Knowledge Intervention on Nutrition among the Primary School Students

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Abstract

This quasi experimental study was done among the students of class V of 68 No. Islampur Primary School, Dhamrai, Dhaka to assess & intervene knowledge on nutrition. Purposively 104 students of class V were selected and interviewed with a structured, self-administered questionnaire. Then the respondents were taught with basic nutrition knowledge for 5 days and after completion of teaching, post intervention evaluation was done with same questionnaire. Then the answer scripts were evaluated to understand whether there were any changes in their knowledge on nutrition. As on the analysis it is clearly understood that there is huge difference and increase in percentage before and after the intervention. There was a satisfactory improve of knowledge after giving of intervention on nutrition. The primary objective was to assess the knowledge on nutrition to improve the health of the respondents. On the basis of the findings it may be concluded that the knowledge on nutrition is one of the major health concern, so creating awareness through intervention program on nutrition can reduce the malnutrition problem.

Keywords: Knowledge, nutrition.

Introduction

Life cannot be sustained without adequate nourishment. The word "nutrition" is often paired with the word "food". Nutrition is a science that encompasses all the interactions that occur between living organisms and food. The biological importance of food is dictated by the nutrients it contains [1]. Common belief is that acquiring nutritional knowledge will itself lead to improved dietary practices. Nutritional knowledge can be gained by means of nutrition education. Nutrition education can be defined as "the process of helping individuals to develop the knowledge, skills and motivation needed to make appropriate food choices throughout the life" [2]. The health habits established affects the quality of life. By practicing wellness, healthy life can be achieved. `Good habits for proper life management [3] includes Choosing and eating nutritious food, exercising regularly, having adequate sleep, learning to handle stress, avoiding harmful substances. Children who are overweight or obese are more likely to be overweight or obese in adulthood, and they are more likely to develop cardiovascular disease as well as Type II Diabetes Mellitus during childhood [4]. Though diet is incredibly complex, nutrition knowledge has been shown to correlate with healthier food choices [5]. Adolescents are future parents. Particularly women play a significant role in the development of their offspring [6]. So if they have better nutritional knowledge and awareness on nutrition they improve the nutritional status of family members and good health can be maintained. Despite the fact that adolescence is a window of opportunity to break the intergenerational cycle of malnutrition, adolescents are the neglected age groups. Hence information regarding the nutritional status of adolescents is lacking making creating and implementing intervention programs difficult. Adolescents constitute 20% of the world population and are estimated to be 1.13 billion by the year 2025 [7]. About 25% of the Ethiopian populations are adolescent. Adolescence is a period of rapid growth and development by which up to 45% of skeletal growth takes place and 15 to 25% of adult height is achieved [8]. In addition to the increased nutritional requirements during

adolescence period, poor dietary diversity and dietary inadequacies are more likely threats among adolescents due to their erratic eating pattern and having specific psychosocial factors [7].

Malnutrition passes from generation to generation, because adolescent girls that enter pregnancy with poor nutrient store are more likely to give birth to low birth weight or intrauterine growth restricted baby that is more vulnerable to metabolic disorders later in life [9]. So adolescence period is a unique opportunity to break a range of vicious cycles of structural problems that are passed from one generation to the next, such as poverty, gender discrimination, violence, poor health, and nutrition [7].

