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Knowledge and Attitude towards Nutrition among Pregnant women in Rural areas of Dhaka city, Bangladesh

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Abstract:
The knowledge on the nutritional status of pregnant women in Bangladesh is not enough. About 60% of South Asian women have underweight children due to a lack of healthy food and nutrition during their childhood. Pregnant women are the main victims of unhealthy eating habits, which are responsible for malnutrition. Therefore, this study was conducted to assess knowledge and attitudes about nutrition among pregnant women in the rural areas of Dhaka, Bangladesh. A brief and descriptive study was conducted in four randomly selected villages in Nawabganj district in Dhaka, Bangladesh with 384 randomly selected pregnant women. Data were collected from respondents using a semi-structured questionnaire by face-to-face interviews, after taking participants' verbal consent. The SPSS 20 model is used for data entry and analysis. The findings of the study indicate that more than half of the respondent's level of knowledge about nutrition was excellent or good but only 43.0% respondents had excellent or good attitude towards nutrition. The level of knowledge was strongly associated with the age of respondents, the type of family and the number of pregnancies and the level of attitude was strongly associated with the age of the respondent and the number of pregnancies. Based on the results of the study, it can be recommended that healthy nutrition education should be strengthened to empower rural mothers to understand the importance of nutritious food during pregnancy. Long-term study on a large scale with the similar population can help to generalize the findings.

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Introduction

Malnutrition is caused by consumption of the food with low nutritive value. According to Bangladesh Demographic and Health Survey Report (2017-18), the prevalence of malnutrition in Bangladesh is among the highest in the world. Malnutrition is like snow; many people in the developing countries live under the burden of malnutrition. Pregnant women, nursing mothers and children are at risk of malnutrition. Adverse effects of maternal malnutrition are maternal weight loss, low birth weight, anemia, pregnancy toxemias, postpartum hemorrhage leading to high mortality and morbidity (Mridula et al., 2003). Pregnancy is a miraculous process in which a woman has to make every effort to get into her body and the baby desires the support of the environment. A woman's knowledge and attitude about nutrition during pregnancy should be very strong. Pregnancy is a very time-consuming process in a woman's life. A woman's body needs enough nutrients every day to support her baby's growth. Pregnant women need more calories and nutrients than other women. If the nourishment needed by children during pregnancy is not adequate, the baby may not grow well. The fact is that pregnancy is a special time when a woman needs to make arrangements to add rest and self-care. If she does not do so, she is likely to be preparing for fatigue. (Agarwal, 1991). Malnutrition affects not only humans but its effects are passed on from one generation to the next as malnourished mothers give birth to infants struggling for growth and development. When these babies are girls, they often grow up to be malnourished mothers themselves. Worldwide, malnutrition accounts for about one percent of all child deaths. Micronutrient deficiency especially iron and folic acid deficiency leading to nutritional anemia and neural tube defects in newborns which remains a public health problem in Bangladesh. The availability of antenatal and postnatal iron and folic acid supplements is very low with only 15% of pregnant women in rural areas taking at least 100 pills during pregnancy. Low compliance and low availability of maternity services have made it difficult to maintain a healthy diet during pregnancy. Malnutrition (BMI less than 18.5 kg / m^2) in pregnant women in the country, decreased from 54% in 1996-1997 to 34% in 2004 and 24% in 2011, is still very high. About 6 in 10 women who have been married (59 percent) have a normal BMI, 24 percent are malnourished (BMI below 18.5), and 17 percent are overweight (BMI 25 or higher) (Thangaleela et al., 1994). During pregnancy the diet should contain a lot of protein, iron, iodine, Vitamin-A, folate, and other nutrients. Demand for nutritious food increases in the second and especially in the third trimester of pregnancy. Low nutrition, before and during pregnancy, causes impaired intrauterine growth and is one of the main reasons for the increase in LBW prevalence in the country. Low birth weight is very common in young mothers. Malnutrition is associated with maternal mortality and morbidity, infant and neonatal death, birth defects, and dementia. Women and children suffer from one or more types of malnutrition including low birth weight, weight loss, obesity, Vitamin-A deficiency, iodine deficiency disorders and anemia. Low birth weight babies grow and develop slowly and have a lower chance of survival than normal birth weight babies (BBS, 2011). A large number of investigations over past few decades have indicated that the causality of low birth weight is multifactorial. Among the many maternal and environmental factors that contribute to a child's growth and development, diet and nutrition play important critical roles. (UNICEF, 2013). Considering all these factors, this study was aimed to determine the level of knowledge and attitude towards nutrition among pregnant women in rural Dhaka, Bangladesh.

