

# Effectiveness of nutrition education intervention program for improving nutritional knowledge of unmarried adolescent girls in a slum of Dhaka city

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## Abstract

A quasi experimental study was carried out among 80 unmarried adolescent girls living in a slum of Dhaka city to disseminate nutrition education messages for the improvement of nutritional knowledge and awareness. Baseline information about socio-economic condition, food consumption pattern, sanitary and hygiene practices, nutritional knowledge of unmarried adolescent girls were collected by administering a pre tested questionnaire. One poster was formulated and practical food demonstration was also made for better understanding of the message. Effect of the nutrition education intervention was made in terms of pre test and post test knowledge. The monthly income of most of the respondent's family (37.5%) falls into 6001-9000 taka while 25% of family expense less than 6000 per month. Only 17.5% of the family spends more than Tk. 5000 per month on food consumption. The study shows that before intervention 88.8% respondents washed hands before eating, 73.8% respondents washed hands before cooking in food preparatory phase while after intervention both hand washing practice before eating and food preparatory phase were incremented to 100%. Respondent's knowledge about feeding practice in pre and post test shows that only 1.2% of the respondent had proper knowledge and 31.2% had partial knowledge about exclusive breast feeding while after intervention 95% of the respondents had proper knowledge about exclusive breast feeding. Only 8.8% of the respondents thought that colostrums feeding are mandatory for child which was changed to 93.8% after intervention. Before intervention only 15%, 7.5% and 20% of the adolescent girls had correct knowledge about energy yielding, body building and body protecting food respectively. After intervention 93.8%, 90% and 96.2% of respondents had correct knowledge about these three food groups. The improvement of knowledge about feeding practices and functional food groups was found to be statistically significant ( $P < 0.005$ ).

*Key words:* Nutrition education, Nutritional knowledge, Sanitary and hygiene practice

## Introduction

Adolescents (10-19 year olds) experience rapid social, physical, and emotional changes<sup>1,2</sup>. Adolescence is increasingly considered as the crucial phase in development of human that sets the stage for later life. Additionally, it is also high time to develop knowledge and skills, to learn to manage emotions and relationships and to acquire attributes and abilities that are vital for enjoying the adolescent years and assuming adult roles<sup>3</sup> (WHO 2014). About one-fifth of the world's populations are adolescent girls where 84% of them are from developing countries<sup>4</sup>. Accordingly in Bangladesh adolescents comprise more than one-fifth of the population with 13.7 million girls and 14 million boys<sup>5</sup>.

Adolescent girls are the most vulnerable to the effects of malnutrition, stunting, anaemia due to their frequently aberrant eating patterns, inadequate nutritional knowledge and poor dietary habits<sup>6,7</sup>.

Consequently, growth is hampered and this may be an important public health problem in the world<sup>8,9</sup>. According to Nurul Alam et al. prevalence of adolescent stunting in Bangladesh is 36%, about 30% have iron deficiency anemia and 25-27% have less haemoglobin level (haemoglobin < 12 g/dL)<sup>10</sup>.

Adolescent girls are the future mother so it is important that they know the correct knowledge about proper feeding, selection of foods and child care practices. Unmarried adolescent girls living in urban slum are often exposed to violence, sexual harassment, early marriage, along with poor sanitation, hygiene and environment pollution. Many causes of malnutrition can be prevented if the mothers know how to make the best use of their available resources. Nutrition education is a combination of arts and science that not only contributes nutritional

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information but also it help to understand people to maintain their good health, good sanitary practices, introduction of better food hygiene, more efficient use of food resources etc. Nutrition education is an effective tool to improve healthy dietary habits and food choices<sup>4,11</sup>. Hence the present study tries to find out the changes in nutritional knowledge, sanitary and hygiene practice of the target group due to nutrition education intervention program.

## Methods and materials

### Location and duration of the study

The study was carried out in the Kamrangichar slum of Dhaka City Corporation from July 2011 to June 2012.

### Selection procedure and sampling size

The selection of the adolescent was done in two stages. In the first stage a list of the households were made which had at least one unmarried adolescent girl and then 80 girls were selected for the study through random sampling.