Background

A cross sectional study was conducted, to determine changes in nutrition knowledge, attitude and practice of 8-year-old school children after receiving a nutrition education package. A total of 418 school children from urban and rural areas participated in this study. The intervention group consisted of 237 children while 181 children who did not receive the nutrition education package acted as controls. The nutrition education program that was conducted for 3 weeks comprised of a video viewing session and a comic reading session followed by exercise questions as reinforcement for each session, and also classroom activities. Knowledge, attitude and practice questionnaires were distributed to the children before pre-intervention and after post intervention receiving the nutrition education program. A follow-up visit was conducted six months after the program had elapsed. The results obtained indicated that the nutrition knowledge score increased significantly in the intervention group from 48.3±13.2 at pre-test to 54.6±16.2 in post-test and 55.0±14.3 in follow-up test (p<0.05). The nutrition attitude score also increased significantly from 68.7±15.5 at pre-intervention to 72.6±15.0 and 74.7±15.8 during post-test and follow-up test respectively (p<0.05). However, the nutrition practice score had no significant improvement in both groups throughout the study period. There were no significant changes in the control group in knowledge, attitude and practice scores at pre, post and follow-up tests. In conclusion, this study showed that a good nutrition education program had a positive impact whereby better nutrition knowledge; attitude and healthy eating habits in children were seen. It is hoped that the improvements would be sustained throughout their lives [10]. A cluster-randomized controlled-trial examining the effect of a school-based comprehensive intervention on nutrition knowledge, eating habits, and behaviors among low socioeconomic status (LSES) school-aged children was performed. LSES school-aged children (4–7years) and their mothers were recruited from11schools, located in one town. The intervention was implemented on three levels: children, mothers, and teachers. The intervention (IArm) included nutrition classes for children, mothers, and teachers and physical activity (PA) classes for children; the control (C Arm) received PA only. Interventions were conducted by professional personnel, who were trained during in a two-day session to deliver the specific program in schools. Family data were obtained by parental interviews. Food knowledge observations, packed lunch records, and anthropometric measurements were obtained in school at baseline, six months, and at the end of the school year. Of 258 children enrolled, 220 (87.6%) completed the six-month program. Only children in the I Arm improved their nutrition knowledge and eating-habits and increased food variety and fruit and vegetable consumption, quality score of packed lunches (p < 0.001 for all), habitual water drinking increased (p = 0.02), and decreased sweet-drink consumption (p = 0.05). A school-based comprehensive nutrition intervention targeting LSES population improved eating habits, nutritional knowledge, and healthier packed lunches [11].

A randomized educational controlled trial was carried out on 221 primary school age children selected by cluster sampling in the elementary schools of Shiraz-Iran. The intervention consisted of 6 nutrition education sessions carried out through one year for children, using active learning methods. Mothers' education was carried out in person in both lecture and question-answer sessions also via sending text messages and pamphlets. Weight, height and waist circumference (WC) of children were measured before and after the intervention. Also a 168-item food frequency questionnaire was completed. Two separate nutrition knowledge questionnaires were filled up by children and their mothers. Data were analyzed using SPSS version 16. Results: 171 children (83 in the case and 88 in the control group), aged 9.5-10.5

years, completed the study. Anthropometric and nutritional knowledge of the participants in both the intervention and control groups was significantly increased. Weight, height, WC and nutritional knowledge increased significantly more in the intervention group compared to the controls. Consumption of fruits and vegetables decreased in the intervention group while plain sugar and fast foods intake increased among the controls. There were no significant differences between the changes in the intake of any of the food groups in the two groups. Conclusions: In conclusion, the designed nutrition education program could increase students' nutritional knowledge, and lead to a non-significant change towards reducing the consumption of unhealthy foods such as fast foods, sweets and salty snacks.

Nutritional status of today reflects a healthy and productive generation in future. Especially for primary school children, nutritional condition is a critical factor for optimum growth and it should neither be inadequate nor is excessive malnutrition usually the result of a combination of inadequate dietary intake and infection. In children, malnutrition is synonymous with growth failure. Malnourished children are shorter and lighter in weight than they should be for their age. With the high incidence of poverty and HIV/ AIDS, prevalence of malnutrition is also high. Malnutrition needs to be viewed as an indication of inadequate provision of some of the most basic of all human rights. It is also a reflection of inadequate investment and progress in a range of issues related to human capital development and has a significant influence on the future economic development of a country. Study showed that majority (93.6%) of the school children were suffering from underweight (BMI) and very few (6.4%) of them had normal BMI. Similar findings had found in the study done by Adhikary M et al. among primary school children in one Upazila (sub district) where it was found that more than two third children were underweight. According to WHO 48% of children were malnourished and 10% of them were severely malnourished. In case of WAZ, more than two thirds (79.10%) were normal. In case of HAZ, almost majority (80%) were normal and in case of WHZ, more than half (55.50%) were normal range. Previous study found that more than 54% of preschool-age children, equivalent to more than 9.5 million children, were stunted, 56% were underweight and more than 17% were wasted [12].

