



EFFECT OF NUTRITIONAL EDUCATION THROUGH LECTURE AND PAMPHLET METHODS ON BREAKFAST CONSUMPTION BEHAVIOR AMONG PRIMARY SCHOOL GIRLS IN AHVAZ

Mina Barandisheh Naqibi¹, Khodabakhsh Karami^{1*} and Qodratollah Shakerinezhad²

¹Department of Public Health, School of Public Health, Jondishapur University of Medical Sciences, Ahvaz, Iran.

²Khuzestan University Jihad, Health Education Research Group, Ahvaz, Iran.

Received for publication: March 11, 2015; Accepted: April 05, 2015

Abstract: Purpose and Background: Nutrition is an important factor in the health and educational success of students. Breakfast is a main meal and skipping it would constitute a significant reason for pre-school children's academic failure as well as pre-school children's growth disorders. This study aims to compare the effects of lecture and pamphlet educational methods on the knowledge, attitude, and performance of the 4th and 5th grade primary school girls in Ahvaz regarding their breakfast consumption behavior. Methodology: The three group intervention method was implemented. The 165 students selected for the study were classified into three groups (55 students in each group), namely, Intervention Group 1 (lecture), Intervention Group 2 (pamphlet), and Control Group. First, the research questionnaires comprising 15 questions on knowledge domain, 12 questions on attitude, and 11 questions on performance were completed. Four educational sessions were held for the intervention groups within two weeks. After three months, the second phase questionnaires were completed. The obtained data were subsequently analyzed through SPSS 16.

Findings: The mean knowledge scores obtained before and after intervention in the three groups were as follows:

- Lecture Group: Before: 21; After: 27.9
- Pamphlet Group: Before: 21.7; After: 25.6
- Control Group: Before: 43.5; After: 42.9

The mean knowledge, attitude, and performance scores in the lecture and pamphlet groups were significantly greater than those in the control group ($P > 0.0001$). Upon intervention, these scores were significantly greater in the lecture group as compared with the pamphlet group ($P > 0.0001$).

Key words: Lecture; Pamphlet; Knowledge; Attitude; Performance

INTRODUCTION

Nutrition plays a direct and important role in promoting and maintain health [1]. In schoolchildren, nutrition not only promotes health, but also improves growth, prevents digestive and respiratory infections, and acts as the underlying factor in recovery after the incidence of various diseases [2]. Children need proper nutrition as well as physical activity for achieving proper physical and mental development and become immune to chronic diseases typical of their age group [3].

New and relatively stable nutritional habits are mostly developed during primary school years. During these years, a child is introduced into a new environment, meets other children, and is influenced by them. Breakfast consumption is a desirable habit which can positively affect a child's nutritional balance, physical growth, learning ability, and performance at school [4].

Breakfast is a main meal and skipping it a main cause of educational failure among school children and growth disorders among pre-school children [4-6]. Studies on students who skipped breakfast and participated in various tests show that such students tend to make more mistakes, and showed slower motivational distinction and memories. Similar studies

in other countries have shown similar trends in thin or short children who did not consumed breakfast [7].

Many behavioral patterns in adults, eating habits in particular, are developed during their childhood and are difficult to change in adulthood [8]. Consuming on-the-go or quick breakfasts working mothers provide for their children as well as there being no time to sit at the breakfast table with other family members can account for children's lack of interest in breakfast. Other factors including monotonous diets, anxiety over going to school, etc. can easily destroy a child's enthusiasm for breakfast [9]. Previous studies have shown that 21% of students in Gorgan went to school without eating breakfast [10]. In Tehran, 8% went to school without having breakfast and 14% had breakfast occasionally [11].

Education is an important way of dealing with malnutrition among children and youth. Education must be based on promoting children's knowledge, correcting their attitudes and emotions, and ultimately, correcting their unhealthy behaviors [12]. The main purpose of nutrition education programs is to promote correct eating habits in society [11].

