 6757 children. Consistent with the final Complex Samples output, all 6757 analytic observations contributed to the primary multivariable model, with no invalid cases after restriction to the analytic sample.

Outcome variables

The primary outcome was child food poverty, constructed from the number of food groups consumed by the child during the day or night preceding the survey. The eight food groups were: breast milk; grains, roots, tubers and plantains; pulses, nuts and seeds; dairy products; flesh foods; eggs; vitamin A-rich fruits and vegetables; and other fruits and vegetables. The dietary diversity score (DDS8) was calculated as the sum of the eight binary food-group indicators and ranged from 0 to 8.

Children consuming foods from 0–2 groups were classified as having severe child food poverty, those consuming foods from 3–4 groups as having moderate child food poverty, and those consuming foods from 5–8 groups as not having child food poverty. The binary outcome used in the primary model coded children consuming 0–4 groups as 1 = child food poverty and children consuming 5–8 groups as 0 = no child food poverty.[Table 1 near here]

Explanatory variables

Covariates were specified a priori to represent child demographic characteristics, geographical context, and socioeconomic position relevant to complementary feeding. Child-level variables comprised age group and sex; geographical variables comprised urban-rural residence and administrative division; and socioeconomic variables comprised maternal education and household wealth group. Maternal education was categorized as pre-primary/none, primary, secondary, or higher, and household wealth was represented by poor, middle, and rich groups. Ethnicity and caregiver functional difficulty were retained for descriptive and bivariate analyses but were not included in the primary adjusted model because the corresponding minority subgroups were small (unweighted $n = 96$ for other ethnicity and $n = 79$ for caregiver functional difficulty), limiting the precision of multivariable estimates.

Statistical analysis

Weighted descriptive analyses estimated population percentages with standard errors and 95% confidence intervals. The weighted prevalence of any child food poverty, moderate child food poverty and severe child food poverty was estimated. The weighted mean DDS8 and the distribution of DDS8 from 0 to 8 were also calculated. Consumption of each food group was summarized using survey-weighted percentages.

Survey-weighted cross-tabulations were used to estimate child food poverty prevalence across age group, sex, residence, division, maternal education, wealth group, ethnicity, and caregiver functional difficulty. Overall bivariate associations were evaluated using Rao-Scott design-adjusted F tests. The primary adjusted analysis used Complex Samples Logistic Regression with binary child food poverty (0–4 food groups versus 5–8 food groups) as the dependent variable and age group, sex, residence, division, maternal education, and wealth group as covariates. Adjusted associations are reported as adjusted odds ratios (AORs) with 95% confidence intervals, using 18–23 months, female sex, rural residence, Sylhet division, higher maternal education, and rich household wealth as reference categories. Omnibus model effects were evaluated using design-adjusted Wald F tests, and pseudo R-squared statistics were treated as descriptive indices of model fit. Because child food poverty was common, AORs were interpreted strictly as odds ratios rather than as approximations to prevalence ratios. Given the cross-sectional design, all estimates were interpreted as associations and not as causal effects.

Table 1
Construction of the eight dietary diversity food groups

Food group	Operational definition
Breast milk	Breastfed yesterday
Grains, roots, tubers and plantains	Grain-based foods; starchy roots/tubers
Pulses, nuts and seeds	Beans, peas, lentils, nuts or foods made from these
Dairy products	Infant formula, animal milk, yogurt drinks, yogurt or cheese
Flesh foods	Organ meat, processed meat, meat/poultry, fish or shellfish
Eggs	Egg consumption yesterday
Vitamin A-rich fruits and vegetables	Yellow/orange vegetables, dark green leafy vegetables, vitamin A-rich fruits
Other fruits and vegetables	Other vegetables and fruits

Results

Sample and participant characteristics

The final analytical dataset consisted of 6757 children aged 6–23 months. The survey-weighted distribution showed that 16.4% of children were aged 6–8 months, 14.6% were aged 9–11 months, 35.3% were aged 12–17 months and 33.7% were aged 18–23 months. Boys represented 51.5% of the weighted sample and girls 48.5%. Most children resided in rural areas (70.8%), while 29.2% lived in urban areas. The largest weighted divisional shares were observed in Chattogram (25.0%) and Dhaka (24.5%), followed by Rajshahi (11.5%), Khulna (10.5%), Rangpur (9.8%), Mymensingh (7.5%), Sylhet (6.3%) and Barishal (4.9%). Maternal education was concentrated at the secondary level (53.6%), whereas 25.8% of

children had mothers with higher education. By household wealth group, 37.1% of children were from poor households, 19.9% from middle households and 43.0% from rich households. The complex survey plan comprised 131 strata and 2759 primary sampling units, yielding 2628 design degrees of freedom; all 6757 analytic records contributed to the primary regression model. [Table 2 near here]

Table 2
Characteristics of children aged 6–23 months

Variable	Category	Weighted %	95% CI	Unweighted n
Age group	6–8 months	16.4	15.4–17.5	1,112
	9–11 months	14.6	13.6–15.6	972
	12–17 months	35.3	34.0–36.6	2,380
	18–23 months	33.7	32.4–35.1	2,293
Sex	Male	51.5	50.1–52.9	3,458
	Female	48.5	47.1–49.9	3,299
Residence	Urban	29.2	28.1–30.4	1,801
	Rural	70.8	69.6–71.9	4,956
Division	Barishal	4.9	4.5–5.4	534
	Chattogram	25.0	23.8–26.2	1,531
	Dhaka	24.5	23.4–25.6	1,433
	Khulna	10.5	9.9–11.2	932
	Mymensingh	7.5	6.8–8.2	398
	Rajshahi	11.5	10.8–12.3	695
	Rangpur	9.8	9.2–10.5	759
	Sylhet	6.3	5.8–6.8	475
Mother's education	Pre-primary/none	4.7	4.1–5.4	306
	Primary	15.9	14.9–17.1	1,091
	Secondary	53.6	52.1–55.0	3,643
	Higher	25.8	24.5–27.1	1,717
Wealth group	Poor	37.1	35.6–38.5	2,805
	Middle	19.9	18.8–21.1	1,378
	Rich	43.0	41.5–44.6	2,574
Ethnicity	Bangali	99.6	99.4–99.7	6,661
	Other	0.4	0.3–0.6	96
Caregiver functional difficulty	Has difficulty	1.3	1.0–1.6	79
	No difficulty	98.7	98.4–99.0	6,678