Methods

Study design and sample

The study was quasi-experimental study. This study was conducted for a period from 12th February, 2017 to 9th March, 2017 in 68 no. Islampur Primary School, Dhamrai, Dhaka. The target population of this research was Class V students. Non cooperative, ill students were excluded from the study. The ultimate sample size for the study was 104 which were selected by purposive sampling. Each sample was collected from selected school. A structured questionnaire was used to collect data. Method of data collection was Self-administered method by the respondents. Permission was taken from the ethical review committee of NIPSOM and Headmaster of 68 No. Islampur Primary School, Dhamrai Dhaka. All participants were treated equally. All participants of the study were informed about the research and consent was taken. Before going to the process of data collection, pretesting was carried out on 10 students in 68 No. Islampur Primary School, Dhamrai, Dhaka to finalize to procedure and to evaluate the effectiveness of the research instrument. Modifications were made as necessary and the research instrument was finalized. Data was collected by Self-administered method by the respondents who fulfilled the selection criteria. The data were collected by a prepared pre-tested questionnaire. The analysis were include description of the study population by their socio-demographic characteristics at first instance using certain descriptive statistics, frequency distribution tables on frequencies, percentages, mean, median & SD. In order to find out association between two or more variables Chi-Square test and Fisher's exact test were performed to see the statistical significance. Graphical software was used for creation of charts by using Microsoft Excel.

Analysis

Collected data were checked-rechecked, edited, coded and recorded for quality management. Data were analyzed with SPSS 22. To assess or measure the objectives, for descriptive statistics-frequency, percentage, mean, median, standard deviation (SD) were used for socio-demographic factors. For test of significance, Chi-square test was done to see the relation between (dependent variable) and associated factors (independent variable). For all statistical test used in this study, statistically significant level set as p≤.05.

Result

This quasi-experimental study was carried out on 104 students in 68 no. Islampur Primary School, Dhamrai, Dhaka. The main purpose of the study was to assess & intervene the knowledge on nutrition among the primary school students. Participation of this study who were selected purposively and each participant was provided with a consent form. After completion of data analysis, the results were organized in the tabular form and figures as necessary respectively. There is difference in the percentage before and after intervention. On an average 70% of people are got awareness of their food habits after the intervention. The tables and figures are described below. The findings of the study are presented in the subsequent pages.

A. Distribution of respondents by knowledge on components of food pre and post intervention (n=104)

Table-1 shows that before intervention 62.1% respondents know carbohydrate, 69.9% know protein, 43.7% know fat, 73.8% know vitamin and 4.9% don't know as the components of food and after intervention 97.1% know carbohydrate, 97.1% know protein, 90.3% know fat, 91.3% know vitamin as the components of food.

Table 1. Distribution of respondents by knowledge on components of food pre and post intervention (n=104)

Components of food	Before intervention		After intervention	
	Frequency	Percentage	Frequency	Percentage
Carbohydrate	64	62.1%	100	97.1%
Protein	72	69.9%	100	97.1%
Fat	45	43.7%	93	90.3%
Vitamin	76	73.8%	94	91.3%
Don`t know	4	4.9%	0	0.0%

B. Distribution of respondents by knowledge on examples and function of carbohydrate, protein and fat pre and post intervention (n=104)

Table-2 shows that before intervention 85.6% respondents know rice, 23.1% know fish-meat, 74.0% know bread, 75.0% know potato and 2.9% don't know as the examples of carbohydrate and after intervention 96.2% respondents know rice, 11.5% know fish-meat, 92.3% know bread, 96.2% know potato and 0.0% don't know as the examples of carbohydrate.Table-2 shows that before intervention 26.9% respondents know improves intelligence, 65.4% know body building, 46.2% know prevent disease, 20.2% know provide energy and 9.6% don't know as the functions of carbohydrate and after intervention 29.4% respondents know improves intelligence, 49.0% know body building, 43.1% know prevent disease, 52.9% know provide energy and 1.0% don't know as the functions of carbohydrate. Table-2 shows that before intervention 65.4% respondents know fish, 51.0% know vegetables, 65.4% know meat, 27.9% know fruits and 1.9% don't know as the examples of protein rich food and after intervention 37.6% respondents know fish, 13.5% know vegetables, 37.6% know meat, 11.4% know fruits and 0.0% don't know as the examples of protein rich food. Table-2 shows that before intervention