*Corresponding Author:

Dr. Khodabakhsh Karami,
Department of Public Health,
School of Public Health,
Jondishapur University of Medical Sciences,
Ahvaz, Iran.



The lecture and pamphlet methods are two educational methods with their own specific advantages and disadvantages. As a direct and face-to-face teaching method, the lecture method uses oral expression to explain various subjects. Lecturing skills are also utilized for better presenting the material, and ambiguities can be resolved through answering the questions that are raised on the subject. Due to its high flexibility and the great number of the audience, the lecture method can be effective in imparting various concepts. This method is simpler than other methods regarding the required equipment. However, the respective active and passive states of the lecturer and the students can lead to the latter's boredom [13].

The pamphlet method is an indirect and distance education method where education is affected through pamphlets presented to the target group. One advantage of using pamphlets is that they are concise and do not bore the reader. Moreover, it can be used for reinforcing education. The other advantage is that an educational media, pamphlets as can be distributed among the students, can be carried by them, and can be read anywhere at any time. However, as pamphlets are presented to students in printed form, the students have to understand them without any help, and as such, many ambiguities and questions might inevitably arise in their minds [14].

The results of the above studies show that education has a positive effect on increasing the students' knowledge. However, most of these studies compare the obtained results for the control group with the group a single educational method is applied to. There are few studies where results obtained for two different educational methods are compared. Thus, there are deficiencies in this regard. Moreover, due to cultural differences and the diverse educational methods used in different parts of Iran, the effects of these educational methods on the students must be studied before any study can be conducted on the students living in different provinces of Iran.

This study aims to compare the effects of two educational methods used for increasing the knowledge and attitude of 4th and 5th grade students in Ahvaz primary schools regarding breakfast consumption habits.

METHODS AND MATERIALS

A three group intervention study was conducted in the academic year 2012-13 on 4th and 5th grade primary school girls in Ahvaz. The study aimed to compare the effects of two educational methods, namely, face-to-face (lecture) and distance (pamphlet)

methods, on promotion of knowledge, attitude, and performance among the students.

Upon obtaining a letter of introduction from Ahvaz University of Medical Sciences and authorization from the Ministry of Education in Khuzestan Province, the authors selected three primary schools based on the random cluster sampling method, and randomly classified them into three groups: Intervention Group 1 (Lecture Group), Intervention Group 2 (Pamphlet Group), and Group 3 (Control Group). Group 1 comprised 55 students who were trained in two weeks and 4 sessions through the lecture method. Group 2 consisted of 55 students who received only pamphlets as educational aids, and Group 3 did not receive any intervention. The 3 groups were tested via questionnaires before and after the intervention. A 3-month interval was allowed between the two tests.

A structured questionnaire was used for collecting data. This questionnaire included 4 sections used for evaluating the students : 1) demographic information of the studied groups, 2) knowledge-related questions presented as 15 three-choice questions with "Yes", "No", and "I do not know" answers, 3) attitude-related questions comprising 12 five-choice questions with answers ranging from "Strongly agree" to "Strongly disagree", and 4) performance-related questions with 11 five-choice questions with answers ranging from "Always" to "Never". The questionnaire was provided from similar texts under specialized supervision and subsequently presented to relevant experts and academics for due corrections and approvals. The content validity of the finalized questionnaire was thus established. Moreover, the internal consistency of the questionnaire why applying it as pilot questionnaire to 30 students. The external consistency of the same was confirmed via calculating Cronbach's alpha as 0.85.

The sample size was calculated by calculating the probability of Type I error (α) as 5% and the study strength as 90%. Fifty two members were required in each group (or 156 in three groups) to represent a significant difference in the knowledge of the studied samples. Ultimately, 165 students were selected in three groups for the study.