Prevalence and severity of child food poverty

Among children aged 6–23 months, the survey-weighted prevalence of any child food poverty was 64.2% (CI: 62.9–65.6), compared with 35.8% (CI: 34.4–37.1) classified as not food poor. Moderate child food poverty accounted for 43.3% (CI: 42.0–44.7) and severe child food poverty for 20.9% (CI: 19.8–22.1). Thus, approximately one in five children consumed foods from no more than two of the eight food groups during the preceding day or night (Table 3; Fig. 1).

Table 3
Prevalence and severity of child food poverty

Outcome	Weighted %	95% CI	Unweighted n
No child food poverty	35.8	34.4–37.1	2405
Any child food poverty	64.2	62.9–65.6	4352
Moderate child food poverty	43.3	42.0–44.7	2961
Severe child food poverty	20.9	19.8–22.1	1391
Note. Any child food poverty is defined as consumption of foods from four or fewer food groups. Severe child food poverty is defined as consumption of foods from zero to two food groups.			

Dietary diversity and food-group consumption

The survey-weighted mean dietary diversity score was 3.89 (CI: 3.84–3.94) on the 0–8 scale. The modal score was four food groups (23.6%; CI: 22.4–24.8), followed by three groups (19.8%; CI: 18.7–20.9) and five groups (19.4%; CI: 18.4–20.6). At the lower end of the distribution, 20.9% of children consumed foods from no more than two groups, whereas only 5.4% consumed foods from seven or eight groups (Table 4).

Food-group consumption was highest for breast milk (90.3%; CI: 89.4–91.1) and grains, roots, tubers and plantains (84.4%; CI: 83.4–85.4). Consumption of the remaining groups was substantially lower: flesh foods, 44.8% (CI: 43.4–46.2); vitamin A-rich fruits and vegetables, 41.4% (CI: 39.9–42.8); eggs, 40.6% (CI: 39.3–42.0); other fruits and vegetables, 37.3% (CI: 35.9–38.7); dairy products, 32.2% (CI: 30.8–33.5); and pulses, nuts and seeds, 18.1% (CI: 17.0–19.3). Pulses, nuts and seeds were therefore the least frequently consumed of the eight component food groups (Table 5; Fig. 2).

Table 4
Distribution of dietary diversity score

Number of food groups consumed	Weighted %	95% CI	Unweighted n
0	0.2	0.1–0.3	17
1	7.5	6.8–8.2	501
2	13.2	12.3–14.2	873
3	19.8	18.7–20.9	1345
4	23.6	22.4–24.8	1616
5	19.4	18.4–20.6	1318
6	10.9	10.1–11.8	741
7	4.6	4.0–5.3	290
8	0.8	0.6–1.1	56

Table 5
Consumption of the eight food groups

Food group	Consumed %	95% CI	Unweighted n consumed
Breast milk	90.3	89.4–91.1	6140
Grains, roots, tubers and plantains	84.4	83.4–85.4	5698
Pulses, nuts and seeds	18.1	17.0–19.3	1186
Dairy products	32.2	30.8–33.5	2135
Flesh foods	44.8	43.4–46.2	3002
Eggs	40.6	39.3–42.0	2786
Vitamin A-rich fruits and vegetables	41.4	39.9–42.8	2827
Other fruits and vegetables	37.3	35.9–38.7	2486

Inequalities in child food poverty

Survey-weighted bivariate analyses identified statistically significant heterogeneity in child food poverty by age group, residence, division, maternal education, and household wealth group (all design-adjusted $p < 0.001$; Table 6). The age gradient was particularly marked: prevalence was 84.0% (CI: 81.2–86.5) among children aged 6–8 months, 69.9% (CI: 66.3–73.2) at 9–11 months, 61.6% (CI: 59.3–63.9) at 12–17 months, and 54.9% (CI: 52.5–57.3) at 18–23 months. The absolute prevalence difference between the youngest and oldest age groups was 29.1 percentage points.

Child food poverty prevalence was 66.7% (CI: 65.2–68.2) in rural areas and 58.2% (CI: 55.4–60.9) in urban areas, an absolute difference of 8.5 percentage points. Across divisions, prevalence ranged from 57.7% (CI: 54.8–60.7) in Dhaka to 71.9% (CI: 67.4–76.0) in Sylhet, a 14.2-point range; Mymensingh also had a high prevalence of 70.4% (CI: 65.3–75.1). A pronounced educational gradient was observed, from 80.7% (CI: 75.0–85.3) among children whose mothers had pre-primary or no education to 50.4% (CI: 47.6–53.2) among those whose mothers had higher education, corresponding to a 30.3-point difference. Prevalence likewise declined across wealth groups, from 73.3% (CI: 71.4–75.2) among poor households to 55.8% (CI: 53.6–58.0) among rich households, a 17.5-point difference. There was no evidence of a design-adjusted bivariate association with child sex ($p = 0.431$), ethnicity ($p = 0.398$), or caregiver functional difficulty ($p = 0.824$). [Figure 3 near here]