43.3% respondents know body building, 44.2% know disease prevention, 37.5% know provide calorie, 44.2% know prevent muscle decay and 7.7% don't know as the functions of protein and after intervention 70.2% respondents know body building, 53.8% know disease prevention, 43.3% know provide calorie, 44.2% know prevent muscle decay and 0.0% don't know as the functions of protein. Table-2 shows that before intervention 79.8% respondents know meat, 22.1% know fruits, 42.3% know fish, 23.1% know vegetables and 8.7% don't know as the examples of fat and after intervention 89.4% respondents know meat, 12.5% know fruits, 64.4% know fish, 18.3% know vegetables and 1.0% don't know as the examples of fat. Table-2 shows that before intervention 46.2% respondents know body building, 28.8% know prevent disease, 33.7% know provide calorie, 28.8% know improve intelligence and 11.5% don't know as the functions of fat and after intervention 46.2% respondents know body building, 30.8% know prevent disease, 52.9% know provide calorie, 38.5% know improve intelligence and 4.8% don't know as the functions of fat.

Table 2. Distribution of respondents by knowledge on examples and function of carbohydrate, protein and fat pre and post intervention (n=104):

Examples of carbohydrate	Before intervention		After intervention	
	Frequency	Percentage	Frequency	Percentage
Rice	89	85.6%	100	96.2%
Fish-meat	24	23.1%	12	11.5%
Bread	77	74.0%	96	92.3%
Potato	78	75.0%	100	96.2%
Don`t know	3	2.9%	0	0.0%
Functions of carbohydrate				
Improves intelligence	28	26.9%	30	29.4%
Body building	68	65.4%	50	49.0%
Prevent disease	48	46.2%	44	43.1%
Provides energy	21	20.2%	54	52.9%
Don`t know	10	9.6%	1	1.0%
Examples of protein food				
Fish	68	65.4%	89	37.6%
Vegetables	53	51.0%	32	13.5%
Meat	68	65.4%	89	37.6%
Fruits	29	27.9%	27	11.4%
Don`t know	2	1.9%	0	0.0%
Functions of protein				
Body building	45	43.3%	73	70.2%
Disease prevention	46	44.2%	56	53.8%
Provide calorie	39	37.5%	45	43.3%
Prevent muscle decay	46	44.2%	46	44.2%
Don`t know	8	7.7%	0	0.0%
Examples of fat				
Meat	83	79.8%	93	89.4%
Fruits	23	22.1%	13	12.5%
Fish	44	42.3%	67	64.4%

Vegetables	24	23.1%	19	18.3%
Don`t know	9	8.7%	1	1.0%
Functions of fat				
Body building	48	46.2%	48	46.2%
Prevent disease	30	28.8%	32	30.8%
Provide calorie	35	33.7%	55	52.9%
Improve intelligence	30	28.8%	40	38.5%
Don`t know	12	11.5%	5	4.8%

C. Distribution of respondents by knowledge on examples and deficiency disease of vitamin A and vitamin C rich food pre and post intervention (n=104)

Table-3 shows that before intervention 96.2% respondents know green vegetables, 16.3% know yellow vegetables, 57.7% know fruits, 7.7% know mola-dhela fish and 1.9% don't know as the examples of vitamin A rich food and after intervention 90.4% respondents know green vegetables, 22.1% know yellow vegetables, 64.4% know fruits, 38.5% know mola-dhela fish and 1.0% don't know as the examples of vitamin A rich food. Table-3 shows that before intervention 91.3% respondents know night blindness, 47.1% know oral ulcer, 7.7% know weight gain, 19.2% know kidney disease and 1.9% don't know as diseases due to deficiency of vitamin A and after intervention 92.3% respondents know night blindness, 34.6% know oral ulcer, 10.6% know weight gain, 8.7% know kidney disease and 0.0% don't know as diseases due to deficiency of vitamin A. Table-3 shows that before intervention 59.6% respondents know green vegetables, 36.5% know sour fruits, 36.5% know sweet fruits, 8.7% know yellow fruits and 7.7% don't know as the examples of vitamin C rich foods and after intervention 54.8% respondents know green vegetables, 50.0% know sour fruits, 33.7% know sweet fruits, 10.6% know yellow fruits and 5.8% don't know as the examples of vitamin C rich foods. Table-3 shows that before intervention 69.2% respondents know oral ulcer, 24.0% know leg ulcer, 18.3% know weight gain, 29.8% know common cold a5.8nd % don't know as the diseases of due to vitamin C deficiency and after intervention 83.7% respondents know oral ulcer, 21.2% know leg ulcer, 9.6% know weight gain, 38.5% know common cold and 1.0% don't know as the diseases of due to vitamin C deficiency.