The obtained data were analyzed through SPSS 16. The results were presented as "mean values \pm standard deviation" for quantitative variables and as numbers (%) for qualitative variables. Demographic variables in the studied groups were compared through the Chi-square test. The knowledge, attitude, and performance scores as well as the variations thereof (after applying the educational methods) were compared through the unilateral analysis of variance

(ANOVA). The net effect of intervention was determined through the multivariate analysis as well as controlling the confounding effect of the demographic variables. The ANOVA was implemented for repeated observations throughout the study to obtain the corresponding variations in knowledge, attitude, and performance scores. In all the studied cases, a level of significance of less than 0.05 was considered.

RESULTS

In this research, a total of 165 girl students in the 4th grade were studied (3 intervention groups and one control group). Table 1 compares the demographic variables in the three groups. According to this table, no significant difference exists among the studied groups in terms of the following variables: birth order, parents' education, parents' employment status, household size, household income, and residence ownership. However, in terms of pocket money, a significant difference was observed ($\chi^2=8.42$, $P=0.015$): the frequency in the pamphlet and control groups of those students receiving less than 2000 tomans was greater as compared with students receiving more than 2000 tomans.

Table 2 compares the scores before and after the knowledge, attitude, and performance test as well as the mean scores obtained by the studied groups in these categories. At the start of the study, no significant difference was observed among the groups regarding their knowledge scores. But after the test, the intervention groups scored significantly higher scores than the control group ($F=65.9$, $P=0.0001$). Moreover, the variations of knowledge scores were also significantly different among the groups. The mean knowledge score in the lecture and pamphlet groups increased by 6.9 points and 3.9 points, whereas it decreased by 0.4 points in the control group ($F=78.5$, $P=0.0001$). The mean attitude score was initially (before the test) greater in the lecture group as compared with the other two groups. The attitude scores after the test were significantly different in the studied groups ($F=44.2$, $P=0.0001$). The variations of

the attitude score did not show a significant difference in the studied groups, exhibiting mean increases of 12.5 points and 2.8 points in the lecture and pamphlet groups respectively, and a decrease of 0.6 points in the control group ($F=104.4$, $P=0.0001$). The mean performance scores at the outset was significantly greater in the control group as compared with the other groups ($F=4.2$, $P=0.016$). After the intervention, the lecture group showed a greater performance score than the other two groups ($F=34.2$, $P=0.0001$). The variations of knowledge score exhibited was significantly different among the studied groups. In the lecture and pamphlet groups, this score showed mean variations of 6.4 and 2.2 points, whereas in the control group, a mean reduction of 0.6 points was observed. The mean variations of all three scores (knowledge, attitude, and performance) were significantly greater before and after the test in the lecture group as compared with the pamphlet group.

Table 3 compares the results of mean score variations before and after the test upon eliminating the effect of the following demographic variables: birth order, parents' education, parents' employment status, household size, household income, residence ownership, and pocket money. The mean variations of knowledge, attitude, and performance scores were significantly different in the studied groups upon eliminating the effect of demographic variables.

Diagram 1 compares the variations in knowledge, attitude, and performance scores throughout the study before and after the test obtained from repeated observations ANOVA. As can be seen in Diagram 1a, the knowledge scores variation trend in the studied groups showed a significant difference ($P=0.0001$). As shown in Diagram 1b, the attitude scores variation trend in the studied groups also showed a significant difference ($P=0.0003$). And as shown in Diagram 1c, the performance scores variation trend in the studied groups also showed a significant difference ($P=0.0001$).