### Data collection and knowledge dissemination

Baseline information about socio-economic condition,

food consumption pattern, sanitary and hygiene practices; nutritional knowledge were collected by administering a pre tested questionnaire.

One poster was formulated for the purpose of disseminating knowledge regarding functional food group, personal hygiene& sanitation and care seeking behaviors as per objective of the research. Practical food demonstration was also made for better understanding of the messages.

Prepared nutritional poster was shown and selected food items were demonstrated through organizing groups among the selected adolescent girls. There were 20 adolescent girls in each group. Each group was gathered for two times for intervention within a period of 15 days. Analysis was made to find out the effect of the nutrition education intervention in improving gain in nutritional knowledge, sanitary and hygiene practices among unmarried adolescent girl in slum.

### Statistical analysis

All analysis was done by SPSS 16.0 version. Microsoft office 2007 was used to prepare graphs.

## Results

**Table 1: Socio demographic information of the respondents**

Parameters	Frequency (Percentage)
<b>Age(years)</b>	
11-14	45 (56.2)
15-<18	35 (43.8)
<b>Educational qualification of respondent</b>	
Class 1-5	30 (37.5)
Class 6-8	23 (28.8)
Class 9-10	27 (33.8)
<b>Father's occupation</b>	
Works at shop	20 (25.0)
Businessman	12 (15.0)
Rickshaw puller	13 (16.2)
Others	14 (17.5)
<b>Mother's occupation</b>	
House wife	62 (77.5)
Works at shop	5 (6.2)
Garments worker	10 (12.5)
Others	3 (3.8)
<b>Family members</b>	
3-4	31 (38.8)
5-6	40 (50.0)
>6	9 (11.2)
<b>Earning members in respondent's family</b>	
1-2	66 (82.5)
3	12 (15)
Above 3	2 (2.5)

**Table 2: Percent distribution of the respondents by their monthly family income and family expenditure**

Parameters	Frequency ( Percentage)
Monthly income of respondent's family (BDT)	
<6000	13 (16.2)
6001-9000	34 (42.5)
9001-12000	19 (23.8)
>12000	14 (17.5)
Monthly expenditure of respondent's family (BDT)	
<6000	20 (25.0)
6001-7000	30 (37.5)
7001-8000	10 (12.5)
≥ 8000	20 (25.0)

**Table 3: Percent distribution of the respondents by their Sanitary and hygiene practices before and after intervention**

Sanitary and hygiene practices	Before intervention		After intervention	
	Frequency	Percentage	Frequency	Percentage
Washing hands before eating				
Always	71	88.8	80	100
Sometimes	9	11.2	0	0
Washing hands before cooking food in preparatory phase				
Always	59	73.8	80	100
Sometimes	21	26.2	0	0
Frequency of washing clothes in a week				
2 times	51	63.8	75	93.2
3 times	25	31.2	5	6.8
More than 3 times	4	5.0	0	0
Place of defecation				
Sanitary latrine	51	63.8	51	63.8
Open latrine	29	36.2	29	36.2
Using sandal when going to toilet or any dirty place				
Always	53	66.2	80	100
Sometimes	27	33.8	0	0
Use of sanitary materials during menstrual cycle				
Cloth	74	92.5	7	8.8
Cotton	3	3.8	3	3.8
Sanitary pad	0	0	70	87.5
Others	3	3.8	0	0
Process of cleaning hands after defecation				
with plain water only	8	10	0	0
with soap and water	64	80	78	97.5
with mud/ash and water	8	10	2	2.5

Table 1 states the socio-demographic information of the respondents. Around 38% of the respondents were in class 1-5. Most of the respondent's father works at shop (25%) while majority of the mothers (77.5) were house wife. Half of the respondent's family members were 5-6 in number. Above 82% of the respondent's family have 1-2 person earning members.

Table 2 reveals respondent's monthly family income and expenditure. The monthly income of most of the respondent's family (37.5%) falls into 6001-9000 taka while 25% of family expense were less than 6000 per month.

