# B A N G L A D E S H

Nutritional Surveillance Project

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# Household and community level determinants of malnutrition in Bangladesh

**The prevalence of malnutrition in Bangladesh remains among the highest in the world.[1] Persistent malnutrition contributes not only to widespread failure toward meeting the first Millennium Development Goal (MDG) of halving poverty and hunger, it also undermines efforts to reach MDGs relating to maternal and child health, HIV/AIDS, education, and gender equity.[2] The most important determinants of malnutrition need to be known in order to determine the most effective strategies for reducing malnutrition in Bangladesh. The Nutritional Surveillance Project (NSP) implemented by Helen Keller International (HKI) in collaboration with the Institute of Public Health Nutrition (IPHN) of the Government of Bangladesh collects household and village level data, every two months, from a nationally representative rural as well as urban poor sample on a comprehensive range of indicators, has provided key information for Bangladesh's development efforts and 2002 data were now analyzed to assess the relationship between malnutrition (stunting) and several immediate and underlying causes of malnutrition. Access to food is the most important immediate factor, among all socio-economic strata, that determines malnutrition level.**

Malnutrition problems differ with respect to their prevalence, distribution, causes, and consequences, and pose different risks at different stages in the life cycle. Stunting, or the height of a child relative to her/his age, is one of the main manifestations of malnutrition[3,4] and is considered a good indicator of poverty, reflecting prolonged inadequate consumption of foods rich in vitamins and minerals, which, are often expensive. Such an inadequate intake leads to micronutrient deficiencies that can result in poor health, impaired cognitive and psychomotor development, low work capacity, blindness, and premature death.[5,6]

The prevalence of stunting among children aged below five years in Bangladesh is as high as 39%.[7] which is categorized as 'high' according to international standards.[8] Although the prevalence of malnutrition in Bangladesh has declined in recent decades, it is still greater than levels found even in Sub-Saharan Africa. The decline may be explained by the effects of the Green Revolution, economic growth and liberalization of the commodity market.[5,9]

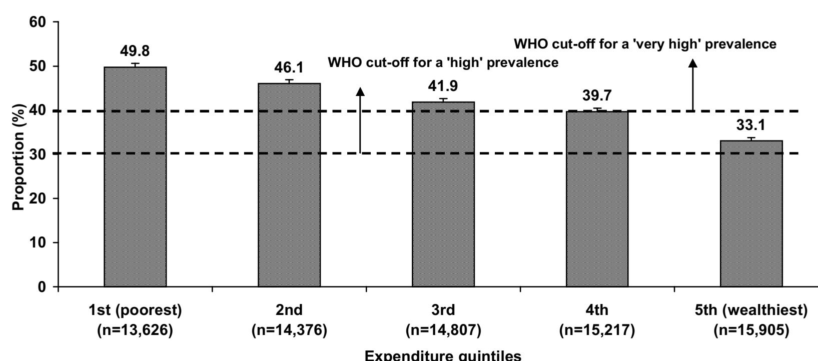


***Figure 1**. Prevalence of stunting in different expenditure quintiles in rural Bangladesh in 2003.*

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Macroeconomic food policies have the potential to reduce malnutrition by improving access to food through increased efficiency in food production, which lowers prices and leads to better affordability of a balanced diet, generates employment and income, and improved food security.[10] NSP data were analyzed for the prevalence of stunting and its associated factors at household level.

The analysis was based on the UNICEF conceptual framework for malnutrition.[11] In 2003, the NSP collected representative data from 63,000 households in rural Bangladesh through partner organizations. Anthropometric measurements were taken and a pre-coded questionnaire was used to record household data on the health and nutrition of the mother and all of her children aged 0-59 months. Information was also collected on household demographics, socioeconomic status, food consumption and food production. During the analysis, households were divided into five equal-sized groups, based on their monthly total expenditure per capita, where households in the first quintile belonged to the poorest group and those in the fifth quintile belonged to the wealthiest group.