Table 1: Comparison of demographic variables in the studied groups

Chi-Square Test	Control Group	Intervention Group 2	Intervention Group 1		
0.3P=2.39 $\cdot \chi^2=$	40 (72.7) 15 (27.3) 4 (7.3)	39 (70.9) 16 (29.1) 3 (5.5)	33 (60) 22 (40) 5 (9.1)	Less than or equal to 2 Greater than 2 Illiterate	Birth Order
0.75P=1/91 $\cdot \chi^2=$	33 (60) 18 (32.7) 2 (3.6)	29 (52.7) 23 (41.8) 1 (1.8)	27 (49.1) 23 (41.8) 4 (7.3)	High school diploma or lower College education Illiterate	Father's Education
0.18P=6.254 $\cdot \chi^2=$	40 (72.7) 13 (23.6)	32 (58.2) 22 (40)	30 (54.5) 21 (38.2)	High school diploma or lower College education	Mother's Education
0.95P=0.101 $\cdot \chi^2=$	47 (85.5) 8 (14.5)	48 (87.3) 7 (12.7)	47 (85.5) 8 (14.5)	Employed Unemployed	Father's Employment Status
0.970P=	14 (25.5)	15 (27.3)	14 (25.5)	Employed	Mother's Employment Status
0.063 $\chi^2=$	41 (74.5)	40 (72.7)	41 (74.5)	Unemployed	

0.92P=0.161 ·X ² =	36 (65.5) 19 (34.5)	37 (67.3) 18 (32.7)	35 (63.6) 20 (36.4)	Three children or fewer More than 3 children	Household Size
0.29P=2.465 ·X ² =	25 (45.5) 30 (54.5)	21 (38.2) 34 (61.8)	17 (30.9) 38 (69.1)	Less than 700,000 tomans More than 700,000 tomans	Household Income
0.07P=5.323 ·X ² =	25 (45.5) 30 (54.5)	23 (41.8) 32 (58.2)	14 (25.5) 41 (74.5)	Owned Rented/governmental accommodation/etc.	Residence Ownership
0/015P=8/42 ·X ² =	40 (72.7) 15 (27.3)	37 (67.3) 18 (32.7)	26 (47.3) 29 (52.7)	Less than 2000 tomans More than 2000 tomans	Pocket Money

The results are shown as percentages.

Intervention Group 1 comprised 55 students who were trained in groups through the lecture method.

Intervention Group 2 comprised 55 students who received pamphlets. Control Group comprised 55 students who did not receive any intervention.

The Chi-square test was used to compare the variables.

Table 2: Comparison of knowledge, attitude, and performance scores obtained by the studied groups before and after test

ANOVA Test	Control Group	Intervention Group 1	Intervention Group 2		
F=1/4 ·P=0/25	22.2±3.8	21.7±3.1	21±4.4	Before test	Knowledge
F=65/9 ·P=0/0001	21.8±4.1	25.6±2/6	27.9± 0.30	After test	
F=78/5 ·P=0/0001	-0.4±1.2	3.9±2.7	6.9± 2.4	Paired-t test, Significance level Pretest-post test	
				<0.0001	Significance level, Independent t-test
F=2/2 ·P=0/11	43.5±7.6	42.4± 5.6	40.5±8.9	Before test	Attitude
F=44/2 ·P=0/0001	42.9±7.9	45.2± 5.6	53.1±3.2	After test	
104/4 ·P=0/0001	0.0630	<0.0001	<0.0001	Paired-t test, Significance level Pretest-post test	
F=	-0.6±2.4	2.8±3.5	12.5±7.4	<0.0001	Significance level, Independent t-test
F=4/2 ·P=0/016	21.2±14.3	24/4±9/1	24/9±11/4	Before test	Performance
F=34/2 ·P=0/0001	21.7± 9.4	26.3 ±5.4	31.4 ± 5	After test	
F=65/6 ·P=0/0001	-0.6±5/4	0.031	6.4±9.2	Paired-t test, Significance level Pretest-post test	
		2.2±5.4	<0.0001	Significance level, Independent t-test	

Intervention Group 1 comprised 55 students who were trained in groups through the lecture method.

Intervention Group 2 comprised 55 students who received pamphlets. Control Group comprised 55 students who did not receive any intervention.

The unilateral ANOVA test was used to compare the variables.