Table 3 shows the sanitary and hygiene practice of the respondents before and after intervention. Before

intervention 88.8% respondents wash hands before eating, 73.8% respondents wash hands before cooking in food preparatory phase while after intervention both hand washing practice before eating and food preparatory phase were incremented to 100%. There is no change in the place of defecation it may be due to the fact they had no alternative option. Only 66.2% of the respondents always use sandal for going to toilet or outside which was increased to 100% after intervention. Again 92.5% of the respondents use cloth and not a single one use sanitary pad during menstrual cycle. The scenario was changed significantly after intervention as 87.5% of the respondents started using sanitary pad and only 8.8% use cloth.

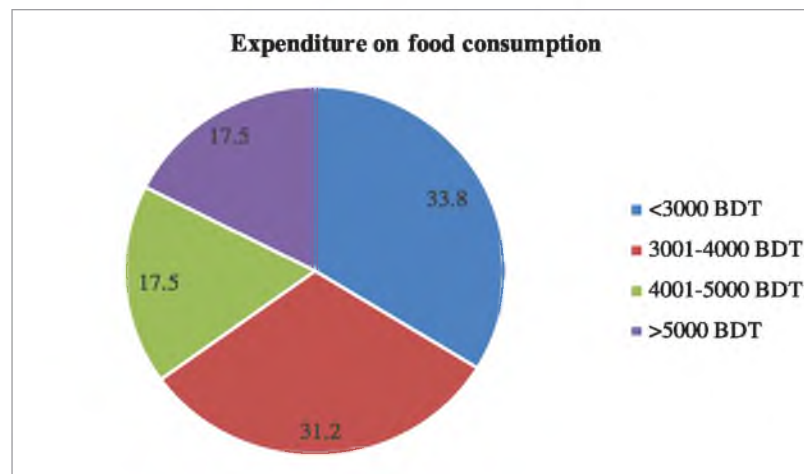


Figure 1: Percent distribution of the respondents according to monthly expenditure on food consumption.

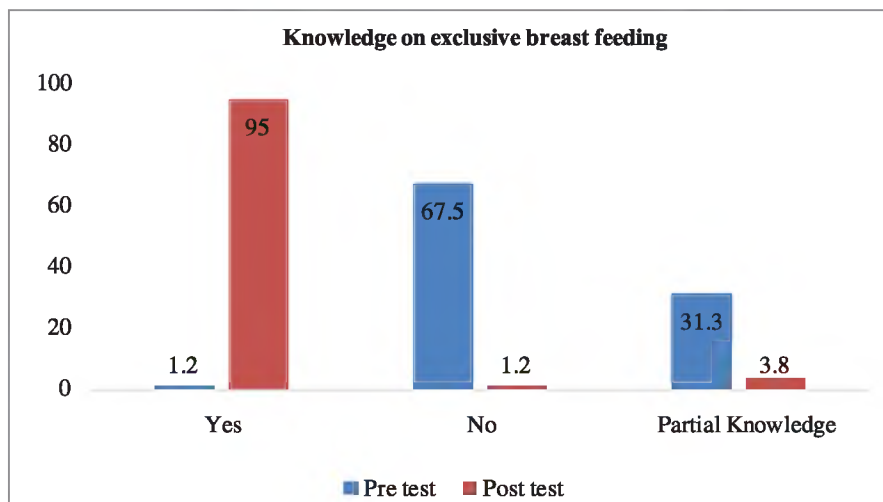


Figure 2: Percent distribution of the respondent's knowledge about exclusive breast feeding

