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Original article

Nutritional Status of the Women of Reproductive Age in a Rural Community of Bangladesh

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Abstract

Background: Nutritional status is an important indicator of the health status of a community. The nutritional status of individuals is determined by a complex interplay between personal and environmental factors. Good nutrition benefits optimal health and the ability to resist and recover from disease, while malnutrition leads to dependency. Dependency interferes with health and the quality of life. Nutrition-related issues are often neglected in adult females living in low-income countries. In developing countries like Bangladesh maternal underweight is a leading risk factor for preventable death and diseases. Objective: The study was carried out with the objective of finding out the pattern of nutritional status among the women aged 15-49 years of a rural community at Keraniganj Upazila, Dhaka. ***Methodology:*** The study was cross-sectional and descriptive in nature. Data were collected through face-to-face interviews with a semi-structured questionnaire. Total 419 women of reproductive age were included in the study. ***Results:*** It was found that 51.3% had anemia, 0.7% had vitamin B-2 deficiency, 0.8% had vitamin C deficiency, 1% had iodine deficiency and 0.9% had protein deficiency. By BMI, it was found that 47.3% were normal, 32.5% were overweight and 14.3% were obese. By MUAC, it was found that 75.2% were normal, 17.2% were obese, 5.5% were severely malnourished, 1.2% were mildly malnourished and 1.0% were moderately malnourished. Regarding the risk factors, it is found that 75.9% performed moderate physical activity, and 13.4% were sedentary. It is also revealed that 21.0% were suffering from chronic diseases, 53.9% were occasionally under mental pressure and 10.5% were very stressful always. ***Conclusion:*** Despite some positive findings regarding nutritional status, it can be considered that further studies in a wider context in this region are needed to gather more information about the nutritional status of the women.

Keywords: Nutritional status; women's health, reproductive age.

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Introduction

In developing countries like Bangladesh, maternal underweight and malnutrition are major risk factors for preventable mortalities and morbidities. Both underweight and obese women are at risk of poor pregnancy outcomes and overall poor maternal and child health.[1] Nutritional status is very important in adolescents of reproductive age because of the low to moderate prevalence of possible nutritional deficiencies.[2] This suggests the need for a population assessment of the trends, prevalence and determinants of underweight and overweight in women of reproductive age. In a country like Bangladesh, medical records on disease patterns are available, but information on morbidity patterns in a specific community is rarely available. A community-based research can reflect the exact scenario of the morbidity patterns and relevant risk factors in a specific community.[3] The overall situation of the healthcare system is poor in developing countries like Bangladesh, due to inadequate access to modern health services and poor utilization of the few services that are available. Therefore, one of the public health challenges in Bangladesh is to identify vulnerable groups and provide them with needed preventive and curative health services. So, this study was designed to identify the specific factors that may enhance the overall health status of the adult female considering their morbidity patterns, nutritional status, and healthcare-seeking behavior.[2]

Materials and Methods

This cross-sectional descriptive study was conducted in a rural region of Keraniganj upazila, Dhaka. A convenience sampling technique was followed to select the 419 respondents from some selected villages. In the beginning, the research protocol was approved by the institutional ethical review committee of Ad-din Women's Medical College. After taking verbal consent from the respondent following introducing and informing the study's purpose and objectives, data were collected by clinical examination, face-to-face interview & using weighing machines & measuring tapes for the measurement of height, weight & mid-arm circumference. Data were recorded on a semi-structured questionnaire based on socio-economic characteristics, risk factors and clinical features of nutritional deficiency disorders. Statistical analyses were performed using the 21st version of SPSS® software. The confidentiality of data and the privacy of the respondents were maintained strictly.