Table 3: Comparison of mean score variations in the studied groups before and after test upon eliminating the effect of demographic variables

0.0001	18.82	Knowledge
0.032	1.72	Attitude
0.0001	20.99	Performance

Multivariate analysis upon eliminating the effect of the following variables: birth order, parents' education, parents' employment status, household size, household income, and residence ownership, and pocket money.

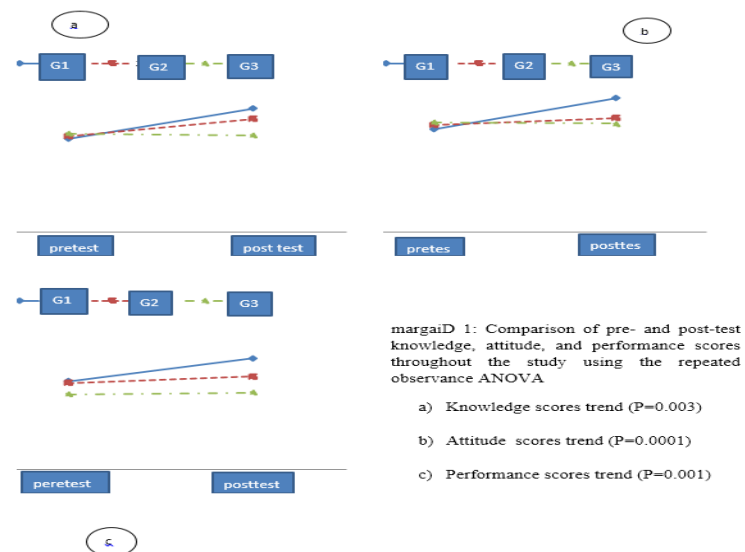


Figure 1: Comparison of pre- and post-test knowledge, attitude, and performance scores throughout the study using the repeated observation ANOVA

- a) Knowledge scores trend (P=0.003)
- b) Attitude scores trend (P=0.0001)
- c) Performance scores trend (P=0.001)

DISCUSSION

The measures taken towards providing health education are often made available to the target groups in the form of programs or packages and as such, they somehow influence the health performance of these groups. However, the methods of implementing these programs (i.e. the methods used for communicating health concepts and information) are seldom considered in spite of the fact that selecting the proper channel or medium in proportion to the type of information that is made available to the target groups is of particular importance in health communication. The size of the student population and their high activity levels requires demands that they receive more energy and nutritional materials (per weight). Taking into account certain inappropriate eating habits such as non-consumption of breakfast as well as observing the results of the comparisons obtained in other studies, the authors aimed to compare the effects of the lecture method and the pamphlet method (two simple and inexpensive methods) on raising the level of knowledge and attitude among girl students studying at the 4th and 5th grades of primary schools in Ahvaz. The study was meant to promote nutritional knowledge, attitude, and performance among the students and provide more information about the applied methods and their compared values.

It was shown in this study that education through acting attracted the children's attention and promoted their positive attitude and consequently their nutritional performance [15-17]. Other similar studies also showed the positive effect of nutrition education on improving the attitudes of the children and their parents [18-21]. Friel *et al.*, reported positive results in primary school children's behavior and performance in terms of eating healthier food after nutrition education [22]. Angourani *et al.*, also observed increased knowledge scores among 4th grade girl students regarding breakfast consumption after these students received relevant educational booklets [23].

In general, studies show that nutritional knowledge and performance of Iranian students are insufficient and that most Iranian researchers have emphasized on the necessity of this kind of education in Iranian schools. Researchers attribute the low nutritional awareness to different factors including nonattention to nutrition in Iran's education system, lack of sufficient knowledge among Iranian families, and various social, economic, and cultural problems in the Iranian society [22-27].