Table 3. Distribution of respondents by knowledge on examples and deficiency disease of vitamin A and vitamin C rich food pre and post intervention (n=104)

Examples of vitamin A rich food	Before intervention		After intervention	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Green vegetables	100	96.2%	94	90.4%
Yellow vegetables	17	16.3%	23	22.1%
Fruits	60	57.7%	67	64.4%
Mola-dhela fish	8	7.7%	40	38.5%
Don`t know	2	1.9%	1	1.0%
Diseases due to deficiency of vitamin A				
Night blindness	95	91.3%	96	92.3%
Oral ulcer	49	47.1%	36	34.6%
Weight gain	8	7.7%	11	10.6%
Kidney disease	20	19.2%	9	8.7%
Don`t know	2	1.9%	0	0.0%
Examples of vitamin C rich foods				
Green vegetables	62	59.6%	57	54.8%
Sour fruits	38	36.5%	52	50.0%

Sweet fruits	38	36.5%	35	33.7%
Yellow fruits	9	8.7%	11	10.6%
Don`t know	8	7.7%	6	5.8%
Diseases due to deficiency of vitamin C				
Oral ulcer	72	69.2%	87	83.7%
Leg ulcer	25	24.0%	22	21.2%
Weight gain	19	18.3%	10	9.6%
Common cold	31	29.8%	40	38.5%
Don`t know	6	5.8%	1	1.0%

D. Distribution of respondents by knowledge on sources and deficiency disease of iodine and iron pre and post intervention (n=104)

Table-4 shows that before intervention 44.2% respondents know sea-fish, 34.6% know body fruits, 50.0% know table salt, 27.9% know vegetables and 14.4% don't know as the sources of iodine and after intervention 79.8% respondents know sea-fish, 8.7% know body fruits, 78.8% know table salt, 10.6% know vegetables and 2.9% don't know as the sources of iodine. Table-4 shows that before intervention 32.7% respondents know autism, 46.2% know eye problem, 34.6% know kidney problem, 51.0% know goiter and 11.5% don't know as the diseases due to deficiency of iodine and after intervention 74.0% respondents know autism, 19.2% know eye problem, 11.5% know kidney problem, 69.2% know goiter and 1.0% don't know as the diseases due to deficiency of iodine. Table-4 shows that before intervention 50.0% respondents know fish, meat, liver, 44.2% know lal shak, 32.7% know green banana, 41.3% know kochu shak and 21.2% don't know as the source of iron and after 54.8% respondents know fish, meat, liver, 44.2% know lal shak, 48.1% know green banana, 52.9% know kochu shak and 12.5 as the source of iron. Table-4 shows that before intervention 48.5% respondents know cancer, 56.3% know anemia, 29.1% know oral ulcer, 38.8% know eye problem and 9.7% don't know as the diseases of due to deficiency of iron and after intervention 31.7% respondents know cancer, 80.8% know anemia, 18.3% know oral ulcer, 11.5% know eye problem and 2.9% don't know as the diseases of due to deficiency of iron.