Table 6
Inequalities in child food poverty by population characteristics

Variable	Category	Percentage (%)	95% CI	Unweighted n	p-value
Age group	6–8 months	84.0	81.2–86.5	1112	< 0.001***
	9–11 months	69.9	66.3–73.2	972	
	12–17 months	61.6	59.3–63.9	2380	
	18–23 months	54.9	52.5–57.3	2293	
Sex	Male	63.7	61.8–65.6	3458	0.431
	Female	64.8	62.8–66.7	3299	
Residence	Urban	58.2	55.4–60.9	1801	< 0.001***
	Rural	66.7	65.2–68.2	4956	
Division	Barishal	61.8	57.2–66.3	534	< 0.001***
	Chattogram	66.8	63.6–69.8	1531	
	Dhaka	57.7	54.8–60.7	1433	
	Khulna	67.9	64.4–71.2	932	
	Mymensingh	70.4	65.3–75.1	398	
	Rajshahi	63.1	59.0–66.9	695	
	Rangpur	62.9	59.3–66.4	759	
	Sylhet	71.9	67.4–76.0	475	

Note: P-values are from Rao-Scott design-adjusted tests of independence and are reported once for each characteristic. Asterisks denote $p < 0.001$.

Variable	Category	Percentage (%)	95% CI	Unweighted n	p-value
Mother's education	Pre-primary/none	80.7	75.0-85.3	306	< 0.001***
	Primary	77.7	74.7–80.4	1091	
	Secondary	65.4	63.6–67.2	3643	
	Higher	50.4	47.6–53.2	1717	
Wealth group	Poor	73.3	71.4–75.2	2805	< 0.001***
	Middle	65.4	62.4–68.4	1378	
	Rich	55.8	53.6–58.0	2574	
Ethnicity	Bangali	64.2	62.8–65.6	6661	0.398
	Other	70.4	55.2–82.1	96	
Caregiver difficulty	Has difficulty	62.8	49.4–74.5	79	0.824
	No difficulty	64.2	62.9–65.6	6678	
Note: P-values are from Rao-Scott design-adjusted tests of independence and are reported once for each characteristic. Asterisks denote p < 0.001.					

Factors independently associated with child food poverty

The global corrected-model test was statistically significant (Wald $F = 27.435$, $df_1 = 17$, $df_2 = 2612$, $p < 0.001$), rejecting the joint null that all non-reference predictor coefficients were zero. The Nagelkerke pseudo R-squared was 0.144 and was interpreted as a descriptive model-fit index rather than as the proportion of outcome variance explained. Omnibus design-adjusted effects were significant for age group (Wald $F = 67.593$, $p < 0.001$), residence (Wald $F = 5.329$, $p = 0.021$), division (Wald $F = 5.322$, $p < 0.001$), maternal education (Wald $F = 38.672$, $p < 0.001$), and household wealth group (Wald $F = 22.457$, $p < 0.001$), whereas child sex was not independently associated with the outcome (Wald $F = 0.402$, $p = 0.526$) (Table 7).

Age showed the largest magnitude of adjusted association. Relative to children aged 18–23 months, those aged 6–8 months had substantially higher adjusted odds of child food poverty (AOR = 4.815; CI:

3.837–6.042; $p < 0.001$). Elevated adjusted odds were also observed at 9–11 months (AOR = 2.072; CI: 1.705–2.517; $p < 0.001$) and 12–17 months (AOR = 1.365; CI: 1.185–1.572; $p < 0.001$), demonstrating a monotonic attenuation of the association with increasing age (Table 8; Fig. 4).

Maternal education demonstrated a graded inverse association with child food poverty after adjustment. Compared with higher maternal education, pre-primary or no education was associated with an AOR of 3.508 (CI: 2.399–5.131; $p < 0.001$), primary education with an AOR of 2.964 (CI: 2.376–3.698; $p < 0.001$), and secondary education with an AOR of 1.722 (CI: 1.485–1.998; $p < 0.001$). Household wealth showed a similar gradient: relative to rich households, children from poor households had higher adjusted odds (AOR = 1.696; CI: 1.453–1.980; $p < 0.001$), as did children from middle-wealth households (AOR = 1.335; CI: 1.118–1.594; $p = 0.001$).

Urban residence was associated with lower adjusted odds of child food poverty than rural residence (AOR = 0.844; CI: 0.731–0.975; $p = 0.021$). Using Sylhet as the divisional reference, lower adjusted odds were observed in Barishal (AOR = 0.611; CI: 0.453–0.824; $p = 0.001$), Dhaka (AOR = 0.674; CI: 0.525–0.866; $p = 0.002$), Rajshahi (AOR = 0.704; CI: 0.530–0.937; $p = 0.016$), and Rangpur (AOR = 0.682; CI: 0.517–0.901; $p = 0.007$). The adjusted estimates for Chattogram (AOR = 0.962; CI: 0.739–1.254), Khulna (AOR = 1.004; CI: 0.760–1.328), and Mymensingh (AOR = 0.857; CI: 0.615–1.196) were imprecise and their confidence intervals included the null value. Male sex was likewise not associated with child food poverty after adjustment (AOR = 0.960; CI: 0.848–1.088; $p = 0.526$).

Table 7
Adjusted model: tests of model effects

Source	df1	df2	Wald F	p-value
Corrected model	17	2612	27.435	< 0.001
Age group	3	2626	67.593	< 0.001
Sex	1	2628	0.402	0.526
Residence	1	2628	5.329	0.021
Division	7	2622	5.322	< 0.001
Mother's education	3	2626	38.672	< 0.001
Wealth group	2	2627	22.457	< 0.001
Note. Dependent variable: child food poverty. Reference outcome: no child food poverty.				