### *High prevalence of stunting*

As mentioned earlier, despite the reduction in the prevalence of malnutrition in Bangladesh in recent decades, 39% of underfive children, in 2005, remain stunted. Though poverty is a key basic cause of malnutrition, 33% of underfive children in even the wealthiest 20% of households (fifth quintile) were found to be stunted ***(Fig. 1**, page 1)*. The prevalence of stunting among children whose families belong to the wealthiest quintile in Bangladesh is almost the same as the overall prevalence in Myanmar (34%), and even higher than the overall prevalence in Thailand (16%).

### *Nutritional Sufficiency Ratio*

HKI developed an indicator of dietary adequacy called the Nutrition Sufficiency Ratio (NSR), which compares actual household expenditure on food with

***Table 1**. Monthly total expenditure per capita in each quintile (n=62,925)*

| Total expenditure quintile | Taka | USD |
|---|---|---|
| 1st (poorest) | 238 | 4 |
| 2nd | 378 | 7 |
| 3rd | 513 | 9 |
| 4th | 708 | 12 |
| 5th (wealthiest) | 1197 | 21 |

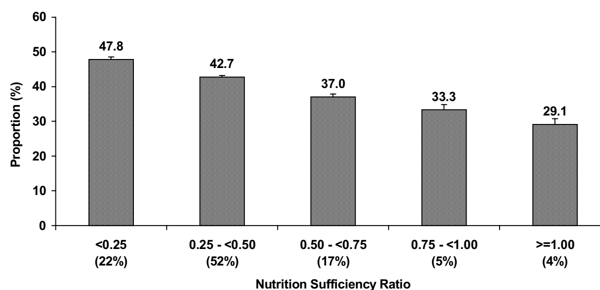


***Figure 2**. Prevalence of stunting for different levels of the Nutrition Sufficiency Ratio (n=73,933)*

the cost of an optimal diet providing at least one RDA of macro- and key micronutrients (iron, vitamin A and zinc). A very small proportion of the households (only 4%) could afford an adequate diet. ***Table 1*** shows that the average monthly total expenditure per capita ranged from 238-1197 BDT (4-21 USD) per quintile. The prevalence of stunting was lower with a higher NSR **(*Fig. 2*)**. The relatively low nutritional quality and limited diversity of the diet was also evident from data on the frequency of consumption of specific food items. Even among the wealthiest households, less than 25% consumed eggs, meat or chicken on at least three days per week.

### *Disease*

Disease, such as diarrhea in the past seven days and acute respiratory infection (ARI, cough or nasal discharge), was highly prevalent and did not differ across total expenditure quintiles **(*Fig. 3*)**. A high prevalence of diarrhea reflects poor sanitation and/ or an unhygienic environment in the household and in the neighborhood. A high prevalence of ARI reflects poor hygiene and household crowding.

### *Food security*

With regard to access to food, access to agriculture land and resources are important indicators of food security at household and community level. Half of all rural households, including 41% of the wealthiest

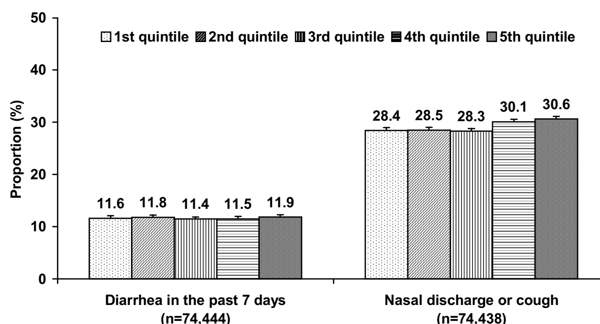


***Figure 3**. Prevalence of diarrhea and acute respiratory infection (ARI) symptoms among children aged 0-59 months by quintiles of total monthly expenditure per capita*

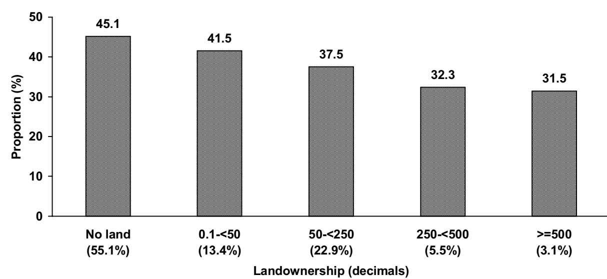


***Figure 4**. Relationship of landownership and prevalence of stunting (n=73,931)*
*1 decimal = 40 m²*

households, did not have any access to cultivable land. Stunting prevalence among underfive children is significantly higher in households with a smaller size of agricultural land (***Fig. 4***); a similar pattern is found for the size of homestead land (data not shown).