The results of this study showed that in both the lecture and pamphlet groups, the knowledge and

attitude scores increased after the intervention, whereas the control group showed a decrease in the same scores. The mean knowledge and attitude scores in both the intervention groups were positive, whereas in the control group they were negative and showed a decreasing trend as the study progressed. The intervention groups demonstrated a significantly greater variation as compared with the control group. Moreover, in the lecture group, the increases in knowledge and attitude scores were significantly greater than those in the pamphlet group. The findings indicate that the lecture method is preferable to the pamphlet method. This is in good agreement with the results obtained from other similar studies where the lecture method was applied to different age and occupational groups.

Vahedian *et al.*, evaluated 330 middle school students in three groups, namely, lecture, pamphlet, and control, and subsequently, compared their behavior (nutritional knowledge, attitude, and performance) before and after the intervention. Their results showed that knowledge and attitude scores were higher in the lecture group than those in the pamphlet group. Moreover, the performance scores in the lecture and pamphlet groups were significantly higher than those in the control group. However, they did not observe a significant difference between the lecture and pamphlet groups in terms of their score variations. As in the study by Vahedian *et al.*, the results obtained in the present study also showed a significant difference (after intervention) in terms of knowledge and attitude scores in both the lecture and the pamphlet groups as compared to the control group. Also, the lecture group scored higher in terms of knowledge and attitude than the pamphlet group. However, unlike Vahedian *et al.*, we also obtained significantly higher performance scores for the lecture group as compared with the pamphlet group (after the intervention) [28].

Angourani studied the effect of different educational methods on the performance of 150 primary school students in Tehran in terms of breakfast consumption. The students in his study were classified into three groups: lecture, pamphlet, and control. Angourani concluded that there was a significant difference between the control and intervention groups. In Angourani's study, the mean performance scores in the lecture and pamphlet groups were significantly higher than the corresponding values in the control group, however, no significant difference was observed between the lecture and the pamphlet groups. By contrast, in our study, the performance scores in the lecture and pamphlet groups were significantly higher than those in the control group without there being any significant difference in

performance scores between the lecture and the pamphlet groups [23].

Taslimi *et al.*, studied 300 middle school students and compared the effects of two nutritional methods on knowledge, attitude, and performance scores of these students upon classifying them into educational pamphlet, group discussion, and control groups. Their results showed that upon completing the educational program, the knowledge and attitude scores obtained for the intervention groups were significantly higher than those obtained for the control group. These results are in agreement with those obtained in the present study. However, in Taslimi's study, no significant difference was observed among the groups in terms of their performance scores, whereas in our study, this difference was significant [29].

Other studies obtained different results when comparing the effects of various educational methods on knowledge, attitude, and performance. However, most of these results do indicate that education in the intervention groups has been effective (as compared with the control group). Tavasoli *et al.*, compared the effects of lecture and pamphlet methods in terms of the amount of junk food consumed by the students. Their results showed that there was no significant difference between the corresponding knowledge scores in the two groups, but that the mean attitude and performance scores in the lecture group were significantly greater than those in the other group [30]. Mohammadpour *et al.*, compared the effects of pamphlet and lecture methods on students' performance without observing any significant difference between the two groups [31]. In Bredbenner study, the significant effect of education on vegetable consumption in the test group was demonstrated (as compared with the control group) [32]. Kim *et al.*, concluded that nutritional education of students increased their knowledge, attitude, and performance scores as compared with the control group [18]. Fahlam *et al.*, also showed the significant effect of education on increasing the knowledge, attitude, and performance scores among students (as compared with the control group) [21]. The results of these studies are similar to those obtained in our study in that nutrition education affects students' behavior and that the lecture and pamphlet methods indeed increase the nutritional knowledge, attitude, and performance of the students. The results of our study and certain other studies show that the lecture method was more effective than other methods. One reason for this is that students actively participate in the lecture method and their innovative thinking is stimulated during this learning process.