Materials and methods

It was a cross-sectional and descriptive type of study conducted in four randomly selected villages of Nawabganj region of Dhaka, Bangladesh. The study population was all pregnant women from the selected study site. Sample size was determined using appropriate

mathematical formula ($n=z^2pq/d^2$). Sample size was calculated at a confidence interval of 95% and significance level of 5%. The p value was considered 0.5 (50%). The calculated sample size was 384. The random sampling process was used to select the sample responders where the samples were selected from the study population by keeping a certain interval. Data were collected from the respondents using a semi-structured questionnaire by face-to-face interview, after taking participants' verbal consent. After data collection, all questionnaires were checked for completeness, correctness and internal consistency to exclude missing or inconsistent information. The revised data is included in the Statistical Package for Social Sciences (SPSS) statistical software version 20 for analysis.

Knowledge level is based on a scale of 0-15. Likert scale was used to assess the level of knowledge. Respondents who scored between 12-15 were rated excellent, those who scored 7-11 were rated as good, those who scored less than 7 were rated as poor. Attitude towards good nutrition was obtained based on a scale of 0-50. Likert scale was also used to assess attitude. Responders who scored 40-50 were rated very good attitude, those who scored 30-39 were rated good attitude, those who scored 20-29 were rated as poor attitude and those who scored 0-19 were rated as having very poor attitude. The anonymity and confidentiality of respondents were maintained strictly and study participants were informed that they could leave the study at any stage of data collection.

Results

Findings from the study indicate that the majority of the respondents (41.0%) were between the ages of 20 to 30. Respondents' mean age was 27.41 and SD was 2.64. More than one-fourth (28.0%) respondents completed SSC level education. 82.0% of respondents were housewives and about two third of the respondents (64.0%) belonged to joint family. Of all respondents, 63.0% of respondents were multigravida. (Table 01)

Table 01: Socio-demographic information of the respondents

Variables	Frequency	Percentage
Age group of the respondents		
<20 years	92	24.0
20-30 years	157	41.0
30-40 years	111	29.0
>40 years	23	6.0
Mean ± SD	27.41 ± 2.64	
Respondent's level of education		
Illiterate	31	8.0
Primary	73	19.0
Secondary	108	28.0
HSC	81	21.0
Graduate	61	16.0
Masters & above	31	8.0
Respondent's occupation		
Housewife	315	82.0
Govt. job	27	7.0
Private job	31	8.0
Business	12	3.0
Family type		
Nuclear	138	36.0
Joint	246	64.0
Number of pregnancies		
Primigravida	142	37.0
Multigravida	242	63.0

Data source: Field study

All respondents were asked fifteen questions related to knowledge on nutrition. These questions were directed to the nutrition, malnutrition and effect of nutrition. On the basis of the right answers, scoring was done. In terms of scores, 16.0% (61) respondent's level of knowledge was excellent, 45.0% (173) respondent's level of knowledge was good and the rest 39.0% (150) respondent's level of knowledge was poor. (Table 03)