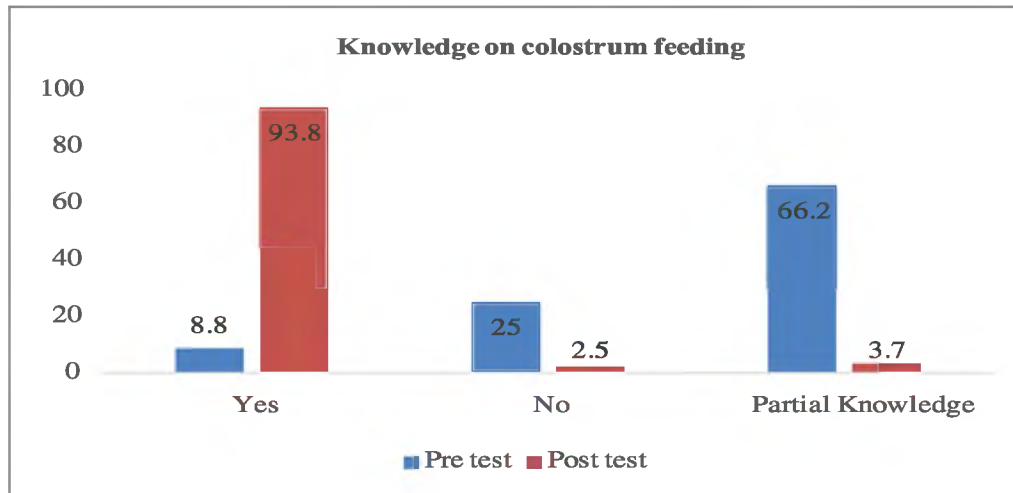


Figure 3: Percent distribution of the respondents knowledge about colostrum feeding

Table 4: Distribution of the respondents by knowledge about functional food groups

Knowledge		Before intervention	After intervention
		Frequency (%)	Frequency (%)
Energy yielding food	Yes	12 (15.0)	75 (93.8)
	No	49 (61.2)	1 (1.2)
	Partial knowledge	19 (23.8)	4 (5.0)
Body building food	Yes	6 (7.5)	72 (90)
	No	59 (73.8)	2 (2.5)
	Partial knowledge	15 (18.8)	6 (7.5)
Body protecting food group	Yes	16 (20.0)	77 (96.2)
	No	62 (77.5)	2 (2.5)
	Partial knowledge	2 (2.5)	1 (1.2)

Figure 1 illustrates the monthly food expenditure pattern of the surveyed adolescent's family. Only 17.5% of the family spends more than 5000tk per month on food consumption.

Figure 2 and 3 show respondent's knowledge about feeding practice in pre and post test. Only 1.2% of the respondent had proper knowledge and 31.2% had partial knowledge about exclusive breast feeding while after intervention 95% of the respondents had proper knowledge about exclusive breast feeding. Only 8.8% of the respondents knew that colostrum feeding is mandatory for child which was changed to 93.8% after intervention.

Table 4 reveals respondent's knowledge on

functional food groups both before and after nutrition education intervention. Significant changes about knowledge on food group were observed .Before intervention only 15%, 7.5% and 20% of the adolescent girls had correct knowledge about energy yielding, body building and body protecting food respectively. After intervention 93.8%, 90% and 96.2% of respondents had correct knowledge about these three food groups respectively.

The improvement of knowledge about feeding practices and functional food groups was found to be statistically significant (P <0.005).

## Discussion

The study reveals the effectiveness of nutrition education intervention program in improving the nutritional knowledge of unmarried adolescent girls in Kamrangi char area of Dhaka city Bangladesh. The pre test data shows that the study population had very poor knowledge about food groups, feeding practices and sanitary and hygiene practices. After showing the practical food demonstration and poster they had significant improvement about understanding the appropriate food groups, importance of exclusive breast feeding and colostrum feeding, sanitary and hygiene practices to have a good nutritional and health status. However as the study population were slum dwellers they could not change some sanitary practices as well as selecting proper foods for them as it depends on their purchasing power.

Finding from other studies shows that knowledge of nutrition among adolescents is poor and they are generally unaware of the need to consume healthy quantities of foods such as fish, meat, eggs, milk, vegetables, and fruits during pregnancy and lactation<sup>12</sup>. Nutritional status of urban adolescent girls

living in slum is miserable. A study conducted in the urban slums of Dhaka supported this finding, indicating that mean BMI for adolescent girls was 18.6<sup>13</sup>. The findings of the Bangladesh National Nutrition Survey, 1998 (relating to adolescents ages 10-17) reveal high levels of both stunting and thinness among adolescent girls<sup>14</sup>.

