Key drivers of stunting reduction in 0-59 months old children in Bangladesh:
Evidence from Bangladesh Demographic and Health Survey (BDHS) data (2004 to 2017-18 rounds)

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RATIONALE/OBJECTIVE

✓ Between 2004 and 2017-18, the prevalence of stunting among children aged 0-59 months decreased in Bangladesh.

✓ **Objective:** To identify the drivers of stunting reduction in Bangladesh during this period and determined the relative contribution of key drivers using BDHS data.

METHODS

❑ **Data:** Data of 33,094 children from five rounds (2004, 2007, 2011, 2014, and 2017-18) of BDHS.

❑ **Data analysis:** Descriptive, generalized estimating equations (GEE) and Blinder-Oaxaca decomposition analyses (4 age groups: 0-23, 6-23, 24-59, & 0-59 m).

RESULTS

❖ **Factors increased the odds of stunting:** Residence in central/eastern regions, male household head, Islam religion, higher number of ever-born children, short maternal stature, and child age

❖ **Factors decreased the odds of stunting:** Survey year, male sex of the children, living in a middle class/rich household, improved sanitation, higher maternal age, higher parental education, normal/higher maternal body mass index (BMI), longer (≥36 mo) birth interval, ≥ ANC visits, institutional delivery, and measles vaccination.

❖ **Relative contribution of key drivers:** Decomposition analysis identified maternal BMI, maternal education, institutional delivery, ≥4 ANC visits, paternal education, maternal height etc. as the key contributor of stunting change between 2004 and 2018.

Regression models for stunting prevalence with GEE

Indicators	Model 1: 0-23 m	Model 2: 6-23 m	Model 3: 24-59 m	Model 4: 0-59 m
Survey year (ref: 2004)				
2007	↓*	↓*	↑	↓*
2011	↑	↑	↓	↓
2014	↓	↓	↓*	↓*
2017-18	↓*	↓*	↑	↓*
Region (ref: West)				
Central	↑*	↑	↑*	↑*
East	↑	↑	↑*	↑*
Area of residence (ref: rural)				
Urban	↑	↑	↑	↑
Sex of household head (ref: female)				
Male	↓	↓	↑*	↑
Wealth index (ref: poor)				
Middle	↓	↓	↓*	↓*
Rich	↓*	↓*	↓*	↓*
Access to improved sanitation (ref: not improved)				
Improved sanitation	↓	↓	↓*	↓*
Religion (ref: other than Islam)				
Islam	--	↓	↑*	↑
Maternal age in year (cont.)	--	↓	↓*	↓*
Maternal education (ref: <5 grade)				
5-9	↑	↑	↑	↑
>=10	↓*	↓*	↓*	↓*
Paternal education (ref: <5 grade)				
5-9	↓*	↓*	↓*	↓*
>=10	↓*	↓*	↓*	↓*
Early pregnancy: <18 years (ref: no)				
Yes	↓	↓	↑	↑

Indicators	Model 1: 0-23 m	Model 2: 6-23 m	Model 3: 24-59 m	Model 4: 0-59 m
Total no of ever-born children (cont.)	↑	↑	↑*	↑*
Maternal height (ref: normal: ≥1.45 meter)				
Short (<1.45 meter)	↑*	↑*	↑*	↑*
BMI of mother (kg/m^2) (ref: underweight)				
Normal	↓*	↓*	↓*	↓*
Overweight and obese	↓*	↓*	↓*	↓*
Number of ANC visits (ref: 0)				
1-3	↓	↓		
>=4	↓*	↓*		
Delivery type (ref: home delivery)				
Institutional: normal delivery	↓*	↓*		
Institutional: C-section	↓*	↓*		
Women empowerment (ref: 0 decisions)				
1-2 decisions	↑	↑	↑	↓
All 3 decisions	--	↑	↑	↓
Child age in linear term (cont.)	↑*	↑*	↑*	↑*
Child age in square term (cont.)	↓*	↓*	--*	↑*
Sex of the child (ref: female)				
Male	↑	↑	↓	↓
Birth interval (ref: first born)				
<24	↓	↑	↑*	↑
24-36	↓	↓	↑*	↑*
>=36	↓*	↓*	↓	↓*
Still breast feeding (ref: no)				
Yes	↑	↑		
Measles vaccination (ref: no)				
Yes			↓*	

Odds Ratio (OR) at 95% CI, ↓ indicates decreased the OR & ↑ Indicates increased the OR, -- indicates no change in OR, *considered significant if p-value <0.05.

IMPLICATIONS

Given the importance of stunting as a complex indicator and its interrelation with several SDGs, the government of Bangladesh and development partners should consider these factors while developing and planning interventions for stunting prevention and control.