Table 4. Distribution of respondents by knowledge on sources and deficiency disease of iodine and iron pre and post intervention (n=104)

Sources of iodine	Before intervention		After intervention	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Sea fish	46	44.2%	83	79.8%
Fruits	36	34.6%	9	8.7%
Table salt	52	50.0%	82	78.8%
Vegetables	29	27.9%	11	10.6%
Don`t know	15	14.4%	3	2.9%
Diseases due to deficiency iodine				
Autism	34	32.7%	77	74.0%
Eye problem	48	46.2%	20	19.2%
Kidney problem	36	34.6%	12	11.5%
Goiter	53	51.0%	72	69.2%
Don`t know	12	11.5%	1	1.0%
Sources of iron				
Fish, meat, liver	52	50.0%	57	54.8%
Lal shak	46	44.2%	46	44.2%
Green banana	34	32.7%	50	48.1%

Kochu shak	43	41.3%	55	52.9%
Don`t know	22	21.2%	13	12.5%
Diseases due to deficiency of iron				
Cancer	50	48.5%	33	31.7%
Anemia	58	56.3%	84	80.8%
Oral ulcer	30	29.1%	19	18.3%
Eye problem	40	38.8%	12	11.5%
Don`t know	10	9.7%	3	2.9%

E.   Distribution of respondents by knowledge on daily water requirement, ideal food, its example; balanced diet and fiber rich food and its benefit pre and post intervention (n=104)

Table-5 shows that before intervention 27.9% respondents know two liter, 25.0% know three liter, 15.4% know four liter, 45.2% know five liter and 19.2% don't know as daily water requirement of a 70 kg man and after intervention 3.9% respondents know two liter, 83.5% know three liter, 6.8% know four liter, 7.8% know five liter and 1.0% don't know as daily water requirement of a 70 kg man. Table-5 shows that before intervention 70.9% respondents know food contains 5 components, 13% know food contains only carbohydrate, 21.4% know food contains only protein, 40.8% know food contains carbohydrate & protein and 7.8% don't know about the ideal food and after intervention 87.5% respondents know food contains 5 components, 6.7% know food contains only carbohydrate, 8.7% know food contains only protein, 7.7% know food contains carbohydrate & protein and 3.8% don't know about the ideal food. Table-5 shows that before intervention 79.8% respondents know rice, 74.0% know milk, 46.2% know meat, 78.8% know egg and 2.9% don't know as examples of ideal food and after intervention 14.4% respondents know rice, 96.2% know milk, 19.2% know meat, 95.2% know egg and 0.0% don't know as examples of ideal food. Table-5 shows that before intervention 43.3% respondents know carbohydrate(50-55%), 30.8% know vitamin, 27.9% know protein (15-20%), 19.2% know fat(30-35%) and 30.8% don't know as the ratio of balanced diet and after intervention 83.7% respondents know carbohydrate(50-55%), 38.5% know vitamin, 70.2% know protein (15-20%), 63.5% know fat(30-35%) and 5.8% don't know as the ratio of balanced diet. Table-5 shows that before intervention 57.3% respondents know vegetables, 40.8% know fruit, 19.4% know milk, 55.3% know fish-meat and 6.8% don't know as the examples of fiber rich foods and after intervention 82.7% respondents know vegetables, 76.9% know fruit, 8.7% know milk, 32.7% know fish-meat and 1.0% don't know as the examples of fiber rich foods. Table-5 shows that before intervention 32.7% respondents know prevent constipation, 62.5% know improve vision, 21.2% know prevent colon cancer, 21.2% know prevent hemorrhoid and 19% don't know as the benefits of fiber rich foods and after intervention 81.7% respondents know prevent constipation, 30.8% know improve vision, 70.2% know prevent colon cancer, 70.2% know prevent hemorrhoid and 1.9% don't know as the benefits of fiber rich foods.

Table 5. Distribution of respondents by knowledge on daily water requirement, ideal food, its example; balanced diet and fiber rich food and its benefit pre and post intervention (n=104)

Daily water requirement	Before intervention		After intervention	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Two Liter	29	27.9%	4	3.9%
Three liter	26	25.0%	86	83.5%
Four liter	16	15.4%	7	6.8%
Five liter	47	45.2%	8	7.8%
Don`t know	20	19.2%	1	1.0%
Ideal food				
Food contain 5 components	73	70.9%	91	87.5%

