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| Website: www.jehp.net |
| DOI: 10.4103/jehp.jehp_155_16 |

Effect of educational intervention program for parents on adolescents' nutritional behaviors in Isfahan in 2016

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Abstract:

BACKGROUND: Family participation is an important element on nutritional education especially for students. Parents have a key role in instilling and understanding healthy eating habits, but yet the use of family participation strategies in the nutrition education was low. The aim of this study is determining the effect of parental educational intervention program for parents on adolescents' nutritional behaviors in Isfahan, Iran in 2016.

MATERIALS AND METHODS: This study was a kind of field trial that conducted on 63 girl teenagers from junior high schools of Isfahan in 2016 that were randomly divided into two groups of intervention and control. The data collection tool which was a researcher made questionnaire was completed in both groups before and 1 month after the intervention. The intervention included three training sessions for parents and giving educational compact disc and forwarding SMS. To analysis of data independent *t*-test and paired *t*-test were used.

RESULTS: Paired *t*-test showed that in intervention group the average score of fruit ($P = 0.03$) and in control group the average score of vegetables ($P < 0.05$) were significant statistical difference, but in other aspects of nutritional behaviors was not a significant difference. Independent *t*-test showed that after intervention, mean scores nutritional behavior of adolescent girls in both groups had no significant differences.

CONCLUSIONS: No significant difference was in the nutritional behaviors before and after the intervention. Hence, just educating the parents is not enough for achieving appropriate nutritional behaviors in the adolescents.

Keywords:

Adolescent, field trial, nutritional behaviors, parents

Introduction

Adolescence is one of the most challenging periods of life. During this period, rapid growth in height, changes in body composition, and genital, mental and social development will happen. It is the period when fundamental changes occur in the skeleton and body mass in a way that 20%–25% of the final height growth happens during puberty, and the adolescents would gain at most 50% of the ideal weight for

a grown person.^[1] Therefore, to meet the growth and development needs, the nutritional needs would increase. Mental changes in adolescents that occur along side with physical changes might lead to rejecting or tendency toward a certain type of food, eliminating some meals, increased consumption of snacks and eating outside the house.^[2,3]

World Health Organization has stated attending the needs and issues of the adolescents as their goal.^[4] Because

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How to cite this article: Mokhtari F, Kazemi A, Ehsanpour S. Effect of educational intervention program for parents on adolescents' nutritional behaviors in Isfahan in 2016. *J Edu Health Promot* 2017;6:103.

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Received: 14-12-2016

Accepted: 19-09-2017

providing these services for the adolescents not only would cover the vulnerable part of the population but also contains a large amount of the community, in terms of population.^[5]

People's health during this sensitive period has a significant effect on their performance during adulthood;^[6] because many of the healthy and unhealthy behaviors that are founded during this period would be revealed as stable behaviors in the future.^[2] Therefore, adolescent is the golden opportunity for preventing the damages caused by incorrect behaviors and is the period for selecting a constant healthy lifestyle for future life.^[7]

Kelishadi *et al.* in their study revealed that the lifestyle of the adolescent population in our country is rapidly moving toward the Western lifestyle and children's and teenagers' tendency toward Western dietary pattern and snacks with no nutritional values are some of its symptoms. These factors have contributed to the high incidence of lipids in children and adolescents, as well as various disorders in their growth.^[8] Hence, nowadays, obesity is the most common important nutritional problem among the children and adolescent of developed and developing countries.^[9] Besides increasing the load of diseases and their complications, obesity will impose a great economic burden on societies too and will encounter the people with nutritional deficiencies, especially macronutrients, on the one side and chronic diseases on the other side.^[10]

Nutritional behaviors, such as many other behavioral models, can be learned and family, as the field for presenting behavioral models, could have a significant role in this regard. The dominant psychosocial environment of the families, which their members have appropriate nutritional behaviors, would provide the context for adolescents' encouragement and modeling to exercise healthy nutritional behaviors.^[11] Parents are the main members of the nutritional behaviors' modification or correction program among the adolescents.^[12] Therefore, probably, educating healthy diet to the parents could affect adolescents' food patterns. A study of Jenkins and Horner that was conducted in America showed that parents' increased knowledge about appropriate dietary pattern has been effective on increasing the consumption of healthy food including fruits and vegetables by the adolescents.^[13] Rich *et al.* showed that nutritional education for parents could be a successful intervention to prevent nutritional disorders in children.^[10]

Educating with the help of productive currents and by avoiding early risks, is a powerful tool for guidance toward the future and it could be considered as individual's empowerment process for making aware

decisions about health-related behavior and the most basic primary prevention method.^[14]