Table 8
Adjusted odds ratios for factors associated with child food poverty

Variable	Category	AOR	95% CI	p-value
Age group	6–8 months	4.815	3.837–6.042	< 0.001
	9–11 months	2.072	1.705–2.517	< 0.001
	12–17 months	1.365	1.185–1.572	< 0.001
	18–23 months	1.000	Reference	
Sex	Male	0.960	0.848–1.088	0.526
	Female	1.000	Reference	
Residence	Urban	0.844	0.731–0.975	0.021
	Rural	1.000	Reference	
Division	Barishal	0.611	0.453–0.824	0.001
	Chattogram	0.962	0.739–1.254	0.776
	Dhaka	0.674	0.525–0.866	0.002
	Khulna	1.004	0.760–1.328	0.975
	Mymensingh	0.857	0.615–1.196	0.365
	Rajshahi	0.704	0.530–0.937	0.016
	Rangpur	0.682	0.517–0.901	0.007
	Sylhet	1.000	Reference	
Mother's education	Pre-primary/none	3.508	2.399–5.131	< 0.001
	Primary	2.964	2.376–3.698	< 0.001
	Secondary	1.722	1.485–1.998	< 0.001
	Higher	1.000	Reference	
Wealth group	Poor	1.696	1.453–1.980	< 0.001
	Middle	1.335	1.118–1.594	0.001
	Rich	1.000	Reference	
Note. Reference categories: 18–23 months, female, rural residence, Sylhet division, higher maternal education and rich household wealth group. AOR = adjusted odds ratio				

Reference categories: age 18–23 months; female; rural residence; Sylhet division; higher maternal education; rich wealth group

Figure 4 summarizes the adjusted effect estimates and their 95% confidence intervals. Confidence intervals excluded the null value of 1.0 for all three younger age groups, urban residence, Barishal, Dhaka, Rajshahi, Rangpur, all lower maternal-education categories, and both poor and middle wealth groups; intervals included 1.0 for male sex and for Chattogram, Khulna, and Mymensingh.

Overall, the analysis indicates that child food poverty among children aged 6–23 months in Bangladesh is both highly prevalent and socially patterned. The burden is concentrated among younger children, rural households, children of mothers with lower education and children from poorer households. The dietary profile suggests that the central nutritional deficit is not lack of breast milk or staple foods, but insufficient consumption of diverse and nutrient-rich food groups. The adjusted model confirms that age, maternal education and household wealth are the most consistent and substantively important correlates of child food poverty in this dataset.

Discussion

Nearly two-thirds of children aged 6–23 months do not satisfy appropriate dietary diversity, according to this analysis of the Bangladesh MICS 2025, indicating a serious public health concern. According to UNICEF's worldwide estimates, two out of every three children under five in low- and middle-income nations live in food poverty and do not have access to a minimum diversified diet that is necessary for healthy growth and development (Arora, 2024). UNICEF's data reveals that globally, over two-thirds of children aged 6–23 months do not receive foods from at least five of the eight recommended food groups, and more than half do not consume eggs, fish, or meat daily. Although the study's prevalence is in line with worldwide trends, it is marginally higher than the 37.1% MDD-8 attainment (or roughly 63% food poverty) reported in Bangladesh's most recent BDHS trend analysis (Mahmud et al., 2026), indicating that despite variations in the survey vehicle and sample frame, estimates based on MICS and DHS for the same time continue to be well correlated. The observed food-group consumption profile reflects patterns documented in several low- and middle-income countries (LMICs) and shows broad consumption of grains and breast milk but low consumption of pulses, dairy, eggs, and vitamin A-rich vegetables. Regardless of children's dietary diversity, a combined examination of DHS-MICS data from West and Central Africa revealed similar deficiencies, especially in eggs, legumes, nuts, other fruits and vegetables, and dairy. Rather than national dietary choices, this shows a structural shortfall associated with the price and accessibility of nutrient-dense foods (Vollmer et al., 2025). According to complementary feeding research, children's risk of food poverty diminishes with age, with 6-8-month-olds at about five times higher risk than older children. In low- and middle-income countries, dietary diversity, meal frequency, and dietary adequacy all improve with age, with no discernible differences by child sex (Gatica-Domínguez et al., 2021; Li et al., 2022).

UNICEF Shows that more than two-thirds of the 181 million children under five who suffer from extreme food poverty live in South Asia and sub-Saharan Africa. Notably, twenty nations are involved in this situation, including Bangladesh. Nonetheless, the report cites Nepal's decrease in extreme food poverty from 20% in 2011 to 8% in 2022 and Rwanda's decrease from 20% in 2010 to 12% in 2020 as examples

of how substantial progress may be made in settings with little resources. This suggests that specific interventions in areas like maternal education, household affluence, and early feeding practices help solve Bangladesh's high rates(*1 in 4 Children Globally Live in Severe Child Food Poverty Due to Inequity, Conflict, and Climate Crises – UNICEF*, n.d.). A third of children in the 2017-18 BDHS exceeded the acceptable dietary guidelines, even though MDD increased from 23.8% in 2011 to 28.8% in 2018. Despite efforts in nutrition programming over the past ten years, most Bangladeshi children still lack a properly diverse diet(Kundu et al., 2022). Children living in food poverty lack essential nutrients, resulting in diets with minimal diversity. As a result, the focus of nutrition interventions needs to change from just guaranteeing food quantity to encouraging varied, nutrient-rich diets(*Child Food Poverty | UNICEF*, 2024).