Food contains only carbohydrate	13	12.6%	7	6.7%
Food contains only protein	22	21.4%	9	8.7%
Food contains carbohydrate & protein	42	40.8%	8	7.7%
Don`t know	8	7.8%	4	3.8%
Examples of ideal food				
Rice	83	79.8%	15	14.4%
Milk	77	74.0%	100	96.2%
Meat	48	46.2%	20	19.2%
Egg	82	78.8%	99	95.2%
Don`t know	3	2.9%	0	0.0%
Balanced diet				
Carbohydrate (50-55%)	45	43.3%	83	83.7%
Vitamin	32	30.8%	40	38.5%
Protein (15-20%)	29	27.9%	73	70.2%
Fat (30-35%)	20	19.2%	66	63.5%
Don`t know	32	30.8%	6	5.8%
Examples of fiber rich foods				
Vegetables	58	57.3%	86	82.7%
Fruit	42	40.8%	80	76.9%
Milk	20	19.4%	9	8.7%
Fish-meat	57	55.3%	34	32.7%
Don`t know	7	6.8%	1	1.0%
Benefits of fiber rich food				
Prevent constipation	34	32.7%	85	81.7%
Improve vision	65	62.5%	32	30.8%
Prevent colon cancer	22	21.2%	73	70.2%
Prevent hemorrhoids	22	21.2%	73	70.2%
Don`t know	19	18.3%	2	1.9%

F. Distribution of respondents by knowledge on examples of fast food and its hazard pre and post intervention (n=104)

Table-6 shows that before intervention 83.5% respondents know burger, 17.5% know rice, 51.5% know hotdog, 70.9% know pizza and 3.9% don't know as the examples of fast food and after intervention 96.2% respondents know burger, 4.8% know rice, 85.6% know hotdog, 99.2% know pizza and 0.0% don't know as the examples of fast food. Table-6 shows that before intervention 78.8% respondents know weight gain, 30.8% know cancer, 29.8% know high blood pressure, 33.7% know sleep disturbance and 5.8% don't know as hazards of fast food and after intervention 82.7% respondents know weight gain,

27.9% know cancer, 43.3% know high blood pressure, 30.8% know sleep disturbance and 4.8% don't know as hazards of fast food.

Table 6. Distribution of respondents by knowledge on examples of fast food and its hazard pre and post intervention (n=104)

Examples of fast food	Before intervention		After intervention	
	Frequency	Percentage	Frequency	Percentage
Burger	86	83.5%	100	96.2%
Rice	18	17.5%	5	4.8%
Hotdog	53	51.5%	89	85.6%
Pizza	73	70.9%	98	99.2%
Don`t know	4	3.9%	0	0.0%
Hazards of fast food				
Weight gain	82	78.8%	86	82.7%
Cancer	32	30.8%	29	27.9%
High blood pressure	31	29.8%	45	43.3%
Sleep disturbance	35	33.7%	32	30.8%
Don`t know	6	5.8%	5	4.8%

G. Distribution of respondents by knowledge on keeping the quality of vegetables by washing and foods which improves defense mechanism pre and post intervention (n=104)

Table-7 shows that before intervention 47.1% respondents know washing before cutting, 34.6% know washing after cutting, 57.7% know washing before & after cutting, 5.8% know cutting without washing of vegetables and 6.7% don't know as to keep the quality of vegetables and after intervention 87.5% respondents know washing before cutting, 10.6% know washing after cutting, 22.1% know washing before & after cutting, 2.9% know cutting without washing of vegetables and 1.0% don't know as to keep the quality of vegetables. Table-7 shows that before intervention 76.0% respondents know vegetables, 61.5% know fruits, 48.1% know milk, 37.1% know fish-meat and 7.7% don't know as the foods improving the defense mechanism of the body and after intervention 79.8% respondents know vegetables, 53.8% know fruits, 48.1% know milk, 43.1% know fish-meat and 3.8% don't know as the foods improving the defense mechanism of the body.

