

# The double burden of malnutrition among Bangladeshi women: Rethinking the country's maternal and child health programs and policies

## Key Highlights

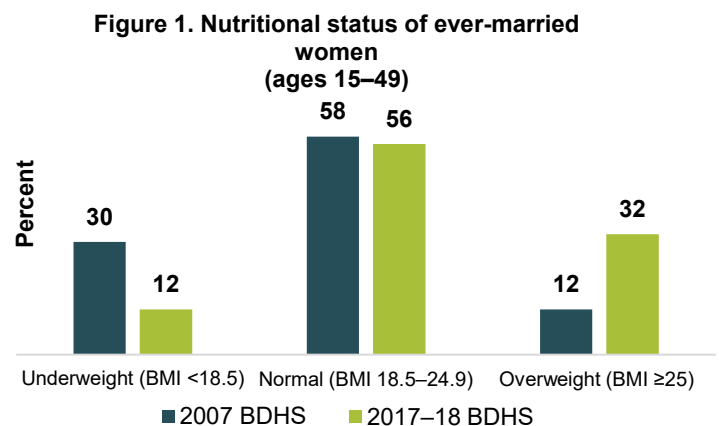
- In Bangladesh, the share of ever-married women ages 15–49 who were underweight (BMI <18.5 kg/m<sup>2</sup>) declined sharply from 30% to 12% between 2007 and 2017–2018.
- Within the same period, the share of women who were overweight or obese (BMI ≥25 kg/m<sup>2</sup>) increased at a higher rate from 12% to 32%.
- Among the total annual 3.4 million births, 0.9 million occur to overweight women, and 0.5 million occur to underweight women. Both forms of malnutrition pose a grave risk for maternal and child health.
- Current relevant policies concerning maternal health and nutrition are fragmentary and mostly spread across the underweight spectrum of malnutrition.
- Bangladesh should revise its national policies addressing the double burden of malnutrition among the women of reproductive age across pre-conception, pregnancy, and post-natal stages to ensure optimum maternal and child health.
  - Track and address under- and over-nutrition in adolescents
  - Promote and ensure targeted and segmented antenatal care programs
  - Promote and protect appropriate infant and young child feeding
  - Discourage consumption of non-nutritious/over-processed food and drinks through marketing and other campaigns

The World Health Organization defines malnutrition as a state of disordered nutrition, in which a combination of varying degrees of overnutrition or undernutrition has led to a change in body composition, diminished function, and outcome. Because of the complex combination and varying degrees of nutrients, tackling malnutrition requires separate intervention and a holistic plan of action.<sup>1</sup>

## Status and trend of malnutrition among women in Bangladesh

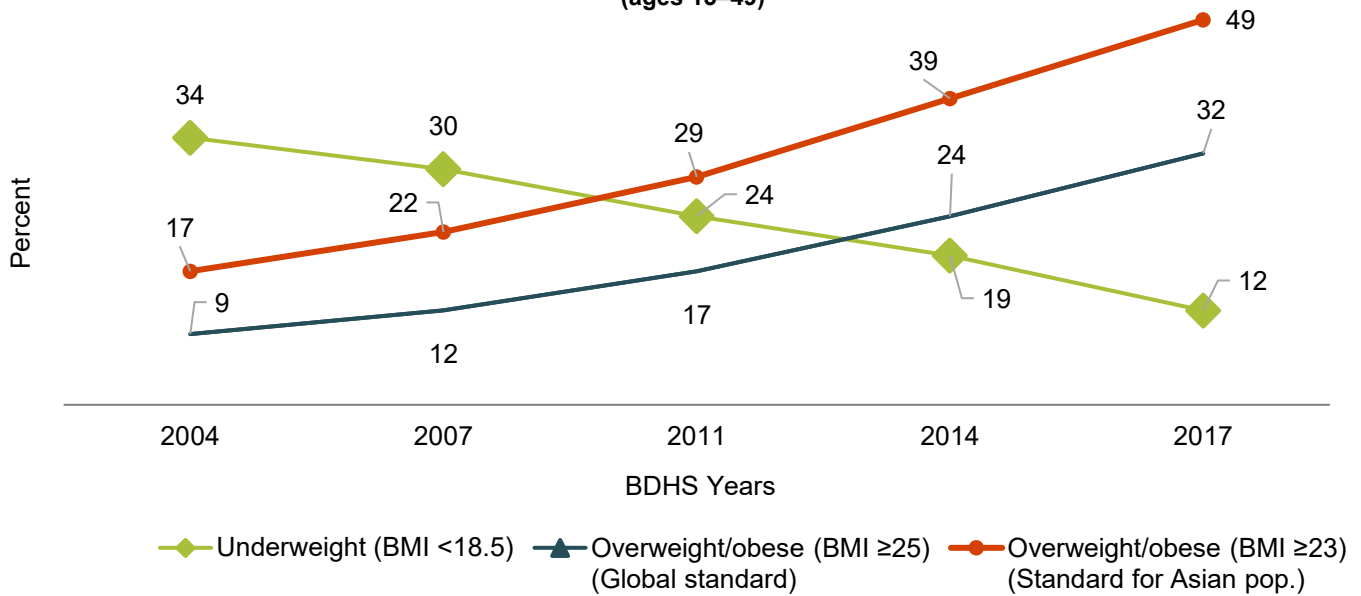
Our data relate to malnutrition among ever-married women ages 15–49. Data from the Bangladesh Demographic and Health Surveys (BDHSs) 2007<sup>2</sup> and 2017–2018 show that within a decade, the share of ever-married women ages 15–49 who were underweight (BMI <18.5 kg/m<sup>2</sup>) declined sharply from 30% to 12%. On the other hand, the share of overweight women (BMI ≥25 kg/m<sup>2</sup>) increased at a higher rate from 12% in

