Social determinants of under 5 child malnutrition and related health inequities

Title page: A Conceptual Framework Identifying the Social Determinants of Under 5 Child Malnutrition and Related Health Inequities

1 Introduction:

Child undernutrition is one of major causes of poor child development and it is the underlying cause of about one third of the under 5 child mortality around the world [1] . Stunting, which is short stature for age and defined as the proportion of children below −2SD from the WHO length- or height-for-age standards median, is one important indicator marker of chronic undernutrition in childhood [2] . In 2010, it is estimated that 98% of 171 million stunted children in the world were from developing countries [3] . Although the global trend of stunting in children is slowly decreasing, it does not necessarily lead to a reduction in inequality. A study reviewed demographic health surveillance data from 47 low and middle income countries (LMIC) and found that in almost all countries investigated, stunting disproportionately affected the poor [4] . In South Africa, the rate of stunting was the highest in the provinces with the highest concentration of poverty [5] . Despite the existence of health inequities in stunting in LMICs, a comprehensive conceptual framework to understand the social determinants of this health outcome and theories around the reasons of health inequities is lacking. In this paper, we propose to meet the following objectives:

1. To discuss relevant theories, perspectives, and mechanisms to understand why health inequities in stunting exist and its complex and interlocking mechanism in the society

2. To develop a conceptual framework that identifies the key social determinants involved in maintaining and/or reproducing health inequities in child stunting and shows the relationship between those determinants
3. To identify actions or potential interventions to reduce or eliminate health inequities in stunting based on the conceptual framework

We aim to address the proposed objectives in the context of Bangladesh, the country which made a considerable progress in reduction of child stunting over the decades and was celebrated as a success story in the global nutrition fora [6] .

2 Child stunting and related health inequities in Bangladesh:

Bangladesh observes a sustained reduction of stunting over the last two decades as the proportion of children under 5 years of age moderately or severely stunted has declined from 55% in 1997, to 41% in 2011, and 36% in 2014 [7-9] . The same data sources also show that health inequity was prevalent throughout the time as the proportion of stunted children varied across different social groups within the population. We illustrate the disparities in table 1 drawn on the demographic health surveillance data for the last decade (2004-2014). It shows the stark differences in stunting prevalence across the categories of sex of the child, maternal education, and wealth quintile and place of residence (urban-rural and administrative divisions/regions of the country). Proportion of stunted children was higher whose mother had incomplete secondary level educational attainment or less, and who lived in a household of lowest wealth quintile, from rural area,

and in East region of the country than their counterparts. These differences were consistent over the decade despite the overall reduction of stunting in the country. Although, the proportions did not differ much between male and female under 5 children, children in the poorest quintile were 2. 5 times more likely to be stunted than their peers in the wealthiest quintile in 2014 [9] . In addition, we can see that rate of reduction is also much greater in East region than in the other parts of the country between the survey periods. Another concern is that this inequity in nutritional outcome has become greater with the ratio of poorest to richest rates increasing from 1. 6 to 1. 9 between 1996 and 2013 [10] . These provides the evidence that the existing health and social policies, and social structure had failed to reduce equity gaps for child undernutrition in the country.

3 Theories, perspectives, and mechanisms related to health inequity in child stunting:

In this section we would first discuss different theories, perspectives, and mechanisms that can be related to the health outcome in concern- child stunting in Bangladesh.

3. 1 theory of fundamental causes:

According to Link and Phelan, a fundamental social cause of health inequalities determines the health outcome through several intermediary factors (risk factors) [11] . It involves access to resources that helps avoid the health risks or to mitigate the consequences of the health condition once it occurs and socio-economic status (SES) remains as the fundamental cause for health inequities. Literature shows that the intermediate factors for child

stunting includes chronic malnutrition, chronic infection, poor dietary diversity, breastfeeding, and complimentary feeding, intrauterine growth retardation, low birth weight etc. [12] . Population in lower socio-economic group has higher risk of suffering from these conditions. A recent evidence shows that income of the household is related to household level dietary diversity, per capita consumption and energy availability [13] . This suggests that food security, a condition measured by dietary diversity, is also related to SES of the household. Moreover, in Bangladesh lower income families usually live in a congested household condition and possess the risk of frequently contracting infectious disease, which in turn puts the children being raised in that environment at risk of chronic undernutrition [14] . Nonetheless, lower income restricts the buying access to quality material resources such as nutritious food, access to quality education around child feeding such as exclusive breastfeeding and complementary feeding, and access to quality healthcare services such as prenatal checkup for growth retardation. Through these mechanisms income can primarily influence child undernutrition through direct effect on material resources that are mediated by proximal risk factors in the causal chain [15] . Educational attainment, another component of SES, reflects a person’s cognitive functioning and make them more receptive to health education messages and enable them to access to appropriate health services. In that perspective, parental education especially mother’s education is very critical for child’s optimum nutrition and growth. This is underscored by the findings from a decomposition analysis of stunting reduction in Bangladesh which shows maternal education along with paternal education was responsible for about

25% of the predicted change and household economic growth was responsible for another 25%, both considered as ‘ nutrition sensitive’ drivers [6] .

Life course perspective:

Conceptual framework that contains relevant concepts, theories, and evidence (1 page figure+ 2-3 page description)

1) enhances our understanding of why the health inequity exists and

2) directs us to places we can intervene to reduce/eliminate the health inequity. (2 pages)

4 References:

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