Despite the limitations of this study (lack of parents' participation in the study, etc.) the results generally showed that both the lecture and pamphlet methods had a significant role in increasing the students' knowledge, attitude, and performance (as compared with the control group), and that the lecture method was more effective than the pamphlet method. Since improper nutrition habits during school years can continue into adulthood, and since conducting educational programs is far less costly than finding solutions for the problems resulting from malnutrition, it is necessary that educational nutrition programs be further extended and developed.

RESOURCES

1. Khazaei M, Poe, Fred F, Ebadi, the peace, Larry M, Asadi, N, Abdi. The effect of education on health belief model perceptions of nutritional fourth grade students Dkhtrsal city Noshahr on breakfast and snacks. *Journal of School Health Yazd* 1387; 7:65-51.
2. Kalishadi R, Ardalan G, Gheiratmand R, *et al.*, [Doessupport our nutrition's habit for our children health?] *Persian. Iran J Pediatr* 2001; 15(2):98-109.
3. Baghdadchi J, Amani R, Khwaja A Mvg·hy.Effects of concentration and short term memory B-school students. *Iranian Journal of Medical Sciences* 1380; 8(27):40-535.
4. Tee ES, Khor SC, Ooi HE, *et al.*, Regional study of nutritional status of urban primary school children. *Food Nutr Bull* 2002; 33:41-47.
5. Ashwell Associates Scientific dossier relating to ready to eat breakfast cereals (RTEC) and special K (SPK) with potential claims regarding weight loss. *Meta-Analysis report for Kellogg* 2007.26:135-143.
6. Lucas BL. Nutrition in childhood. In: Mahan Lk, Escott-Stump S, editors. *Krause's food, nutrition and diet therapy*. 11th ed. USA. Saunders 2004:275.
7. Jouibari L, Vakili M, Sanagoo you. Breakfast and snack consumption patterns of elementary school students in Gorgan. *Kashnasy Thesis Nursing Gorgan, School of Nursing and Midwifery, Proceedings of the Fifth Congress of Nutrition, Tehran, Shahid Beheshti University of Medical Sciences* 1378;15:22-215.
8. Belansky ES, Romaniello C, Morin C. Adapting and implementing a long-term nutrition and physical activity curriculum to a rural, low-income, biethnic community. *J NutrEducBehav* 2006; 38:106-113.
9. Bozorgmehr b. Evaluation of quality and Breakfast 9 to 12 Students Research Project, Institute - 78 academic year, schools in Tehran, Iran, Nutrition and Food Technology Research Institute, Shahid Beheshti University of Medical Sciences 1378;3(8):57-49.
10. Kafatos A, Manios Y, Moschandreas J, Preventive Medicine and Nutrition Clinic University of Crete Research Team. Health and nutrition education in primary schools of Crete: follow-up changes in body mass index and overweight status. *Eur J ClinNutr* 2005; 59:109-20.