Educational interventions at schools have only been able to gain low short-time success.^[10] Studies by the Research Center of the US Department of Education showed that family's participation is an important element in effective nutritional education, especially for students, and parents have a key role in induction and realization of healthy eating habits in their children.^[15,16] However, studies have revealed that the rate of using family engagement strategies in nutritional education has been low.^[10]

Paknahad *et al.*,^[7] like Shariff *et al.*,^[17] resulted that lack of improvement in the nutritional attitude of the adolescents is due to lack of coordination between environmental factors such peers group and family. Family is effective on people's respond to intervention regarding their accessibility to food and type of family environment, and the effort for changing food choices without providing healthier nutritional choices or accessibility to fruits and vegetables is not possible.^[18]

According to report of Ministry of Health, Medical Education's Center for disease control and prevention, Mother participation in adolescent education can be beneficial.^[19] The study by Rahimikian *et al.* Showed mothers' education In the field of preventive behaviors of osteoporosis is effective in the nutritional behavior of girls.^[20] However, most of the studies that have been conducted in Iran on nutritional behaviors have descriptive design and have evaluate its prevalence and related risk factors in the society,^[9,21] and they do not have an interventional aspect. Despite the fact that adolescents have unique needs compared to children and adults,^[22] most of the studies have discussed childhood and adulthood obesity and adolescents have been neglected. Considering the important of diet during adolescent and the role of parents' participation as the most available and important source of nutritional knowledge and as the most effective factor on the nutritional behaviors of young girls,^[23] evaluating the role of interventions in adolescents' nutritional behaviors seems necessary. Therefore, the present study was conducted to evaluate the effect of an educational interventional program on nutritional behaviors of adolescent girls in Isfahan in 2016.

Materials and Methods

The present study was a two-group semi-experimental study that was conducted in 2015 on 63 female students of middle schools of Isfahan. Samples were randomly selected from the eligible students. The inclusion criteria were student's and her parents' willingness to

participate in the study, not having any mental disorders or behavioral problems for the student, no participating simultaneously in another clinical study and having the custody of the teenager by her own parents. The exclusion criteria were immigration during the study, participant's unwillingness to continue the study and missing the educational sessions by the parents of the intervention group.

At first, after consulting with the authorities of the education department, district 2 and 3 were selected. Then, randomly (drawing), two schools from each district was selected. From the list of students of the 7th, 8th, and 9th grades of each school, 20 students from each of the schools were selected randomly using the table of random numbers (considering a 20% for participant loss).

Data were gathered using a researcher-made questionnaire that was designed using food frequency questionnaires questionnaire and Turconi's nutritional behaviors questionnaire.^[24] This questionnaire had two parts. The first part was about the demographic and underlying characteristics of the students and their parents including age, grade, birth order, number of family members, parents' age and educational level, parents' employment status, and family's economic condition. The second part of the questionnaire was about nutritional behaviors. This part had two titles of dietary frequency and the consumption pattern. Dietary frequency table was completed by the students by describing their consumption of each food group. Consumption pattern had three sections of (1). Nutritional behaviors such as eating breakfast, (2). Nutritional habits, and (3). Safety behaviors such as washing the hands before serving and eating the food which were evaluated using 20 5-choice questions. According to the direction of the questions, the choices of each question were scaled based on Likert scale. In questions where "never" was the desirable answer, it had a score of 5 and "always" had a score of 1. Inverse questions had a score of 5 for "always" and a score 1 for "never". The final score of this part varied from 20 to 100.

Researcher made questionnaire which was prepared using the standard questionnaires mentioned above, to evaluate the content validity of the questionnaire using content validity method, the questionnaire was distributed among 10 academic members of the nursing and midwifery faculty and the nutrition faculty and then their corrective comments were applied. To evaluate the reliability of the questionnaire, test-retest method was used. The achieved correlation coefficient for all parts of the questionnaire was >0.7.

To perform the study, parents of the selected students were invited through phone calls. Before conducting

the first educational session, the questionnaire was completed by the students. Then, for the intervention group, an educational intervention consisted of three in-person 2-hour educational sessions with 1 week interval was conducted for one of the parents of the selected students. During the study, every 3 days, one educational text message was sent to the parents for reminding the program.

The educational contents for the intervention group were physical and emotional changes of adolescence, adolescents' health, the importance of health during adolescence and its effect during adulthood, adolescents' body image, the importance and necessity of appropriate nutrition for this age group, the effect of healthy behaviors on the health of the girls, introducing food groups and determining the needs of the adolescent to each of these groups. In addition, parents were educated about the appropriate manner for communicating with their adolescent child and the method of presenting the learned training to their children based on a documented educational guide. Educations were presented using slides, speech, pamphlets, and group discussions. The parents of the control group were separately invited and after completing the questionnaire by the students, an educational speech session about nutritional knowledge as placebo was conducted for them. One month after the last educational session, the questionnaires were again filled by the students.