A consistent finding in South Asian supplementary feeding literature, the analysis shows a graded inverse connection between food poverty and maternal education. According to BDHS 2007 data, children with less educated moms are substantially more likely than those with more educated mothers to not fulfill the minimal dietary diversity requirements (AOR = 1.69, 95% CI: 1.14–2.54)(*Determinants of Inappropriate Complementary Feeding Practices in Infant and Young Children in Bangladesh: Secondary Data Analysis of Demographic Health Survey 2007*, n.d.), and this gradient has continued in surveys conducted over the course of almost 20 years. Poor parental education, family poverty, and living in the Chittagong and Sylhet divisions all independently predicted worse supplemental feeding habits, according to a trend analysis conducted between 2004 and 2014(Na et al., 2018), a regional pattern that closely resembles the Sylhet division's relatively higher food poverty findings from the current study. The wealth gradient seen here is also consistent with regional data: a study conducted in rural Bangladesh using BIHS data discovered that, in addition to child age and maternal education, complementary feeding practices were significantly correlated with household food security, monthly household income, and place of residence(Jubayer et al., 2023). While child sex and maternal age did not exhibit a similar correlation, characteristics including mother's education, economic quintile, and place of residence had a significant impact on obtaining minimum dietary variety in Pakistan, which is consistent with tendencies seen in Bangladesh(Kumar et al., 2024).

Age gradient in food poverty among Bangladeshi children, with rates falling from 84.6% in babies aged 6–8 months to 55.1% in those aged 18–23 months. it identifies household wealth and mother education as major determinants of child food poverty. Socioeconomic and educational differences in dietary diversity are revealed by analysis of BDHS 2017-18 data, highlighting the need for focused interventions based on regional disparities rather than a single national plan, especially in Sylhet, Mymensingh, and Khulna(Kundu et al., 2022; Rahman et al., 2023). On the advancement of nutrition-related Sustainable Development Goals (SDGs), BDHS from 2014 to 2022 sought to investigate trends and causes of minimum dietary diversity. Geographic trends in insufficient complementary feeding parameters, such as minimal dietary diversity, meal frequency, and acceptable diets(Kundu et al., 2026; Mahmud et al., 2026).

The study emphasizes the documented spatial differences in Bangladesh as well as the protective function of urban living. A 2026 study's analysis of BDHS 2022 data reveals considerable spatial clustering and a significant correlation between poor complementary feeding habits and low parental

education, lack of mother work, limited media exposure, and lower household wealth(Kundu et al., 2026). Child age, maternal education, wealth, prenatal care visits, and geographic division were found to be common risk factors for dietary diversity failure among children in a gender-focused analysis of MICS 2019 data. Flood-affected districts showed the highest failure rates, which is consistent with the higher prevalence in Sylhet and Mymensingh(Hossain et al., 2023).

The frequency of food poverty in Bangladesh is 64.2%, which is a serious problem in South Asia. According to MICS 2019 statistics, Nepal performs better, with 30.1% of children obtaining a minimum acceptable diet. Adequate diet is positively correlated with factors including longer child age, sustained breastfeeding, and greater maternal education(Sapkota et al., 2022), Ethiopian data, however, reveals similarly serious deficiencies; a rural research conducted in 2023 found that only 35.5% of people had minimally acceptable dietary diversification(Darebo et al., 2025). Although Bangladesh's child food poverty is significant, this cross-national comparison is consistent with a broader pattern seen in South Asia and Sub-Saharan Africa, where socioeconomic factors such as wealth and education are more significant predictors of poor dietary diversity than child sex, ethnicity, or other demographic characteristics.

Strengths and limitations

The large, nationally representative sample and careful consideration of the intricate survey design are the study's strongest points. However, unlike ordinal or count-based models, its cross-sectional architecture restricts causal inference, and the binary reduction of an 8-point severity scale eliminates subtle information. Furthermore, intra-household food allocation dynamics may not be adequately reflected by the socioeconomic metrics used, which could affect dietary outcomes.

Evidence from Bangladesh, South Asia, and Sub-Saharan Africa indicates that child food poverty can be considerably reduced by interventions targeted at children between the ages of 6 and 11 months, especially those that reach caregivers who are less wealthy and educated. Deficits are most noticeable and consistently seen in this age range and demography in a variety of situations.

Conclusion

Nearly two-thirds of Bangladeshi children between the ages of six and twenty-three months suffer from child food poverty, with one in five of them suffering from its most severe form. The dietary pattern that underlies this load is evident: while practically everyone consumes breast milk and staple grains, food groups high in protein and micronutrients, such as pulses, dairy, eggs, and vegetables high in vitamin A, are nevertheless significantly underconsumed. This suggests that dietary diversity and quality, rather than the availability of staple foods, are the barriers to sufficient supplemental feeding in Bangladesh.

Food poverty is concentrated among younger children, rural households, children of less educated mothers, and poorer households. This socioeconomic gradient is consistent with patterns observed elsewhere in South Asia and confirms that nutritional disadvantage builds up along well-known lines of

inequality from the first few months of life. With children between the ages of 6 and 8 months having nearly five times the odds of food poverty compared to those between the ages of 18 and 23 months, the age gradient is particularly steep. This shows that the transition to complementary feeding is the time of greatest vulnerability and the most actionable window for intervention.

These results indicate giving priority to nutrition-sensitive interventions during the first year of life, such as focused counseling on complementary feeding methods, encouragement of the consumption of pulses, eggs, and dairy products, and conditional support programs for lower-income and less educated households. Longitudinal or intervention studies are required to determine whether addressing these socioeconomic gradients directly reduces child food poverty; given the cross-sectional methodology, these relationships should guide program targeting rather than be regarded as causal pathways.