Table 02: Distribution of the respondent's knowledge on nutrition

Statements	**Yes**		**No**	
	Fre.	**Per.**	**Fre.**	**Per.**
A balanced diet is important during pregnancy	200	52.0	184	48.0
Women nutrition during pregnancy is different from others	184	48.0	200	52.0
Iron is a source of vitamin	234	61.0	150	39.0
The daily recommended intake of iron for a woman during pregnancy is 27 mg	92	24.0	292	76.0
The daily recommended intake of protein for a woman during pregnancy is 50g	84	22.0	300	78.0
During pregnancy, a woman needs more folic acid and iron than a woman who is not pregnant	104	27.0	280	73.0
A pregnant woman must have at least 600 µg of folic acid from daily diet	111	29.0	273	71.0
Women should get 1000 mg of calcium daily during Pregnancy	81	21.0	303	79.0
Omega-3 and Omega-6 fatty acids are essential for brain and retina development of fetus	69	18.0	315	82.0
Nutrients deficiency during pregnancy could affect health status of mothers and baby	219	57.0	165	43.0
If woman was a normal weight before pregnancy, she should gain weight between 11.5 kg and 16.0 kg during pregnancy	165	43.0	219	57.0
Body mass index (BMI) of less than 18.5 kg/m^2 is a suitable weight during pregnancy	111	29.0	273	71.0
Additional energy needs should be tailored based on the woman's BMI before pregnancy	142	37.0	242	63.0
Underweight mother can affect fetal well-being and growth	157	41.0	227	59.0
Obese women are at an increased risk of several pregnancy problems	257	67.0	127	33.0

Data source: Field study

Table 03: Respondent's level of knowledge on nutrition according to their score

Level of knowledge	**Frequency**	**Percentage**
Excellent (12-15)	61	16.0
Good (7-11)	173	45.0
Poor (<7)	150	39.0

Data source: Software output

All respondents were asked ten questions related to their attitude toward nutrition. The questions were directed to nutrition, balanced diet, hygiene and eating habits. On the basis of the right answers, scoring was done. In terms of scores, 20.0% (77) respondent's level of attitude was very good, 23.0% (88) respondent's level of attitude was good, 23.0% (88) respondent's level of attitude was poor and the rest 34.0% (131) respondent's level of attitude was very poor. (Table 05)

Table 04: Distribution of the respondent's attitude towards nutrition

Statement	Strongly Agree		Agree		Neutral		Disagree		Disagree Strongly	
	n	%	n	%	n	%	n	%	n	%
Preparing a balanced meal is not time-consuming	65	17.0	81	21.0	100	26.0	65	17.0	73	19.0
It's important for mothers to know about preparing a balanced meal	92	24.0	100	26.0	61	16.0	69	18.0	61	16.0
A nutritious meal can come from one's own small garden	81	21.0	104	27.0	65	17.0	84	22.0	50	13.0
I should eat fruits only when I feel like	46	12.0	65	17.0	104	27.0	92	24.0	77	20.0
Vegetables must be overcooked to kill microbes	100	26.0	81	21.0	84	22.0	69	18.0	50	13.0
Self-view of nutritional status is important	104	27.0	88	23.0	69	18.0	73	19.0	50	13.0
Hygiene is more important than food and nutrition	73	19.0	100	26.0	77	20.0	73	19.0	61	16.0
Taking supplements is better than eating food	50	13.0	73	19.0	92	24.0	104	27.0	65	17.0
Processed foods are generally better than raw foods	108	28.0	100	26.0	115	30.0	31	8.0	31	8.0
It is not easy to maintain good nutrition for a poor family	65	17.0	73	19.0	100	26.0	81	21.0	65	17.0

Data source: Field study

Table 05: Respondent's level of attitude towards nutrition according to their score

Level of attitude	Frequency	Percentage
Very good (40-50)	77	20.0
Good (30-39)	88	23.0
Poor (20-29)	88	23.0
Very poor (0-19)	131	34.0

