Short Communication

Development and evaluation of a nutritional health program for adolescents

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Abstract

Background: Unhealthy nutritional behaviors are a threat to adolescents. In this regard, we compared different training methods through a participatory interventional study.

Materials and Methods: Through proportional random selection, 1823 female students were selected from 15 middle schools of Tehran. Following 2 years of intervention, nutritional habits of three different interventional groups were assessed.

Results: Eating breakfast was significantly higher in the trained groups, and the use of weight loss diets was lower in them than in the control group. Also, satisfactory consumption of various kinds of nutrients in the trained groups was more than in the control group.

Conclusion: Participatory health training, especially through parents, leads to adolescence nutritional health promotion.

Key words: Adolescents, health education, Iran, nutrition, promotion

Introduction

Adolescence, considered as a transitional stage of physical and mental human development, occurs between childhood and adulthood.[1]

Nutrition is one the most important health priorities of adolescence, but only a few interventional programs are concentrated on adolescents' nutrition health in Iran.[2,3]

Based on related experiences, it can be observed that the adolescents' health promotion needs more community partnership, training programs, capacity building, safe and supportive environment.[4,5]

Regarding this, parents, especially mothers, have a unique position in influencing adolescents' food selection at home.[6,7] The effectiveness, utilization, and impact of the school-based health programs showed by different studies.[7,8]

Considering the above, we conducted an interventional participatory study with the participation of adolescents' parents and health trainers of target middle schools. This paper aimed to compare the effects of these different training methods on the adolescents' nutrition health promotion.

Materials and Methods

Among the 95,250 female students of Tehran's middle schools, 1823 participants of age 11-15 years were selected by stratified quota random sampling method from 15 middle schools of five geographic regions of Tehran. Then, the participants were randomly divided into three groups. The first group was considered as control group. The second group received training by school health trainers and the third group received designed training through their parents.

The main questionnaire of this multidimensional study included 93 closed questions in which 28 questions focused on nutrition. Family suitable nutritional habits pattern means suitable consumption of nutrients, and suitable consumption of various kinds of nutrients was defined as daily consumption of dairy, fruits, and vegetables and at least two or three times a week consumption of meat and cereals. Another subject that was considered in this study was meal skipping.

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The validity of questionnaire was confirmed through the peer-reviewed literature by 10 experts. Its reliability was confirmed by test — retest (reliability coefficient: 0.8).

On assessment following 2 years of intervention, the overall response rate was 79%. It was 82% in the trained by parents group, 81% in the trained by health trainer group, and 80% in the control group.

Data analyses were done by the use of SPSS software version 16 (Chicago, IL, USA). Descriptive statistics alongside the chi-squared (χ^2) test and analysis of variance (ANOVA) were used for the analysis. Statistical significance level was set at $P < 0.05$ (two tailed).

This study was approved by National Ethical Committee of Medical Research. Participation in this study was voluntary, and self-administered questionnaires were filled anonymously on getting the consent of every participant after they were explained the objectives of the study. Moreover, all information was collected anonymously.

Results

Following 2 years of intervention, 1331 female adolescents were enrolled in the assessment. There was no significant difference in age, weight, height, body mass index (BMI), and the wrist circumference in the three groups. Based on BMI measurements, 64% of participants were thin, 28.6% normal, 6.3% overweight, and 1.1% were obese. 59.5% of the girls had a positive perception of their height, and in this regard, no significant difference was found between the study groups. Overall, 14% of the students had imagined themselves as obese girls, and this imagination significantly was higher in the control group compared with the other two groups ($P = 0.0002$).

25.1% of the control group participants, 33.9% of those trained by school health trainers, and 41% of those trained by parents had positive perception about their physical form. There was significant difference between the studied groups ($P = 0.0003$). Some relative variables are shown in Table 1.

In the control group and the groups trained by school health trainers and parents, respectively, 34.8%, 31.9%, and 33.3% girls had special diet for losing weight. Accordingly, having such diet in the trained groups, especially in the parents' trained group, was less than in the control group. Totally, 50% of the students who were on diet had normal BMI. Only about 50% of subjects believed increasing "need for calorie" during puberty and 11.9% of them believed it decrease.

With regard to participants' nutritional habits, breakfast skipping was found in 9.6% of the participants. Moreover, the habit of eating breakfast was significantly higher in the trained groups in comparison with their counterparts in the control group ($P = 0.000$).

Appropriate consumption of various kinds of nutrients, dairy, meat, cereals, fruits, vegetables in the group trained by parents was higher than in the other groups, while use of fatty foods was higher in the control group than in other groups ($P = 0.0005$).

The study of suitable use pattern of nutrients among the groups showed significant statistical difference in the suitable consumption of dairy, meat, cereals, and vegetables between the group trained by parents and the other groups ($P = 0.000$).

There was a positive correlation between parents' educational level and their family suitable nutritional habits and also with awareness of the adolescents regarding requirement of different nutrients.

Table 1: The pattern of variables related to body image

Variables	Groups						*P*-value
	Control		Trained by school health trainers		Trained by parents		
	n	%	*n*	%	*n*	%	
Considering proper height and weight	144	25.1	194	33.9	235	41	0.03
Unfavorable body image	34	37	30	32.6	28	30.4	0.43
Diet	72	34.8	66	31.9	69	33.3	0.12
Skipping breakfast	249	40.5	197	32	169	27.5	0.001
Skipping lunch	20	42.6	17	36.2	10	21.3	0.83
Skipping dinner	93	37.3	33	36.9	91	25.7	0.13

*This comparison has tested by χ^2 test

Following special diet for weight loss and skipping meals was significantly lower in the trained groups ($P = 0.002$). This study indicated that nutritional health training leads to more tendency to eating breakfast in trained groups ($P = 0.000$).

88.2% of the participants believed that there was no difference between family members' meal, but 11% of the adolescents thought that the fathers in the families received more and better meal. Data analysis showed the high level of parents' education led to less gender discrimination in the family.

Discussion

Adolescence is a window to a healthy life in future. In order to promote adolescents' health, we mobilized parents and school health trainers as the key stakeholders to participate in this interventional program.[9,10]

In the present study, 50% of the participants, despite having normal BMI, were following the weight loss diets, although in the trained groups, weight loss diets' consumption was significantly less than in the other groups. Also, intake of adequate nutrients in the group trained by parents was higher than in the other groups, while use of fatty foods in the control group was higher than in others.

Lack of family support, inadequate training, and limitations in the availability of healthy food are some barriers of adolescents' healthy nutritional behavior.[11,12]

In some countries, gender discrimination affects on the nutritional status of girls.[2,11] But in our experience, 88% of the participants believed that there was no gender discrimination.

As shown in our study, parents play a key role in knowledge transfer to their female adolescents for promotion of attitude and practice. Family-based programs could help in management of adolescence period.[12]

In present study, we benefit from stakeholders partnership. We also faced some limitations such as lack of cooperation of some invited participants and long-term follow-up problems.

Conclusion

We suggest that family-based interventional programs provide the best situation for adolescents' nutrition health promotion, but there is no doubt that further studies, especially qualitative research, for the analysis of adolescents' view points are needed for implementation of these programs.

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