Abbreviations

Abbreviation	Full Form
MAD	Minimum Acceptable Diet
MDD	Minimum Dietary Diversity
MICS	Multiple Indicator Cluster Survey
IYCF	Infant and Young Child Feeding
MMF	Minimum Meal Frequency
PSU	Primary Sampling Unit
SDG	Sustainable Development Goal(s)
SE	Standard Error
UNICEF	United Nations Children's Fund
WHO	World Health Organization
BBS	Bangladesh Bureau of Statistics
BDHS	Bangladesh Demographic and Health Survey
df	Degrees of Freedom
DHS	Demographic and Health Survey
EA	Enumeration Area
AOR	Adjusted Odds Ratio
CI	Confidence Interval
LMICs	Low- and Middle-Income Countries
OR	Odds Ratio
Ref	Reference Category

Declarations

Ethical approval and consent to participate

The Bangladesh Multiple Indicator Cluster Survey (MICS) 2025 was ethically approved by national and international review boards, including the Bangladesh Bureau of Statistics (BBS) and UNICEF's ethical review procedures. All respondents provided informed consent prior to interviews and data collection; therefore, participation was entirely voluntary. The dataset is made publicly available by UNICEF's MICS Program and does not contain any personally identifiable information.

Competing interests

The authors declare no competing interests.

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Availability of data and materials

The data used in this study were obtained from the Multiple Indicator Cluster Survey (MICS) 2025, Bangladesh, conducted by the Bangladesh Bureau of Statistics (BBS) with technical support from UNICEF, and are publicly accessible through the UNICEF MICS website. The specific dataset analyzed for this study can also be provided by the corresponding author upon reasonable request.

Consent for publication

Not applicable.

Authors Contributions

MH conceptualized the study design and prepared the first draft of the manuscript. RCS and SNT conducted the analysis and methodology. MH reviewed and validated the draft. All authors contributed equally to the study, critically reviewed the manuscript, and approved the final version for publication.