11. Khalaj M, MohammadiZeidi Imam. Evaluate the impact of health education on knowledge and nutritional behavior change among primary school children in Qazvin. University of medical sciences 1385; 49(8):35-41.
12. Black M, Bahrami M, clerical R, S Hosseini. Gonabad dietary behavior of elementary school children. Journal of Materials Science and Engineering 1390; 6:28-25.
13. Safavi A. General methods and techniques of teaching. Moaser Publishers Company.1382:198-203
14. Qodusian A and Colleague. Principles and use of educational technology in health promotion. Qazvin Bahrololum Publishers Company.1382:3-32
15. Davis M, Baranowski T, Resnicow K, et al., GIMME ðfruit and vegetables for fun and health: Process evaluation. Health EducBeh 2000; 27:167-176.
16. Makuch A, Reschke K. Playing games in promoting childhood dental health. Patient Educ Counsel 2001; 43:105-110.
17. Temple N J, Steyn N P, Myburgh N G. Food items consumed by students attending schools in different socioeconomic areas in Cape Town, South Africa 2006;22:252-258.
18. Kim K, Chung M. Implementation and evaluation of nutrition education program for elementary school children. J Comm Nutr 2000; 2:146-158.
19. Wardle J, Parmenter K, Waller J. Nutrition knowledge and food intake. Appetite 2000; 34:1-8.
20. Olivares S, Mor_n C, Kain J, et al., A methodological proposal to include nutrition education in primary schools. Experience in Chile Pubmed Arch LatinoamNutr 2004; 54:33-39.
21. Fahlman MM, Dake JA, McCaughtry N, Martin J. A pilotstudy to examine the effects of nutrition intervention on nutrition knowledge, behaviors, and efficacy expectations in middle school children. J Sch Health 2008; 78:216-22.
22. Friel S, Kelleher C, Campbell P, Nolan G. Evaluation of the Nutrition Education at Primary School (NEAPS) programme. Public Health Nutr 1999; 2:549-55.
23. Angvranly C, Farmer S, Sadrzadeh E., A. Rahimi. The effect of nutrition education on Breakfast booklet on the knowledge of students in the fourth year Dbsta final six girl's education in Tehran. Journal of Medicine, Tehran University of Medical Sciences 1386; 65:53-49.
24. Pour Abdollahi P, Zarati M, Razavieh SV, Dastgiri S, GhaemMaghami SJ, FathiAzar E. The effect of nutrition education on the knowledge and practice of elementary school children regarding junk food intake.ZanjanUniv Med Sci J.2005;51(13):13-20. [Persian].
25. Azad Bakht L, Mirmiran P, Momenan AA, Azizi F. Knowledge, attitude and practice of guidance school and high school students in district-13 of Tehran about healthy diet. Iran Endocrine & Metabolism J. 2003; 17(4):409-416. [Persian].
26. Pourabdollahi P, Ebrahimi Mamghani M, Dastgiri S. Assessment of nutritional knowledge during pregnancy and infant feeding among adolescent student girls in Tabriz high schools. ZanjanUniv Med Sci J. 1998; 23(6):43-51. [Persian]
27. Yaaghoubi A. Survey of nutrition education on knowledge, attitude and practice of high school girl students of Hamedan [Dissertation]. Iran. Faculty of Health and Nutrition. Tabriz University of Medical Science. 1999. [Persian]
28. Vahedian M, Sadeghi R, Farhadlu R, Nazeri A, Dehghan A, Barati M.H. Effect of Educational Booklet and Lecture on Nutritional Behavior, Knowledge and Attitude on Third-Grade Male Guidance School Students. Journal of Community Health Research 2014; 3(1):1-12.
29. TaslimiM, Jazayeri A, Keshavarz A, et al., Comparison between the effect of two methods of health education (booklet and group discussion) on the guidance school girl's nutritional knowledge, attitude and practice in Tehran. Magazine of Tehran Med-sci University. 2004 [in Persian].
30. Tavassoli E, Hassanzadeh A, Nilsaz M, Nasiri S. The effect of education on the knowledge, attitude and practice of nutritional behavior girl students regarding junk foodintake. Zahedan J Res Med Sci (ZJRMS) 2011; 13(suppl 1):16.
31. Mohammadpoor Ahrangani B. Evaluation of the effect of booklet on the guidance school girl's nutritional knowledge, attitude and practice in Tehran. Magazine of Tehran Med-sci University. 2000[in Persian].
32. Byrd- Bredbenner CO, Connell LH, Shannon B, et al., A nutrition curriculum for health education: Its effect on student's knowledge, attitude and behaviour. J Sch. Health. 1984; 54:385-8.

CITE THIS ARTICLE AS:

Mina Barandisheh Naqibi, Khodabakhsh Karami and Qodratollah Shakerinezhad, Effect Of Nutritional Education Through Lecture And Pamphlet Methods On Breakfast Consumption Behavior Among Primary School Girls In Ahvaz, International Journal of Bioassays, 2015, 4 (06), 3973-3979.

Source of support: Nil

Conflict of interest: None Declared