2007 to 32% in 2017–18.<sup>3</sup> Thus, despite remarkable progress in reducing undernourishment among women, the share of well-nourished women (BMI = 18.5–24.9 kg/m<sup>2</sup>) remains unchanged, 58% in 2007 and 56% in 2017 (Figure 1).





**Figure 2. Percent of underweight and overweight among ever-married women (ages 15–49)**



This shift of the dominant burden from undernutrition to overnutrition occurred around 2012–2013 (overweight/obese: BMI  $\geq 25$ ) (Figure 2).

Linear projections (data not shown) indicate that about 46% of ever-married women of reproductive age will be overweight/obese by 2030 if the 2004–2017/18 overweight trend increase continues. This is because the prevalence of overnutrition among women of reproductive age increased the fastest between 2011 and 2017/18. If this recent trend holds, then the proportion of overweight/obese women would constitute up to 60% of the total women of reproductive age.

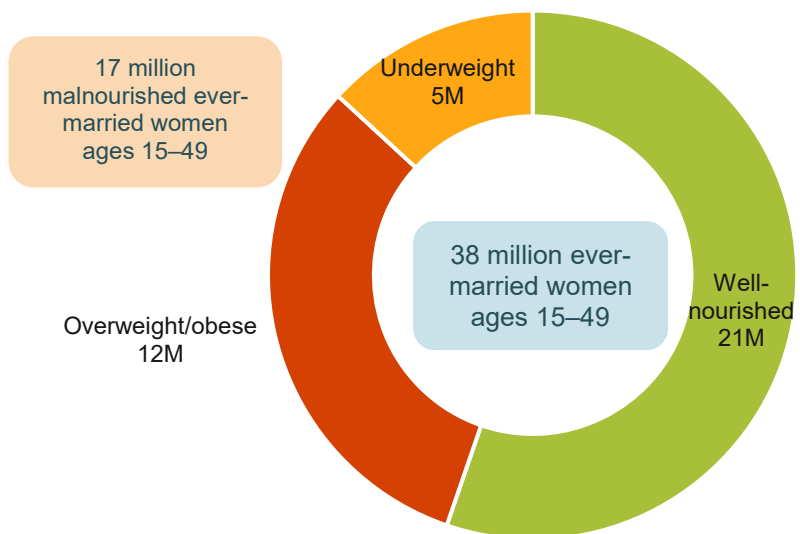
### What it means in terms of numbers

Bangladesh currently<sup>4</sup> comprises around 38 million ever-married women of reproductive age (15–49 years). Within this number, it is estimated that currently 17 million of these women are malnourished—5 million are underweight, and 12 million are overweight/obese (Figure 3).

### This increase is across all groups

The proportion of underweight women is higher among younger women (ages 15–29 vs. ages 30–49), rural women, and those in poorer

**Figure 3. Estimated number (in Millions) of malnourished evermarried women ages 15–49**





households. In contrast, the proportion of overweight is higher among older women, those living in urban areas, and women in more affluent households. Nevertheless, underweight levels have fallen, and overweight levels have increased across younger and older women, rural and urban women, and women of all economic groups (Table 1).