Results

Results showed that the demographic characteristics including age, parents' age, number of family members, weight, height, body mass index, grade, parents' educational level, economic status, and birth order had no significant difference between the participants of both groups shown in Table 1.

The mean and standard deviation of the scores of nutritional behaviors for the intervention and the control groups are shown in Table 2. Independent *t*-test showed that, before the intervention, the score of nutritional behaviors in its both aspects had no significant difference between the intervention and the control group. Results also showed that the level of consuming the food groups of meat and beans and fruits and vegetables was not desirable (in this study consumed <2 servings of each food groups in day) in both groups.

The score of consuming the food group of fruits had a significant different before and after the intervention, in the intervention group ($P = 0.03$); but the difference in other main food groups and the consumption pattern was not significant. In addition, in the control group, the score of consuming the food group of

Table 1: Compare demographic characteristics in the intervention and control groups

| Variable | Mean (SD) or n (%) | | Statistic result | |
|-----------------------------|--------------------|--------------|------------------|---------|
| | Experiment | Control | Statistic value | P |
| Age | 13.39 (0.93) | 13.60 (1.16) | 0.78 | 0.13 |
| Father age | 43.24 (8.53) | 46.90 (6.02) | 1.95 | 0.89 |
| Mother age | 38.15 (7.52) | 41.47 (6.49) | 1.86 | 0.36 |
| Family size | 4.24 (0.66) | 4.20 (0.92) | 0.21 | 0.38 |
| BMI | 20.91 (4.13) | 20.45 (4.74) | 0.41 | 0.95 |
| Educational | | | | |
| Seventh | 15 (45.5) | 14 (46.7) | 0.36 | 0.35 |
| Eighth | 11 (33.3) | 11 (36.7) | | |
| Ninth | 7 (21.2) | 9 (30.0) | | |
| Father educational level | | | | |
| Under diploma | 0 | 16 (53.3) | 3.66 | <0.0001 |
| Diploma | 20 (60.6) | 6 (20) | | |
| Academic | 13 (39.4) | 8 (26.7) | | |
| Mother educational level | | | | |
| Elementary | 2 (6.1) | 4 (13.3) | 0.75 | 0.08 |
| Ninth | 6 (18.2) | 7 (23.3) | | |
| Twelfth | 17 (51.5) | 11 (36.7) | | |
| Academic | 8 (24.2) | 8 (26.7) | | |
| Economic status | | | | |
| Weak | 20 (60.6) | 19 (63.3) | 0.66 | 0.22 |
| Good | 13 (39.4) | 11 (36.7) | | |
| Employment status of father | | | | |
| Unemployed | 1 (3) | 2 (6.7) | 0.46 | 0.50 |
| Employed | 32 (97) | 28 (93.3) | | |
| Employment status of mother | | | | |
| Unemployed | 28 (84.8) | 27 (90.0) | 0.38 | 0.54 |
| Employed | 5 (15.2) | 3 (10.0) | | |

SD=Standard deviation, BMI=Body mass index

vegetables had a significant difference before and after the intervention ($P < 0.05$, $t = 2.15$), but no significant difference was observed for other food groups and the consumption pattern.

Independent t -test showed no significant difference between the intervention and the control groups regarding the score of nutritional behaviors of teenage girls in both aspects of consuming the main food groups and the consumption pattern, 1 month after the intervention.

Discussion

Considering the random allocation of the samples, no significant difference was observed between the intervention and the control groups regarding their demographic characteristics. Results of the present study showed that the level of consuming the food groups of meats and beans and fruits and vegetables

was not desirable in both groups. Since about 60% of the studied participants had a poor economic status. Therefore, it seems that the weak economic situation in addition to effect the receipt of food groups such as meat and beans, fruits, and vegetables will also be effective in supporting parental support, there is a need for the full participation of the government and the people in improving the nutritional behavior of adolescents, and education alone is not enough.

In the present study, the researcher tried to control and guide the role of the family, as a key role in the nutritional behaviors of adolescents, using an evaluated educational program. However, there was no difference in nutritional behaviors before and after the intervention. Anari *et al.* showed in their study that with the involvement of adolescent and family education to increase adolescents' support as well as education for adolescents with the aim of using more social support resources, some health problems can be prevented in the future.^[25] Therefore, the role of family in adolescent's physical and psychological health is more than ever confirmed, but the focus of the researchers was on the parents only on how they should present and apply the training to the adolescent, and other influential resources, such as friends, classmates, were not investigated. Hence, this study failed to provide the expected level of nutritional behavior in adolescents. In the study of Uchena, temptations and difficulty in following a diet and also friends and acquaintances were considered as the effective factors on adherence to nutritional recommendations.^[26]