Table 7. Distribution of respondents by knowledge on keeping the quality of vegetables by washing and foods which improves defense mechanism pre and post intervention (n=104)

Keeping the quality of vegetables	Before intervention		After intervention	
	Frequency	Percentage	Frequency	Percentage
Washing before cutting	49	47.1%	91	87.5%
Washing after cutting	36	34.6%	11	10.6%
Washing before & after cutting	60	57.7%	23	22.1%
Cutting without washing	6	5.8%	3	2.9%
Don`t know	7	6.7%	1	1.0%
Foods improving defense mechanism				
Vegetables	79	76.0%	83	79.8%

Fruits	64	61.5%	56	53.8%
Milk	50	48.1%	50	48.1%
Fish-meat	39	37.5%	43	41.3%
Don`t know	8	7.7%	4	3.8%

Discussion

The study KNOWLEDGE INTERVENTION ON NUTRITION AMONG THE PRIMARY SCHOOL STUDENTS was conducted at the 68 No. Islampur Govt. Primary School, Dhamrai, Dhaka from 26th February, 2017 to 2nd march, 2017. The sample was of 104 students of class V of 68 No. Islampur Govt. Primary School. They were asked a questionnaire with 25 questions about the knowledge on nutrition and then the intervention of knowledge on nutrition was given to improve their knowledge on nutrition. After completion of the intervention, post intervention evaluation was done by the same questionnaire. In this study 104 respondents were participated. Among the respondents before intervention 75.0% and after intervention 96.2% knew potato as carbohydrate. 20.2% knew the functions of carbohydrate before intervention and after intervention 52.9% knew. Functions of protein knew 43.3% before intervention and 70.2% after intervention. Before intervention 33.7% knew the functions of fat and after intervention 52.9%. Mola-dhela fish is a source of vitamin A knew 7.7% before intervention after intervention 38.5% knew. Before intervention 69.2% knew oral ulcer is caused by vitamin C deficiency and after intervention 83.7% knew. Before intervention 44.2% knew sea fish, 50.0% knew table salt and after intervention 79.8% knew sea fish and 78.8% knew as the source of iodine. 32.7% knew autism and 51.0% knew goiter before intervention and 74.0% knew autism and 69.2% knew goiter after intervention as the disease caused by iodine deficiency. Before intervention 56.3% knew anemia caused by iron deficiency and 80.8% knew after intervention. 70.9% respondents knew there are 5 components of food before intervention and after intervention 87.5%. Before intervention 74.0% respondents knew milk as a ideal food but after intervention 96.2% knew milk as an ideal food. About fiber rich food before intervention 32.7% respondents knew it prevents constipation, 21.2% knew it prevents colon cancer and after intervention 81.7% knew it prevents constipation, 70.2% respondents knew it prevents colon cancer. 25.0% respondents knew that a healthy man requires 3 liter water daily before intervention but after intervention 83.5% respondents knew that a healthy man requires at least 3 liter water daily. Before intervention 47.1% knew that vegetables should washed before cutting but after intervention 87.5% knew the correct procedure to keep the quality of vegetables. From the above information we may conclude that the respondents were eager to receive knowledge on nutrition. We see a radical improvement on knowledge among the respondents after giving intervention in short period of time.

Conclusion

The present study showed that the nutrition education intervention conducted over a period of 5 days has a positive impact on nutrition knowledge. Nutrition Education Intervention Improves Nutrition among 68 No. Islampur Govt. Primary school students. The implementation period of the intervention, its concept, content, and presentation strategies and support from teachers and schools are the major factors that have contributed to the outcomes of the intervention. The provision of necessary nutrition knowledge and skills to children in promoting healthy dietary behaviors is integral to long-term health and nutrition of children as dietary behaviors established during childhood may well extend into adolescence and adulthood. It is equally important to address the factors within the child's familial environment such as increasing parental awareness on ways to make healthful foods more available and accessible at homes for their children, encouraging breakfast consumption, avoiding excessive control of children's food intake and modeling of healthy food behaviors. As parents provide both genetic and eating environments further studies are imperative to understand their influences on children's dietary behaviors. Besides parental influence, there is also an increasing concern on the impact of food marketing through television a marketing strategy on dietary intake of children. More studies are urgently needed to understand the

relationship between food marketing and health and nutrition of children. Nevertheless, concerted efforts from various segments of the society such as the family, school, community, media, government and food industry is crucial to create an environment that facilitates children to establish healthy eating behavior.

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