

# Nutritional Status of Pregnant Women in Selected Rural and Urban Area of Bangladesh

**Hossain B<sup>1</sup>, Tanvir Sarwar<sup>2</sup>, Salim Reja<sup>2</sup> and Mst Nasima Akter<sup>2</sup>**<sup>1</sup>Department of Nutrition and Food Engineering, Daffodil International University, Dhaka, Bangladesh<sup>2</sup>Department of Applied Nutrition and Food Technology, Islamic University, Kustia, Bangladesh**Abstract**

A cross-sectional study was conducted to determine nutritional status of pregnant women in different areas of Bangladesh by anthropometric and biochemical assessment. Measurement of body weight gain in different stages of pregnancy period was calculated as 20% and 14% severely malnourished, 54% and 30% moderately malnourished, 21% and 43% well nourished and 5% and 13% over malnourished; hemoglobin (Hb) level was 16% and 19% severely anemic, 38% and 54% moderately anemic, 24% and 42% mildly anemic and 6% and 11% non-anemic; educational levels were 8% and 15% illiterate, 17% and 44% primary, 29% and 25% secondary, 10% and 39% under graduate and 2% and 11% post graduation of rural and urban pregnant women respectively. Monthly expenditure ≤ Tk.3000 to Tk.4000 food for rural and urban pregnant women were found and considered as important causes for nutritional status during pregnancy period. Beside these, early marriage, frequent birth, illiteracy, poverty, misconceptions, and lack of nutritional knowledge were follow up in this study period. The outcome showed that urban pregnant women were well nourished than rural pregnant women comparatively and also obesity was encountered as an indicator in urban pregnant women than rural.

**Keywords:** Malnutrition; Anemia; Anthropometric analysis; Hemoglobin; Pregnancy**Introduction**

The spectrum of malnutrition in developing countries encompasses the entire range of problems that can occur when dietary energy or nutrient intake are insufficient, excessive or simply imbalanced. Women, specially at their pregnancy or lactating state, are often more vulnerable than men to malnutrition because of their different physiological requirements, having lower metabolic rates and less muscle on average than men. This study comprises through simultaneous investigation to evaluate the nutritional status of pregnant women including different correlating factors associated with pregnancy. Despite progress, levels of malnutrition in Bangladesh are amongst the highest in the world, and this is a major cause of death and disease in children and women [1]. In addition to causing individual tragedies like maternal and child mortality, malnutrition exacts heavy costs from the health care system through excess morbidity, increased premature delivery, and elevated risks of heart disease and diabetes. The economic consequences of Bangladesh's malnutrition problem are profound, resulting in lost productivity and reduced intellectual and learning capacity. Malnutrition passes from one generation to the next because malnourished mothers give birth to malnourished infants. If they are girls, these children often become malnourished mothers themselves, and the vicious cycle continues [2]. Malnutrition among the rural Bangladeshi women of reproductive age is still very high [3]. The high prevalence attributes to a range of adverse health consequences on the women and their offspring. As people living in absolute poverty are more susceptible to infection, disease and malnutrition, information on dimension of nutrition was required to see the impact of program and modify health intervention. Islam et al. and Panter-Brick [4,5] reported that energy intake of Bangladeshi women influenced by both socio-economic ( $P < 0.001$ ) and physiological ( $P < 0.05$ ) status. They also found different contributory sources in high and low income groups. Kavitha et al. [6] observed that the hemoglobin level in blood of majority of the samples was below normal and emphasized the pregnant women were poorly nourished and their nutritional status was also very poor.

Objectives of the study were to identify the associated factors for the prevalence of malnutrition among pregnant women in northern areas, Bangladesh.

**Methods and Materials**

200 pregnant women were randomly selected from different government and non-government health care centers in Kustia, Jhenaidah, and Jessore, Bangladesh from the time period of September 2011 to May 2012. In the first stage of cross sectional study, weight gain throughout the pregnancy period was observed as baseline and then socio-demographic status was evaluated by food habit, culture practice, and economical condition, and biochemical, clinical and anthropometric assessments [7]. A pre set question was developed as per study design to run the research. No chronic disease and selected age level were considered for selection criteria of the subjects.

**Study design**

200 subjects were randomly selected from different area of three selected districts of Bangladesh. Questionnaire and some technical procedures were encountered as study instruments. Questionnaire were formed to get information from an individual about their age, sex, educational status, family income, living condition, daily food habit and dietary pattern. Weight, height, and MUAC were measured by pre-defined procedure and hemoglobin level was measured by specific biochemical test.

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### Anthropometric and Biochemical assessment

Weight and height were measured to evaluate the BMI which indicates the usual health status of individual either the subject is under normal weight or not. Ranges from 18.5 to 24.9 of BMI ensure the normal level where below 18.5 and over 25 indicate underweight and obese, respectively [8]. Normal hemoglobin level for pregnant women is around 11 gm/100 ml where less than 7 gm/100 ml indicate severe anemic condition. Biochemical test was conducted to observe the hemoglobin status [9].