**Table 1. Percentage of underweight and overweight among ever-married women (15–49 years) by background characteristics, BDHS 2007–2017**

| Background characteristics       | Underweight (%)<br>(BMI <18.5 kg/m <sup>2</sup> ) |         | Overweight (%)<br>(BMI ≥25 kg/m <sup>2</sup> ) |         |
|----------------------------------|---|---------|--|---------|
|                                  | 2007  | 2017–18 | 2007   | 2017–18 |
| <b>Age</b>                       |   |         |  |         |
| Ages 15–29                       | 31  | 15      | 8  | 24      |
| Ages 30–49                       | 28  | 10      | 15   | 39      |
| <b>Place of Residence</b>        |   |         |  |         |
| Urban                            | 20  | 9       | 29   | 43      |
| Rural                            | 33  | 13      | 8  | 28      |
| <b>Household Economic Status</b> |   |         |  |         |
| Bottom two wealth quintiles      | 39  | 18      | 4  | 19      |
| Middle wealth quintile           | 33  | 11      | 7  | 31      |
| Upper two wealth quintiles       | 19  | 7       | 22   | 45      |

### Possible reasons for this increase

A recent *Lancet* paper<sup>5</sup> shows that many countries of the developing world are undergoing similar double burdens of malnutrition, a phenomenon known as “the new nutrition reality.” While economic revolution<sup>6</sup> has been crucial for reducing undernutrition, it has also fueled an increase in overnutrition. Other notable reasons for this increase are unplanned urbanization, city migration, income growth,<sup>7</sup> and infrastructure improvements.<sup>8,9</sup>

In a cohort study in China,<sup>10</sup> increases in becoming overweight/obese were significantly associated with reduced physical activity<sup>11</sup> due to modern technology arriving in workplaces and homes (e.g., rice cookers, washing machines, refrigerators, etc.)<sup>12,13</sup> and improved transportation systems.<sup>14</sup> Furthermore, the increase in the number of women working outside the home<sup>15</sup> and the value of their time at work has shaped the demand for ultra-processed foods that are ready to eat or heat.<sup>16,17,18</sup> Marketing and sales of non-essential fast/junk foods and beverages, especially to children for snacking,<sup>19</sup> are also increasing rapidly.<sup>20</sup> Commercial food production often uses hormones, fertilizers, and genetically modified foods<sup>21</sup> that have also been associated with the rise in weight gain and obesity.<sup>22,23,24,25</sup>

### Why increased weight among women of reproductive age is a concern

Annually Bangladesh has 3.4 million births. Currently, 0.9 million of these births occur to overweight women, and 0.5 million births occur to underweight women. If the current trend in malnutrition continues, pregnancies/births among overweight women will increase.

Both forms of malnutrition pose a risk for maternal and child health. For example, underweight mothers are at risk of having anemia, antepartum/postpartum hemorrhage, and premature rupture of membranes. Additionally, maternal obesity<sup>26</sup> increases the risk of perinatal complications such as



gestational diabetes, gestational hypertension, and caesarean deliveries.<sup>27</sup> Maternal obesity also has implications for breastfeeding, with decreased rates of initiation and reduced breastfeeding durations.<sup>28</sup> In 2016 *The Lancet Diabetes and Endocrinology* published a series on maternal weight, highlighting the global burden of obesity in women, including obesity in pregnancy, and the impacts on women's health. All these have potentially serious implications for infant survival, growth, and development,<sup>29</sup> as well as intergenerational implications (Table 2).<sup>30</sup>

**Table 2. Health risks for mother and child due to maternal weight**

| Health risks for mothers         | Maternal underweight | Maternal overweight/obese | Health risks for child           | Maternal underweight | Maternal overweight/obese |
|----------------------------------|----------------------|---------------------------|----------------------------------|----------------------|---------------------------|
| Infertility                      | -                    | ✓                         | Perinatal mortality              | ✓                    | ✓                         |
| Polycystic ovary syndrome        | -                    | ✓                         | Stillbirth                       | -                    | ✓                         |
| Anemia                           | ✓                    | -                         | Congenital anomalies             | ✓                    | ✓                         |
| Gestational diabetes             | -                    | ✓                         | Low birth weight                 | ✓                    | -                         |
| Gestational hypertension         | -                    | ✓                         | Fetal macrosomia                 | -                    | ✓                         |
| Antepartum/Postpartum hemorrhage | ✓                    | ✓                         | Retarded fetal growth            | ✓                    | ✓                         |
| Pre-eclampsia/Eclampsia          | -                    | ✓                         | Low APGAR score                  | -                    | ✓                         |
| Premature rupture of membranes   | ✓                    | -                         | Difficulties in breastfeeding    | -                    | ✓                         |
| Cesarean delivery                | ✓                    | ✓                         | Overweight/Obesity in later life | -                    | ✓                         |
| Pre-term birth                   | -                    | ✓                         |                                  |                      |                           |
| Spontaneous miscarriage          | -                    | ✓                         |                                  |                      |                           |

Along with all these health risks for both mother and child, the coexistence of two forms of malnutrition creates a new challenge: “dual-burden households.”<sup>31</sup> This is the paradoxical burden of households wherein one individual is overweight while another is underweight.<sup>32</sup> This trend profoundly complicates nutritional interventions,<sup>33</sup> as interventions to reduce undernutrition often contradict overweight prevention initiatives and vice versa.

