

# DIETARY DIVERSITY AND NUTRITIONAL STATUS AMONG WOMEN OF REPRODUCTIVE AGE GROUP IN A SELECTED RURAL COMMUNITY OF BANGLADESH

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## Abstract:

**Background/context:** Dietary diversity (DD) is universally recognized as a key component of healthy diets. Healthy diet is one of the most important determinants that can influence nutritional status of women of reproductive age.

**Materials and Methods:** This cross sectional study was conducted in Shitpara village of Sreepur Upazila under Gazipur district during February to June 2013 to assess the dietary diversity and nutritional status of women of reproductive age. Convenient sampling technique was adopted to select 181 women. Interview schedule & checklist used as research instrument.

**Results:** The mean(±s.d.)age of the respondents was 27.45±9.38 years, 133(80%) of them were married and 176(97.2%) are literate. Mean family size was 5.34±2.386 persons and mean family income was 9611.05 Taka per month. Among 133 married women, 68(51%) have 2 or less than two children. Their mean(±s.d.) dietary diversity score was 5.13±1.19 and majority 149(82%) of them having medium dietary diversity tercile (4-6). All of them ate carbohydrate types of food, 174(96.1%) protein rich foods & 83(45.9%) vit.A rich vegetables & fruits. Their mean BMI was 22.35 ±/ 3.71 kg/ m<sup>2</sup>. Majority 118 (65%) of them having normal BMI and 22(12%) are under weight. Only 6(3%) of them are obese. Though dietary diversity was medium (4-6); relationship between dietary diversity and nutritional status could not be established.

**Conclusion:** The qualitative measurement of dietary diversity is not sufficient enough to identify women at risk of under- or over nutrition.

**Key word:** Dietary diversity, Nutritional status, reproductive age.

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## Introduction:

Dietary diversity – i.e., the number of foods or food groups consumed in a given reference period – is widely recognized as being a key dimension of diet quality. It reflects the concept that increasing the variety of foods and food groups in the diet helps to ensure adequate intake of essential nutrients, and promotes good health. At individual level, dietary diversity scores (DDS) provide simple, validated measures of food quality or nutrient adequacy. The nine-

category maternal diversity indicator was validated in the Food and Nutrition Technical Assistance's Women's Diversity Project <sup>1,2</sup>. Food security entails three important aspects (availability, access and utilization) in the relationship between man and food, necessary to ensure that nutrition plays its optimum role in human health. However, dietary diversity has been positively linked with these three pillars of food security <sup>3</sup>. There is ample evidence from developed countries showing that dietary

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diversity is indeed strongly associated with nutrient adequacy, and thus is an essential element of diet quality <sup>4,5</sup>. However, the few available studies from developing countries also supported the association between diversity and nutrient adequacy <sup>6,7</sup>.

Nutritional status is considered an outcome of biological processes that involve food utilization while dietary diversity ensures adequate nutrient intakes among groups <sup>6</sup>. Maternal malnutrition is an important public health problem in low – income countries particularly in Southeast Asia, Africa, Latin America and Caribbean. Between 10 – 20 percent of women are undernourished in most countries and serious under nutrition (greater than 20 percent) is evident in most countries in sub-Saharan Africa and South/Southeast Asia <sup>8</sup>.

Deprivation to women starts from birth in Bangladesh. The socioeconomic, health and nutritional status of women depict gloomy pictures throughout their life <sup>9</sup>. Nutritional disorders are very frequent in women of childbearing age and are far serious in poorer socioeconomic groups because of low to moderate prevalence of possible deficiencies. Women, especially mothers, play vital role in selecting, preparing, and serving foods to support families. Food security research indicates that during periods of reduced food supply, women reduce their own food intakes to secure those of men, & her children <sup>3</sup>. But, the diets of women and mothers are often overlooked.

There are few nationally representative data on women's dietary diversity and food intake. The purpose of this study was therefore to assess the dietary diversity and its relation to nutritional status among women of reproductive age group. It is expected that the findings of the study will provide some useful information for planning interventions to improve the nutritional status women of reproductive age group.

#### **Method:**

This descriptive type of cross sectional study was conducted to find out the dietary diversity and nutritional status among women of

reproductive age group in Shitpara village under Barmi union of Sreepurupazila under Gazipur district from February to June 2013. Convenient sampling technique was adopted to select 181 women who were the sample of this study. Pregnant and lactating mother were excluded from the study. Interview schedule & checklist used as research instrument. Dietary Diversity was based on the number of food consumed in the previous 24 hours period. The nine food groups, recommended by Food and Agriculture Organization (FAO) including; flesh food group, egg group, dairy group, vegetable group, cereal and root/tuber group, legume group, vitamin A rich vegetable & fruit group, fruit group, fat/oil group were used. The individual varieties of foods consumed were recorded into the nine food groups, and calculation of dietary diversity score (DDS) was done by summing the number of unique food groups consumed by the respondent in last 24 hours. One of the methods employed in defining cutoff points for assessing varying levels of dietary diversity in populations is to create terciles and sometimes quartiles <sup>10</sup>. Terciles of DDS based on nine food groups, were adopted in this study to determine the proportion of subjects scoring low, medium and high DDS. DDS terciles for low ( $= < 3$ ), medium (4-6) and high ( $= > 7$ ) was also constructed. Height (cm) and weight (kg) of the respondents were taken using a measuring tape fixed on a wooden scale and a bathroom scale. Body mass index (BMI) was calculated to assess the nutritional status of the respondents. After quality control, data were compiled and analyzed using SPSS 14 software.