### Result and Discussions

After surveying 200 pregnant women from different area of Bangladesh, different types of comparable data were found among both rural and urban women. In this study so many factors has been justified such as age, family member, number of children of pregnant mother, educational level, monthly family income and expense for food, type of mother, work status, living status, immunization during pregnancy, previous history of disease, food intake, family support, awareness about daily requirements of nutrients and common disorders during pregnancy, healthcare management, stage of pregnancy, awareness about the complications arise from low food intake during pregnancy, proficiency any food taboos, environmental factors, etc.

In the rural and urban region of Kushtia, Jhenaidah and Jessore district of Bangladesh about 46% and 25% of the pregnant women belonged to <20 years. Majority of the pregnant women in rural region of Bangladesh were in <20 years and urban region in 21-25 years.

Maternal age is an important determinant of nutritional status for pregnant women. The stand ard age level of pregnancy period is 19-30 years [10] but the rural and urban area of Kushtia, Jhenaidah and Jessore district was 46% and 25% which belonged to <20 years; 30% and 39% of pregnant women were within 21-25 years of age group ; 18% and 28% of pregnant women were age group in 26-30 years; 6% and 8% of pregnant women were in the age group in >31 years (Figure 1). Majority of the pregnant women in rural area of Bangladesh were within <20 years and urban region within 21-25 years.

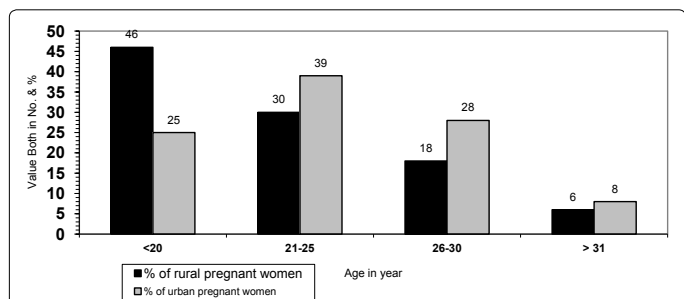


Figure 1: Total percentage and number (n=200) of rural & urban pregnant women by age (year).

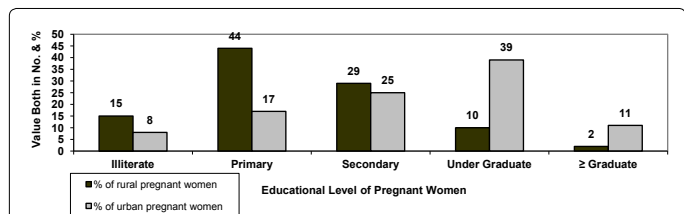


Figure 2: Total number (n=200) and percentage of rural & urban pregnant women according to their educational level.

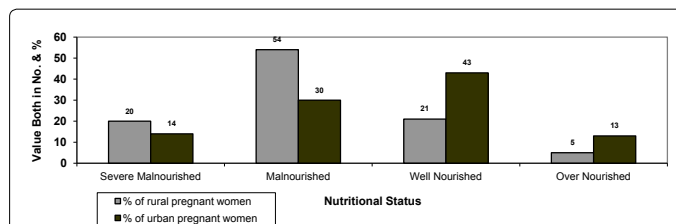


Figure 3a: Total number (n=200) and percentage of rural & urban pregnant women by their nutritional status.

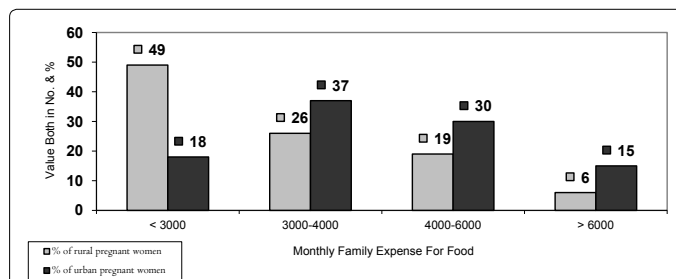


Figure 3b: Total percentage and number (n= 200) of rural & urban pregnant women on the basis of family expense only for food.

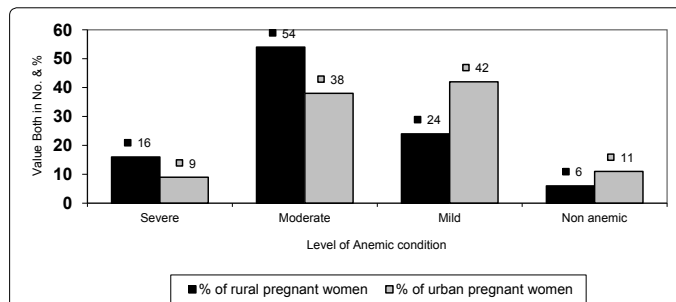


Figure 4: Total number (n=200) & percentage of rural & urban pregnant women according to level of anemic condition.