### *Food expenditure*

Analysis of expenditure data revealed that rural households spent 60% of their total expenditure on food. Among the wealthiest households, 47% of total expenditure was on food. The overall proportion of total expenditure on animal source foods was less than 11% and there was no difference among quintiles. The high proportion of household expenditure on food indicates that the low NSR is not due to households choosing to buy cheaper foods of lower nutritional quality, but their lack of resources to afford a nutritionally adequate foods — even among the wealthiest households. Thus, food insecurity, the inability to consume a diet that meets the nutritional needs of all family members, is still a major problem in Bangladesh, even among relatively wealthy households.

### *Breastfeeding*

With regard to breastfeeding practices, the analysis revealed that the proportion of children exclusively breastfed below six months of age was similarly low across all quintiles; therefore, the poor did not practice worse or better breastfeeding behavior than their wealthier counterparts. The prevalence of stunting among children aged 6-11 months was significantly higher among those who were not breastfed than among those who were breastfed.

### *Education*

Education, especially of girls and women, can improve nutritional status in a number of ways. A higher level of education, because it takes longer to achieve, may delay the age at which women marry and have their first child, reduce the desired family size, and empower them to make better decisions and seek more information on care, health, food, and development. More than 46% of women in rural Bangladesh never went to school. In the poorest families, 66% of the women never attended school, compared with 26% of women from the wealthiest families. Maternal education was strongly associated with child nutritional status; the higher the level of the mother's education, the lower the prevalence of stunting (***Fig. 5***).

### *Sanitation and hygiene*

Environmental conditions and sanitation facilities, such as the type of latrine used by the household, was strongly associated with stunting. The prevalence of stunting was significantly higher among children in households using an open latrine (45.3%) compared with those in households using a closed latrine (33.9%). The use of closed, more hygienic latrines was found to be higher among wealthier quintiles (51% vs. 16% in lowest quintile). However, defecation in an open space remained the most common practice in rural areas and is even practiced by almost half of the wealthiest families**.**

### *Health services*

With regard to access to health services, 32-48% of the households sought treatment when their youngest child had fever, a cough, or rapid breathing. More of the wealthier households sought treatment for their sick child, indicating that the affordability of health care plays an important role.

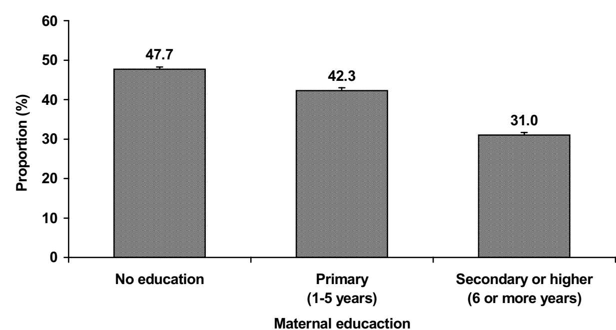


***Figure 5**. Prevalence of stunting for different categories of maternal education (n=74,869)*

### *Conclusions*

- Socio-economic factors (such as cultivable land, expenditure on medical services) as well as factors related to hygiene are associated with stunting.
- Even among the wealthiest households, the availability of and access to food was limited, nearly half of their total household expenditure was on food, disease was highly prevalent, and the prevalence of stunting was 33%.

### *Recommendations*

- Increasing the availability of and access to food, and improving unhealthy environment, should be first priority for reducing the burden of malnutrition and accelerating development in Bangladesh.
- Nutrition programs need to include both a homestead food production as well as a poverty reduction component for households and communities to increase their resources and hence access to foods of better nutritional quality.
- Since poverty is also reflected in the lack of choices and control, empowering women is essential by providing opportunities to build in their skills and social capital.

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