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Figures

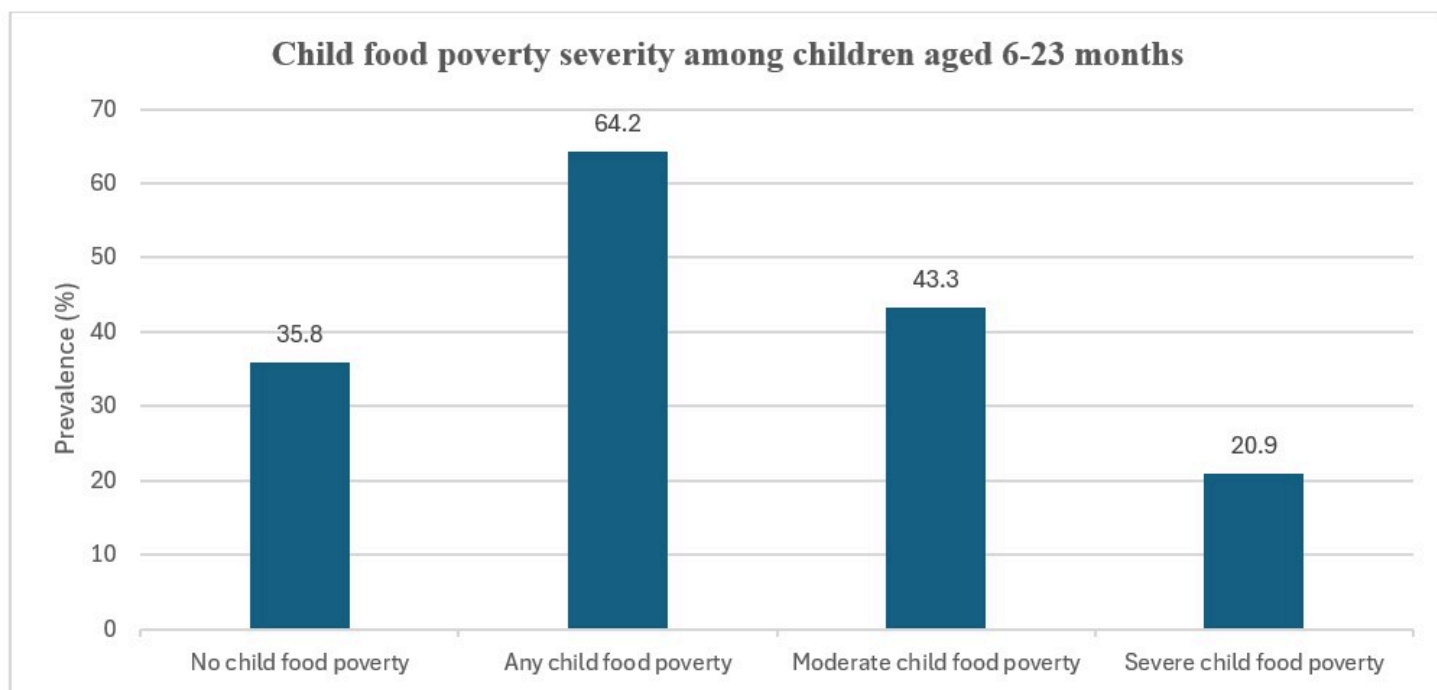


Figure 1

Distribution of child food poverty severity

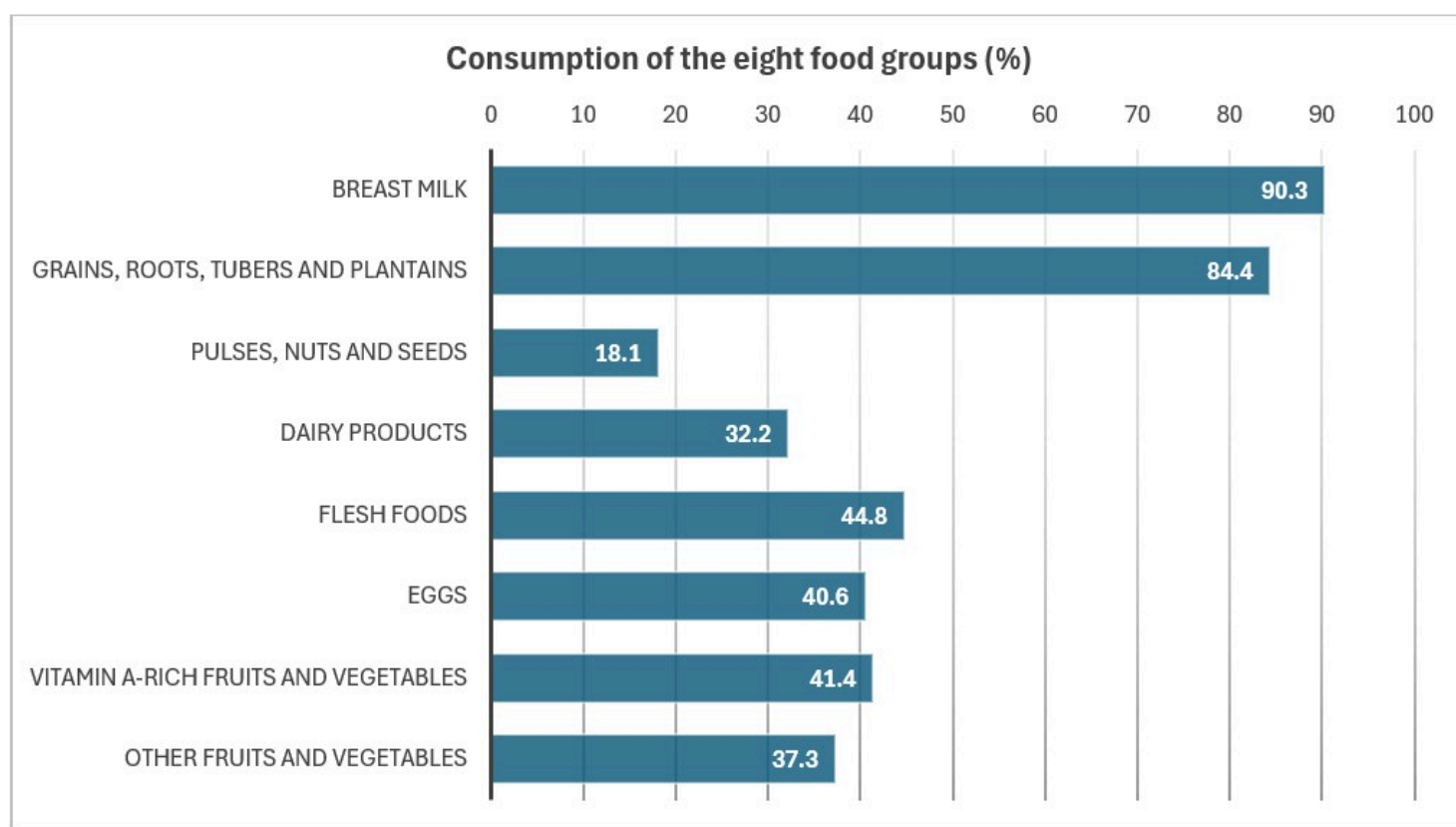


Figure 2

Consumption of the eight food groups