### National policy response

**Bangladesh National Strategy for Maternal Health 2019–2030:** This 90-page comprehensive government-approved strategy<sup>34</sup> is the pivotal document for maternal health in Bangladesh and acts as the guiding principle for national maternal health responses. This document has eight (8) targets, focusing on family planning, ANC, delivery, PNC, MMR, and NMR. However, although this document acknowledges “overweight and obesity” as concerns, under the “persisting gap,” it does not provide any clear action item for tackling these issues. Furthermore, for ever-married women of reproductive age, this national document largely focuses on the dangers of being underweight, aspect of *malnutrition* – with no clear policy directions on the growing number of pregnancies and births among women who are overweight/obese.



**National Nutrition Policy 2015:** This 10-page bilingual government gazette largely focuses on the undernutrition aspect of malnutrition, despite identifying “Reducing maternal overweight (BMI >23)” as an indicator for achieving optimal nutrition, with no further plan of action.

**The Second National Plan of Action for Nutrition 2016–2025:** This 120-page government-led comprehensive plan of action targets “the first 1000 days, adolescent girls, pregnant and lactating women, elderly population, physical, mental, and cognitive disabled.” Though it seems it has covered the whole population, in reality, it misses a broad swath as it does not specify any activities for non-pregnant and non-lactating women of reproductive age. It also primarily focuses on “maternal underweight.” Lastly, the document has outlined some activities for “prevention and control of obesity and non-communicable diseases NCDs,” however it does not specify the target groups for each of these activities.

In conclusion, current policies concerning maternal health and nutrition are fragmentary and mostly cover the underweight issue. However, the preparatory activities of all three analyzed documents started before 2012–13, and the crossover between underweight and overweight took place sometime around 2012–13. Therefore, when the initial drafting of these national responses occurred, maternal undernutrition was predominant.

### The way forward

The call of the hour is to revise the national policies addressing the double burden of malnutrition among women of reproductive age across pre-conception, pregnancy, and post-natal stages to ensure optimum maternal and child health. We need to acknowledge that; this double burden requires double-duty actions.<sup>35</sup> In 2017, the World Health Organization published a policy brief,<sup>36</sup> in line with the Global Nutrition Report 2018, outlining the potential candidates for achieving the double duty, and these are:

- **Track and address both forms of malnutrition from adolescence<sup>37</sup>:** Adolescents, especially girls, remain vulnerable to both forms of malnutrition. Therefore, adopting healthy dietary habits and physical exercise during adolescence is important to address both underweight and overweight/obesity. This creates the opportunity to have a healthy and well-nourished population at pre-conception stage.
- **Targeted and segmented antenatal care programs<sup>38,39,40</sup>:** Antenatal nutritional counselling provides adequate and accurate knowledge of which foods and in what quantities are optimal based on the maternal nutritional status during the first trimester. This can reduce gestational weight gain and subsequently protect against gestational diabetes/hypertension for the mother, ensure safe delivery, and prevent overweight/obesity later in life for the child.
- **Promote and protect appropriate Infant and Young Child Feeding (IYCF)<sup>41,42,43</sup>:** This should include practical interventions to ensure exclusive breastfeeding in the first six months and beyond and protection and promotion of appropriate complementary feeding. Exclusive breastfeeding has dual benefits by providing optimal nutrition for the child and helping regulate maternal weight gain during the postpartum period. Also, proper complementary feeding helps break the intergenerational cycle of a double burden of malnutrition.



- **Regulate marketing of junk/packaged foods and beverages and provide healthy meals at schools:** Food marketing influences children’s food preferences and diet-related behaviors and outcomes, with implications for obesity and diet-related noncommunicable diseases. Regulating this could help prevent overweight/obesity in early life and impact health at later stages.<sup>44</sup> Furthermore, providing healthy mid-day meals at schools<sup>45,46</sup> has been found to be effective at increasing the availability and purchase of healthy food and decreasing the purchase of unhealthy food with the potential to impact health.

### Special note

We adopted the global BMI cut-off points to assess the nutritional status of women. It defines a woman as overweight/obese if her BMI is  $\geq 25$ . However, WHO suggests BMI  $\geq 23$  to assess overweight/obesity for the Asian population. The latter definition would be the most appropriate for the Bangladeshi population though we used the global BMI cut-offs for better comparability from international perspectives. The analysis of overweight/obesity using the BMI  $\geq 23$  definition shows that the burden is much heavier (Figure 2).

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### For more information

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