Results

Total 419 women were included in the study, where mean (± SD) age of the patients was 29.6 (±8.9) years. It was found that 41.3% were between 21 & 30, 26.3% were between 31 & 40, 21.0% were less than 20 years and 11.5% were greater than 48 years. In this study, among all respondents 341 (81.4%) were Muslims, 78 (18.6%) respondents were Hindus, 370 (88.3%) respondents were married, 35 (8.4%) respondents were single, 199 (47.5%) were primary educated, 104 (24.8%) were secondary educated, 79.7% were housewives, 5.3% were service holders. Average family income of the respondents was Tk. 15,382.5 (±12241.6 SD). It is revealed that, 41.9% respondents lived in tin made houses and 21.0% were suffering from chronic diseases. In this study, it was found that 53.9% were occasionally under mental pressure, 10.5% were very stressful always. Regarding the other risk factors of nutritional disorders, respondents take fatty food always, smokers, respondents sometimes drink alcohol, 75.9% perform moderate physical activity, and 13.4% perform

Table 1: Socio-economic characteristics of the respondents (n = 419)

Name of variables	Frequency	Percentage	Mean± SD
Age in years			
< 20	88	21.0	
21-30	173	41.3	29.6 ± 8.9
31-40	110	26.3	
> 40	48	11.5	
Religion			
Muslim	341	81.4	
Hindu	78	18.6	
Education			
Illiterate	87	20.8	
Primary	199	47.5	
Secondary	104	24.8	
Higher secondary	22	5.3	
Graduate	5	1.2	
Post graduate	2	0.5	

Occupation			
Unemployed	15	3.6	
Housewife	334	79.7	
Service holder	22	5.3	
Business	10	2.4	
Day laborer	8	1.9	
Student	22	5.3	
Others	8	1.9	
Family size			
Small sized family (1-3)	79	18.9	
Medium sized family (4-6)	273	65.2	
Large sized family (7-13)	67	16.0	
Monthly family income (Tk.)			
Low: 1500-9000	111	26.5	15382.5 ± 12241.6
Middle: 9001-40000	292	69.7	
High: 40001-100000	16	3.8	
Marital status			
Single	35	8.4	
Married	370	88.3	
Divorced	3	0.7	
Widow	7	1.7	
Separated	4	1.0	
Duration of marriage			
<1 y	6	1.4	
1-12 y	197	47.0	12.5 ± 9.2
13-24 y	124	29.6	
25-36 y	62	14.8	
Not applicable (single)	30	7.2	

Table 2: Prevalence of risk factors (n = 419)

Name of variables	Frequency	Percentage
Number of living child (ren)		
0-1	153	36.5
2-3	205	48.9
4-9	61	14.6
Pregnancy		
Pregnant	25	6
Not pregnant	394	94
Lactation		
Lactating mother	73	17.4
Non-lactating	346	82.6
Physical activity		
High	44	10.5
Moderate	318	76
Sedentary	56	13.4
Mental stress		
Very stressful	44	10.5
Occasionally stressful	226	53.9
Not at all	149	35.6

Table 3: Prevalence of deficiency disorders on clinical examination (n = 419)

Disorders	Frequency	Percentage
Anemia	215	51.3
Vitamin B_2 deficiency	10	2.4
Vitamin C deficiency	05	1.2
Iodine deficiency	03	1
Protein deficiency	06	5.5

Table 4: Nutritional status of respondents according to BMI (n = 419)

BMI	Frequency	Percent
Under weight <18.5	23	5.5
Normal 18.5-24.99	198	47.3
Overweight 25-29.99	136	32.5
Obese 30-39.99	60	14.3
Morbidly obese >40	2	.5
Total	**419**	**100.0**
Mean ± SD	25.1 ± 4.7	

Table 5: Nutritional status of respondents according to MUAC (n = 419)

MUAC	Frequency	Percent
Severe malnourished < 160	23	5.5
Moderate malnourished 160-184.99	4	1.0
Mild malnourished 185-219.99	5	1.2
Normal 220-320	315	75.2
Obese > 320	72	17.2
Total	**419**	**100.0**
Mean ± SD	278.5 ± 54.5	

Among the middle-income group, 146 were normal weight, 93 were overweight, 43 were obese, 2 were morbidly obese and among the low-income group 13 were underweight. This association between income group and BMI was statistically significant (p-value 0.019).