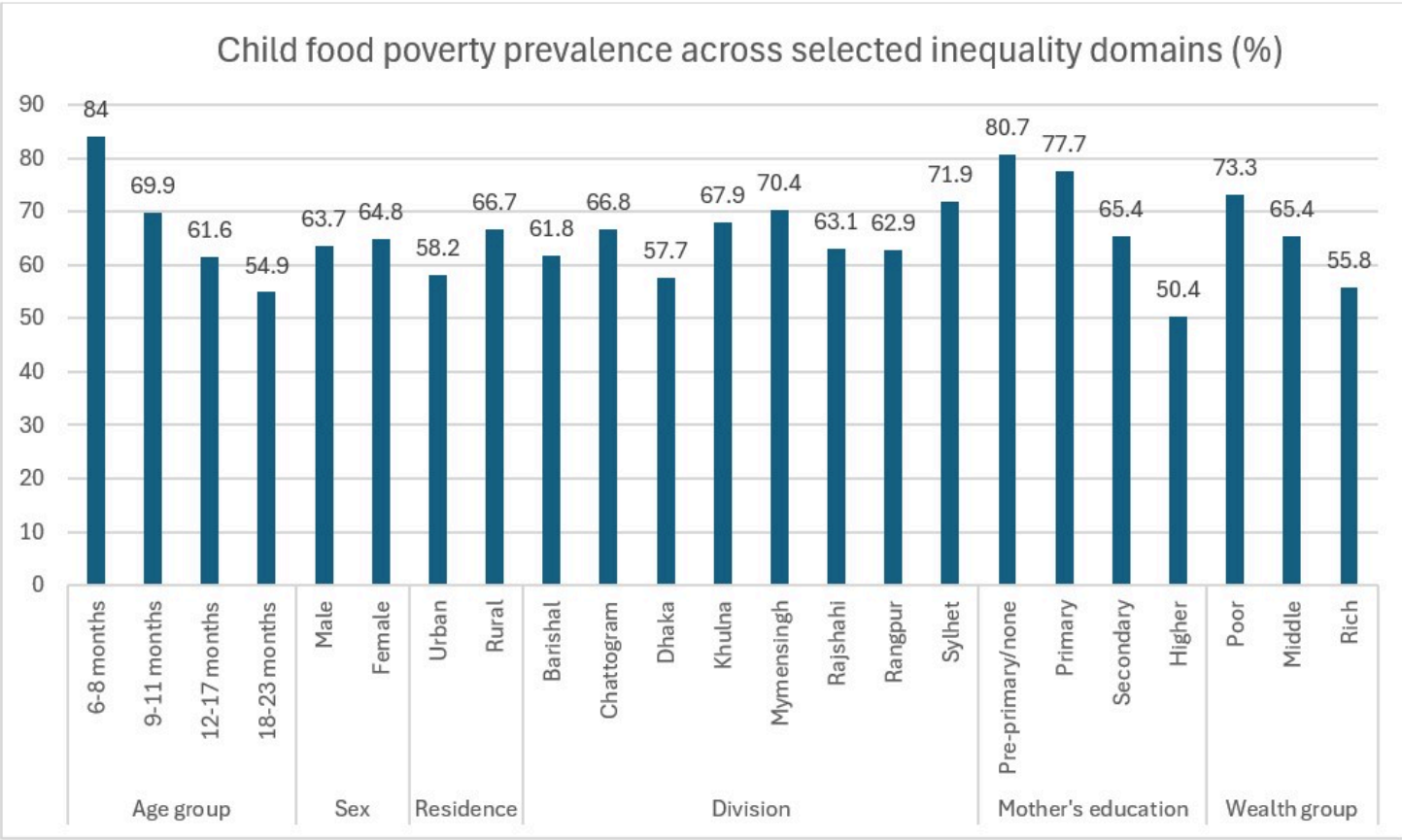


Figure 3

Child food poverty prevalence across selected inequality domains

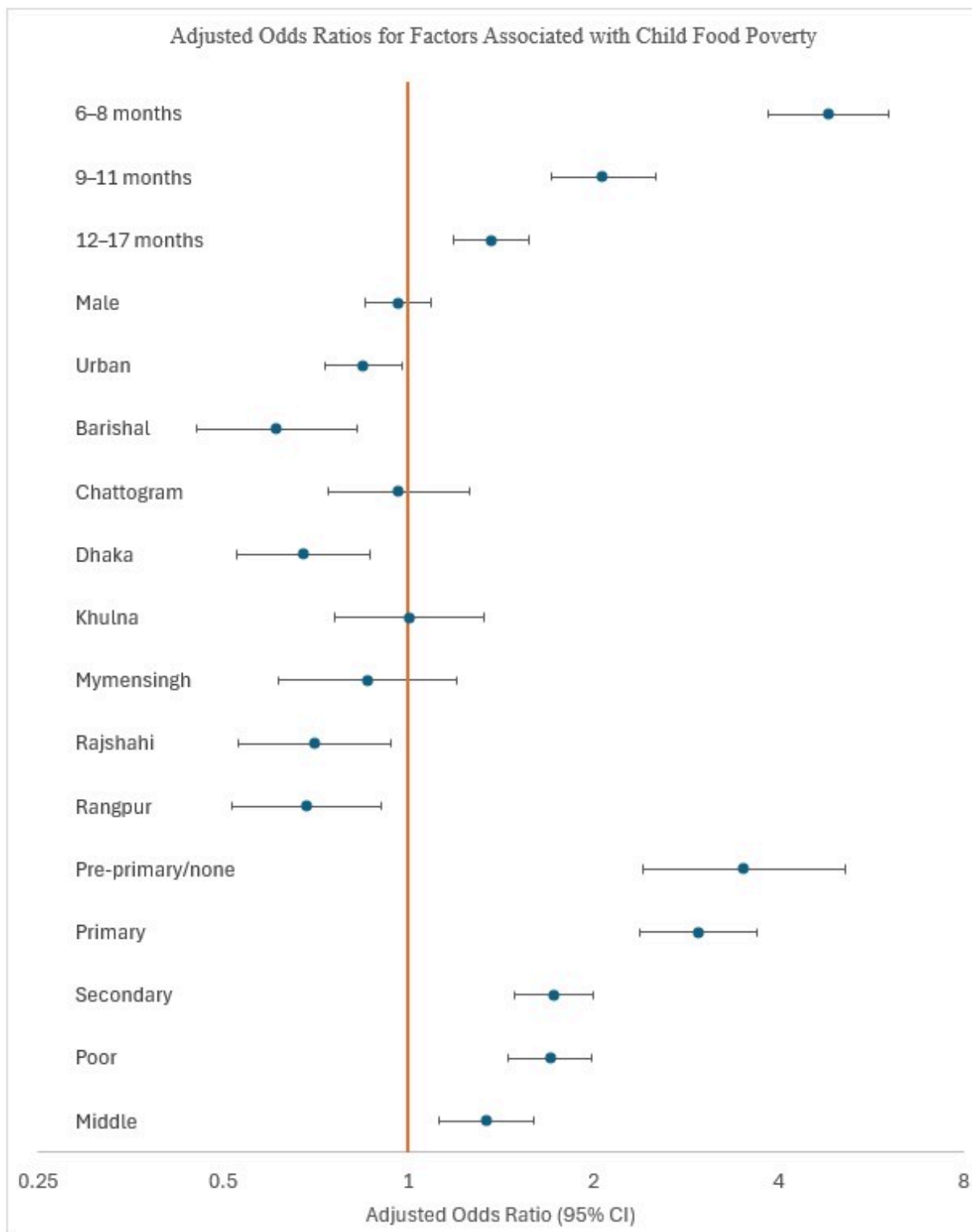


Figure 4

Forest plot of selected adjusted odds ratios for child food poverty