In the study of Jinan *et al.*, similar to the present study, the participants were consuming most of their meals at home with their family members, except for the snacks (consumption pattern) which were mostly eaten with the peers. Therefore, parents could promote healthy nutritional behaviors among teenagers by recommending health foods and preparing food at home.^[27] Hence, researchers believe that parents have multiple positive roles in healthy eating habits in adolescents, and they are key factors in healthy eating habits in them. It is important to note that the meaning of the family may change as a supportive resource throughout the life cycle of a person.^[28] Therefore, it is necessary to examine the role of the family on adolescents in the triple stages of this age group. We also tried to get enough knowledge of this age group in consultation with the psychology professors, and we considered it in education. However, educational intervention did not improve the nutritional behavior of adolescents. It seems that qualitative studies in this field are needed to explore the factors influencing their nutritional behavior. According to researchers, social factors, school environment, friendships, and social networking advertisement are also effective, and parental social support is necessary, but not enough.

Table 2: Comparing the mean and standard deviation of feeding behavior of adolescent girls in both intervention and control groups before and after educational intervention

| Groups | Feeding behavior | Before intervention | | After intervention | | P | Paired t-test |
|--------------|--------------------------|---------------------|------|--------------------|------|------|---------------|
| | | Mean | SD | Mean | SD | | |
| Intervention | Receive main food groups | | | | | | |
| | Bread and cereals | 7.25 | 2.91 | 5.92 | 3.22 | 0.81 | 0.24 |
| | Dairy | 2.81 | 1.32 | 2.53 | 1.03 | 0.38 | 0.89 |
| | Meat and beans | 1.78 | 1.20 | 1.76 | 1.18 | 0.35 | 0.94 |
| | Fruit | 1.59 | 1.20 | 1.56 | 1.20 | 0.03 | 2.23 |
| | Vegetable | 1.99 | 1.27 | 1.98 | 1.63 | 0.73 | 0.34 |
| | Consumption pattern | 65.00 | 8.24 | 68.44 | 8.22 | 0.17 | 1.43 |
| Control | Receive main food groups | | | | | | |
| | Bread and cereals | 7.12 | 2.68 | 5.63 | 3.53 | 0.63 | 0.48 |
| | Dairy | 3.03 | 0.95 | 2.18 | 0.83 | 0.06 | 1.90 |
| | Meat and beans | 1.60 | 0.63 | 1.52 | 0.63 | 0.30 | 1.05 |
| | Fruit | 2.07 | 0.93 | 1.72 | 1.06 | 0.46 | 0.74 |
| | Vegetable | 1.91 | 1.22 | 1.40 | 1.12 | 0.04 | 2.15 |
| | Consumption pattern | 65.63 | 6.1 | 65.32 | 8.23 | 0.88 | 0.14 |

SD=Standard deviation

Results of the present study revealed that a part of adolescents' nutritional behaviors such as consuming the main food groups of fruits and vegetables is formed based on their access to foodstuff. Therefore, by preparing foods with high nutritional values, parents could unconsciously increase the consumption of these food groups in their teenage children.

In the study of Moser, family and peers had a significant effect in consumption of fruits and vegetables and individuals who paid more attention to and modeled people other than their family members consumed less fruits and vegetables and more fatty foodstuff.^[29] Regarding the failure of this intervention to modify nutritional behaviors, further studies are needed to evaluate the reasons for not changing adolescent nutritional habits, such as the short duration of interventions and short-term changes and examine the factors affecting nutritional behavior outside the family environment, especially in School. Therefore, interventions about nutritional behaviors could not have long-term success without changing the living environment of the child or the teenager. For example, it is not possible to change food choices without providing healthier choices in the diet or at the schools' cafeteria or without access to fruits and vegetables with reasonable prices at stores. Hence, to improve the adolescents' nutritional behaviors, there is a need for intersectoral collaboration and comprehensive social participation.

Conclusions

In this study, no significant difference was observed in the nutritional behaviors before and after the intervention. Hence, it could be concluded that although parents' education would indirectly affect adolescents'

nutritional behaviors, just educating the parents is not enough for achieving appropriate nutritional behaviors in the adolescents. If other related factors such as peers' education, the effect of social media and other effective factors on the nutritional behaviors of the adolescents would be studied simultaneously, or another educational method would be used, different results might be achieved.

Acknowledgment

This article was adopted from a research that was approved by Isfahan University of Medical Sciences by No. 394645. The authors would like to thank the research chancellor of the University, principals of schools, parents, and students for their support and cooperation.

Financial support and sponsorship

This article was adopted from a research that was approved by Isfahan University of Medical Sciences by No. 394645, women's health Research Center, School of Nursing and Midwifery, Isfahan University of Medical Sciences supported this research.

Conflicts of interest

There are no conflicts of interest.

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