Table 6: Association between income group and BMI

Income group	BMI				
	Under weight (<18.5)	**Normal (18.5-24.99)**	**Overweight (25-29.99)**	**Obese (30-39.99)**	**Morbidly obese (>40)**
Low (1500-9000)	13 (56.5%)	48 (24.2%	35 (25.7%	15 (25.0%)	0 (0.0%)
Middle (9001-40000)	8 (34.8%)	146 (73.7%)	93 (68.4%)	43 (71.7%)	2(100.0%)
High (40001-100000)	2 (8.7%)	4 (2.0%)	8 (5.9%)	2 (3.3%)	0 (0.0%)
Total	23	198	136	60	2
χ^2	18.375				
p-value	0.019				

Discussion

A study conducted by Sultana T et al, aimed to evaluate the use of mid-upper arm circumference (MUAC) as a simpler alternative to body mass index (BMI) to detect adult undernutrition and suggest a suitable cut-off value. The study included 650 adults aged 19-60 years, and measurements of height, weight, and MUAC were taken. The study found a strong positive correlation between MUAC and BMI for both males and females. The study suggests that MUAC <25.1 cm for males and <23.9 cm for females may be considered a simpler alternative to BMI cut-off <18.5 to detect adult undernutrition.[4]

A study conducted by Zaman MK et al, aimed to assess the situation of anemia among non-pregnant, ever-married women of reproductive age in Bangladesh, and examine the associations with demographic, socioeconomic, and nutritional factors. The study found that the prevalence of anemia was 41.3%, with a lower prevalence among non-pregnant women using contraception.[5]

According to a study conducted in Bangladesh, the prevalence of underweight, normal weight, pre-overweight, overweight, and obesity among ever-married women was 24.1%, 46.7%, 12.8%, 13.5%, and 2.9% respectively. The study also confirmed the co-existence of underweight and overweight among women.[6]

According to a cross-sectional study conducted in Bangladesh, female garment workers in the ready-made garment (RMG) sector are paid very little and are vulnerable to different kinds of health-related problems, including malnutrition. The study found that more than half of the respondents (53.67%) had various health problems, and almost half of them (43.33%) were underweight (BMI ≤ 18.5).[7]

According to a study conducted in Mexico, data from the national survey "Health needs and health service use by older-than-60-year-old beneficiaries of the Mexican Institute of Social Security (IMSS)" were analyzed to evaluate the prognosis of chronic and acute diseases. The study only included individuals who reported no chronic disease in the last 20 years and had no hospital admission in the two months prior to the survey.[8]

According to an investigation conducted in India, economic status was associated with increased levels of overweight and decreased levels of underweight among 76,681 women living in 3204 neighborhoods in 26 Indian states. The study found that interventions to address the double burden of under-nutrition and over-nutrition in India must be taken into account.[9]

According to a study conducted in rural Maharashtra, India, four factors were identified that contributed to the disparity in thinness between young women and men. These factors included marriage isolating girls from their own families and villages, increasing the workload of young women, denying women access to supplementary food sources available to men, and encouraging young women to fast regularly.[10]

A study aimed to examine the relationship between body mass index (BMI) and all-cause mortality in Bangladesh, found that low BMI was strongly associated with increased mortality. Severe underweight (BMI <16) and moderate underweight (16.0–16.9) were associated with increased all-cause mortality compared with normal BMI (18.6–22.9). The highest BMI category (≥23) did not show a clear association with mortality. The study concluded that underweight is a major determinant of mortality in the rural Bangladeshi population.[11]

According to a study conducted in Bangladesh, the proportion of underweight females has been increasing in those born during the last 20 years of the study period (1972 to 1992). Body mass index increased with increasing age, education level of the woman and her husband, wealth index, age at first marriage and age at first delivery, and decreased with increasing number of ever-born children.[12]

According to a study conducted in low to middle-income countries, there was a yearly change in birth cohorts starting with those born in 1945 that was associated with a 0.0138 cm increase in height. The increase in heights in more recent birth year cohorts was largely concentrated in women from the richer wealth quintiles. Some 35 of the 54 countries experienced a decline or stagnation in height. The decline in heights was largely concentrated among the poorest wealth quintiles.[13]

Conclusions

Nutrition is a crucial factor that affects the quality of life. The nutritional status of women is an important health indicator that can be used to assess a country's health status and morbidity pattern. This study examined certain socio-demographic factors that play a significant role in the nutritional status of women. The study found that while most rural women were well-nourished, many of them were obese and a significant portion of them were suffering from malnutrition. Malnutrition is a complex social and public health problem. Although some positive findings regarding malnutrition were observed, further studies in a much wider field in this region are needed to gather more information about the nutritional status of women.

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Conflict of interest

The authors declare that no conflict of interest exists.

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