For changing nutritional and health status, it is necessary to establish KAP (knowledge, attitude and practice) among the vulnerable population. So far globally four different approaches have been tried to address the reproductive health needs of adolescents<sup>15</sup>. These are: school based programs, outreach programs, clinic-based programs, and social marketing mass media programs. However, a large proportion of adolescents are likely to be out of school at an early age in many low-income countries like Bangladesh. In that case an informal nutrition education intervention program like this will help in disseminating knowledge among unmarried adolescent girls living in slum. The knowledge gained by participating in this program will help them in future for proper nourishment and taking care of their children.

## References:

1. Amin, Sajeda et al. 2013. "The Adolescent Girls Vulnerability Index: Guiding Strategic Investment in Uganda." New York: Population Council.
2. Dube, S. and K. Sharma. 2012. "Knowledge, Attitude and Practice Regarding Reproductive Health among Urban and Rural Girls: A Comparative Study," *Ethno Med*, 6(2): 85-86.
3. World Health Organization (WHO). 2014. "Health for the World's Adolescents: A Second Chance in the Second Decade." <http://apps.who.int/adolescent/second-decade/section1>.
4. Raghunatha Rao, D., Vijayapushpam, T. G., Subba Rao, M., Antony, G. M., & Sarma, K. V. R. (2007). Dietary habits and effect of two different educational tools on nutrition knowledge of school going adolescent girls in Hyderabad, India. *European Journal of Clinical Nutrition* 61, 1081–1085; doi:10.1038/sj.ejcn.1602622.
5. National Plan of Action. 2013. "Adolescent Sexual and Reproductive Health." Dhaka: Directorate General of Family planning, Government of the People's Republic of Bangladesh.
6. Prashant, K., & Chandan Shaw (2009). Nutritional Status of Adolescent Girls from an Urban Slum Area in South India. *Indian Journal of Pediatrics*, Volume 76. DOI-10.1007/s12098-009-0077-2.
7. Gaikwad Surekha Ramrao (2013). Impact of nutrition education on adolescent girls of Purna Maharashtra. *Adv. Appl. Sci. Res.*, 4(1),386-39.

8. Kalhan, M., Vashisht, B.M., Kumar, V, & Sharma, S., (2010). “Nutritional status of adolescent girls of rural Haryana”, *The Internet J of Epidemiology*, vol 8 (1).
9. Pratibha Patanwar, & KKN Sharma (2013). Nutritional status of Kurmi adolescent girls of Raipur city Chhattisgarh, India. *International Journal of Scientific and Research Publications*, Volume 3, Issue 11, November.
10. Nurul Alam, Swapan Kumar Roy, Tahmeed Ahmed, and A.M. Shamsir Ahmed (2010). Nutritional Status, Dietary Intake, and Relevant Knowledge of Adolescent Girls in Rural Bangladesh. *J Health PopulNutr.* 28(1), 86–94.
11. Sachithananthan, V., Buzgeia, M., Awad, F., Omran, R., & Faraj, A. (2012). Impact of nutrition education on the nutritional status. *Nutrition & Food Science*, 42(3), 173-180.
12. Akhter, H.H., M-e-E Elahi, F. Karim, and K.K. Saha. *Knowledge Attitude and Practice of Mothers and Female Guardians on Nutrition of Adolescent Girls in Rural Bangladesh. Dhaka: BIRPEHET,1999.*
13. Baqui AH, Arifeen SE, Amin S, Black RE. Levels and correlates of maternal nutritional status in urban Bangladesh. *Euro J Clin Nutri* 48:349-57,1994.
14. Jahan, K. & Hossain, M. Nature and extent of malnutrition in *Bangladesh, Bangladesh National Nutrition Survey, 1995–1998.*
15. FOCUS on Young Adults. Reproductive health programs for young adults: school-based programs. FOCUS on young adults research series. Washington DC: 1997.