Data source: Software output

Discussion

Pregnant women are the most vulnerable to unhealthy eating habits, which are responsible for malnutrition. Pregnancy is an important time in the lives of women when they often experience many changes in their bodies. Pregnant women are exposed to physical, physiological and psychological changes throughout pregnancy. Increasing energy requirements, macronutrients and micronutrients are required throughout pregnancy to provide the necessary nutrients to the developing fetus and to ensure maternal health and well-being (Azizi et al., 2011). Women in developing countries are at risk of malnutrition and malnutrition during pregnancy leading to adverse pregnancy outcomes such as delays in fetal growth and development, premature birth, low birth weight and maternal anemia. This study was conducted to assess the level of knowledge and attitude of pregnant women regarding nutrition. A person's knowledge and attitude are influenced by a number of factors such as his or her educational status, occupation and other factors (Ganesh, 2009). In this study, the association of the respondent's level of knowledge with the socio-demographic status revealed a significant relationship between the respondent's level of knowledge and respondent's age group, family type and pregnancy number. No significant relationship was found in the case of respondent's education or work. (Table 06)

Table 06: Association of the respondent's knowledge level with socio-demographic status

Socio-demographic variables	Knowledge level			P value
	Excellent (61)	Good (173)	Poor (150)	
Age group				
<20 years	22	35	35	0.012
20-29 years	13	47	97	
30-39 years	18	77	16	
≥40 years	8	14	1	
Respondent's educational status				
Illiterate	3	16	12	0.164
Primary	10	35	28	
Secondary	16	42	50	
HSC	10	42	29	
Graduate	8	26	27	
Masters & above	14	12	5	
Respondent's occupation				
Housewife	44	134	136	0.134
Govt. job	8	11	8	
Private job	7	20	4	
Business	2	8	2	
Family type				
Nuclear	20	46	72	0.031
Joint	41	127	78	
No. of pregnancies				
Primigravida	24	44	74	0.045
Multigravida	37	129	76	

Data source: Software output

The association of the respondent's level of attitude with socio-demographic status revealed significant association between respondent's level of attitude and respondent's age group &number of pregnancies. No significant relationship was were found in the case of respondent's education, work or type of family. (Table 07)

Table 07: Association of the respondent's attitude level with socio-demographic status

Socio-demographic variables	Attitude level				P value
	Very good (77)	Good (88)	Poor (88)	Very poor (131)	
Age group					
<20 years	15	17	19	41	0.023
20-29 years	37	40	43	37	
30-39 years	22	29	24	36	
≥40 years	3	2	2	16	
Respondent's educational status					
Illiterate	5	9	9	8	0.195
Primary	8	17	20	28	
Secondary	29	19	25	35	
HSC	10	18	23	30	
Graduate	11	17	9	24	
Masters & above	14	8	2	7	

Respondent's occupation					
Housewife	64	72	74	105	0.134
Govt. job	5	7	8	7	
Private job	7	9	6	8	
Business	1	0	0	11	
Family type					
Nuclear	27	29	31	51	0.143
Joint	43	46	52	105	
No. of pregnancies					
Primigravida	21	26	24	71	0.047
Multigravida	48	56	59	79	

Data source: Software output

Conclusion

Based on the findings of the study, it can be concluded that more than half of the respondent's level of knowledge on nutrition was either excellent or good but only 43.0% respondents had excellent or good attitude towards nutrition. The level of knowledge was strongly associated with age group of respondents, the type of family and number of pregnancies and the level of attitude was corelated with respondent's age group and number of pregnancies. Based on the result of the study, it can be recommended that healthy nutrition education should be strengthened to empower rural mothers to understand the importance of nutritious food during pregnancy. Longitudinal studies on a large scale including all the variables related to knowledge and attitudes about diet and nutrition for women during pregnancy may be necessary to obtain additional information to determine the actual context.

Limitation of the study

The limitation of this study was the cross-sectional nature of the data that could obscure the causal effect relationships of different factors and it will lack qualitative data. The sample size is calculated as 384. However, more samples could posturize the findings more accurately.

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Conflict of interest

The authors declared no conflict of interest for this study.

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