#### **Results:**

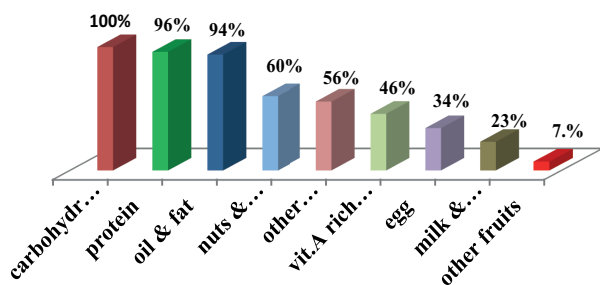
Table 1 presents the descriptive statistics of the demographic variables. Among the total respondents 47 (26%) of respondents are in 19 years or younger age group, 59 (32.6%) having 20 to 29 years age and only 30 (16.6%) are aged 40 years or older. Majority of them 144 (79.6%) are married and 1 (0.6%) are divorced. Illiteracy rate was 2.8%. Most 107 (59.1%) of the respondents have 5-9 family members, only 4 (2.2%) respondents have 15 or more family members. Most 68 (51%) of the respondents have 2 or less than 2 child, and about 3 (2%) respondents having 6 and above number of children.

**Table-I**

*Demographic variables of the respondents:*

Age:	Frequency	Percent
=< 19	47	26.0
20 – 29	59	32.6
30 – 39	45	24.9
=> 40	30	16.6
Marital status		
Married	144	79.6
Unmarried	36	19.9
Divorced	01	0.6
Educational status		
Illiterate	05	02.8
Literate	176	97.2
Number of family member		
=<4	67	37
5-9	107	59.1
10-14	03	01.7
=>15	04	02.2
Number of child(n-133)		
=<2	68	51.1
3-5	62	46.6
=>6	03	02.3

Figure 1 shows the distribution of different food groups consumed by the respondent. All of them consumed carbohydrate types of food, 174(96%) ate protein rich foods, 170(94%) ate fats and oil types foods, 110(60%) ate nuts & legumes type of food, 101(56%) ate other types of vegetables, 83(46%) ate vitamin A rich vegetables & fruits, 62(34%) consume egg, 42(23%) milk & milk products and 13(7%) consume other type fruits.



**Figure 1** Bar chart showing different food groups consumed by the Respondent.

Table-II. present dietary diversity tercile of the respondents. Their mean DDS was 5.13 +/- 1.19, range from 2-8. Majority 149(82.3%) of the respondents having medium dietary diversity tercile (4-6) and 21(11.6%) respondents having high dietary diversity tercile (=>7). Only 11(6%) with low dietary diversity tercile (=<3). Table-III present nutritional status of the respondents. Most 118 (65.2%) of them having normal body weight. Twenty two (12%) of them are under weight and 35(19%) of them are pre obese. Only 6(3.3%) of them were in obese class I category.

**Table-II**

*Dietary diversity tercile of the respondents:*

Dietary diversity	Frequency	Percent
Low(=<3)	11	06.1
Medium(4 – 6)	149	82.3
High(=>7)	21	11.6

**Table-III**

*Nutritional status of the respondent's:*

Nutritional status	Frequency	Percent
Under weight (BMI: <18.5)	22	12.2
Normal weight (BMI: 18.5 – 24.99)	118	65.2
Pre obese (BMI: 25-29.99)	35	19.3
Obese class I (BMI: 30- 34.99)	06	03.3

**Discussion:**

This study revealed a minimum and maximum DDS (dietary diversity score) is 2 and 8 respectively. The mean DDS is 5.13. The mean DDS for women were 4.0 in Cambodia and Ghana, but only 3.0 in Haiti<sup>2</sup>. However, markedly opposite findings were obtained in a study among women of Tehran, in which the mean DDS was 6.01 (SD +/- 1.01)<sup>13</sup>. Most of the respondents (82.3%) were found to have a dietary diversity score 4-6 (medium dietary diversity), while 6.1% had dietary diversity score of =<3 indicating lowest dietary diversity. These findings present before us, the scenario of other developing countries though the percentage of respondents having lowest DDS is significantly lower than was found in other

countries<sup>6</sup>. This may be due to improved socioeconomic status, literacy rate of the people and communication facilities of the study area.

Body Mass Index (BMI) was taken as an indicator of nutritional status. In this study, only 12% of the participant women were found underweight (BMI < 18.5). Definitely, this finding confers improvement in nutritional status compared to the findings of some previous studies conducted in rural Bangladesh<sup>12, 13, 14, 15</sup>. Dietary diversity score (DDS) used as one of the striking predictor of nutritional status. It is also suggested that consumption of a varied diet reduces the risk of developing a deficiency or excess of any one nutrient. Keeping in mind with this statement, a cross-sectional study conducted among Iranian women reports BMI of 27 (SD +/- 4) and was found to be influenced by their high DDS (mean score 6.01)<sup>11</sup>. Though, association between nutritional status and dietary diversity could not be established in our study.

An interesting fact also needs further explanation. In our study findings, apparently the DDS of our respondents may not seem to be up to the mark. However, as per consideration of individual food groups, it becomes evident that the percentage of respondents taking meat, fish & sea-foods is significantly higher than that found in a study<sup>16</sup>. This paradoxical finding undoubtedly points to comparatively higher nutritional value of their diet and most probably a predictor of their improved nutritional status.

### Conclusion:

Preserving the health of the women through good nutrition may be a key to safeguarding the health of children and families. The study results showed, though the dietary diversity score was medium, it was not a significant determinant of nutritional status of the respondents. The qualitative measurement of dietary diversity is not sufficient enough to identify women at risk of under- or overweight.

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