Educational level of the study subject was significantly independent effect on nutritional status in pregnancy period [11]. The subject in rural and urban region was 15% and 18%, 44% and 17%, 29% and 25%, 10% and 39%, 2% and 11% illiterate, Primary, Secondary, Under Graduate and above Graduate, respectively (Figure 2).

During the study, subject was 20% and 14% severe malnourished; 54% and 30% malnourished; 21% and 43% well malnourished; and 5% and 13% over malnourished, respectively (Figure 3a) by food intake.

Figure 3b shows the distribution of rural and urban pregnant women about 49% and 18% were family expense for food <3000 Tk.; 26% and 37% of 3000–4000 Tk.; 19% and 30% of 4000-6000 Tk.; and 6% and 15% of >6000 Tk respectively. Majority of rural pregnant women monthly family expense for food was <3000 Tk. and urban was 3000-4000 Tk.

Anemia in pregnancy is another indicator of nutritional status. In the rural and urban area, majority of pregnant women was 54% and 42% moderate anemic; 24% and 42% mild anemic; 16% and 9% severe anemic; 6% and 11% non-anemic (Figure 4). The overall survey result also shows that, urban pregnant women were well nourished than rural pregnant women.

Data from MAUC of the subject was showed 245 and 13% severe malnourished; 49% and 32% malnourished; 23% 7 44% well nourished and 4% and 11% over nourished (Figure 5).

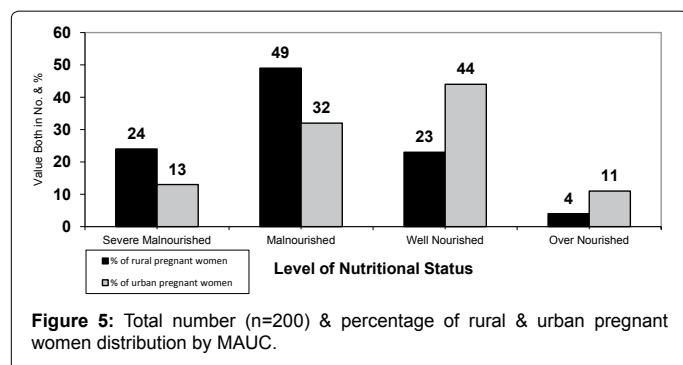


Figure 5: Total number (n=200) & percentage of rural & urban pregnant women distribution by MAUC.

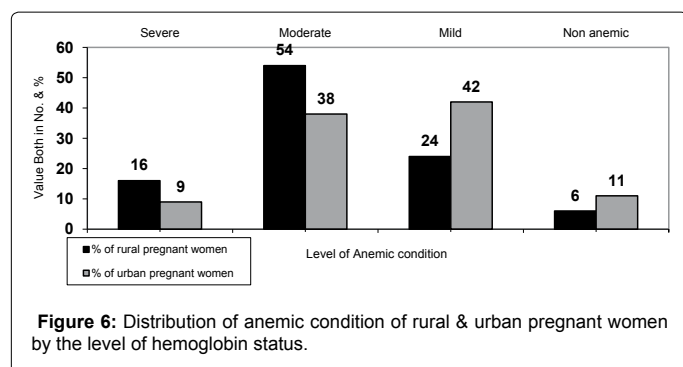


Figure 6: Distribution of anemic condition of rural & urban pregnant women by the level of hemoglobin status.

Figure 6 shows the distribution of rural and urban pregnant women according to level of anemic condition. In rural and urban area 16% and 9% pregnant women were severe anemic, 54% and 38% moderate anemic, 24% and 42% mild anemic and 6% and 11% of pregnant women were non-anemic. The overall survey result also shows that, urban pregnant women were well nourished than rural pregnant women.

## Conclusion

The nutrition situation of rural and urban region of Kushtia, Jhenaidah and Jessore district of Bangladesh has not improved

satisfactorily as an educational environment and need more attention. Malnutrition, under-weight is more common nutritional problems in Bangladesh. This condition may arise different types of complications that are life threatening for pregnant women. There is no magic pill that can reduce or increase the nutritional status of the pregnant women. It is hoped that the study would be useful in understanding the severity of the nutritional status of pregnant women and increases the awareness of the need of pregnant women for accomplishing their physical, mental, and academic achievements. A different approach may be developed to offer rural and poor urban women the opportunity to feed themselves properly, perhaps through appropriate household or village-scale technology. The governments of the Bangladesh need to address these problems seriously.

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