

Children with Obesity Prioritize Social Support against Stigma: A Qualitative Study for Development of an Obesity Prevention Intervention

Maryam Amini, Abolghassem Djazayeri, Reza Majdzadeh¹, Mohammad-Hossein Taghdisi², Haleh Sadrzadeh-Yeganeh, Maryam Eslami-Amirabadi³

Department of Community Nutrition,
School of Nutritional Sciences and Dietetics,
Tehran University of Medical Sciences, Tehran, Iran,
¹Department of Epidemiology and Biostatistics,
School of Public Health and Knowledge Utilization
Research Center, Tehran University of Medical
Sciences, Tehran, Iran, ²Department of Health
Promotion and Health Education, School of Public
Health, Iran University of Medical Sciences, Tehran,
Iran, ³Department of Health, Iran Grid Management
Company, Tehran, Iran

Correspondence to:

Prof. Abolghassem Djazayeri,
Department of Community Nutrition,
School of Nutritional Sciences and
Dietetics, Tehran University of Medical
Sciences, Tehran, Iran.
E-mail: jazaiers@tums.ac.ir

Date of Submission: Oct 15, 2013

Date of Acceptance: Mar 03, 2014

How to cite this article: Amini M, Djazayeri A, Majdzadeh R, Taghdisi MH, Sadrzadeh-Yeganeh H, Eslami-Amirabadi M. Children with Obesity Prioritize Social Support against Stigma: A Qualitative Study for Development of an Obesity Prevention Intervention. *Int J Prev Med* 2014;5:960-8.

ABSTRACT

Background: Childhood obesity is a world-wide health problem and development of interventions to prevent or control it is a priority. Obesity is prevalent and on the increase among school-students in Iran, too. As the first step for development of an intervention, the current study was designed to complete our understanding of ideas, attitudes, beliefs, and preferences of primary school children in Tehran, Iran.

Methods: Twenty-seven primary school-students (11 boys, 16 girls) in grade-five, most of whom were overweight or obese, participated in four focus-group discussions (FGDs). All FGD notes were analyzed to find the main themes.

Results: Nine themes in three main categories emerged after analysis. The themes in the category of barriers of losing weight included environmental, psychological and physiological barriers. Category of intervention components included nutrition improvement, physical activity promotion, social support and education. Setting and deliverer of the intervention were included in the intervention conditions category. The children proposed a multi-component approach for development of an intervention. They mentioned nutrition and physical activity improvement, social support and education as the main elements of an effective intervention.

Conclusions: The findings indicate that obese children need to be supported against different barriers of losing weight, mainly social barriers, especially humiliation by the community.

Keywords: Child, obesity, qualitative research, social support

INTRODUCTION

Childhood obesity is a world-wide health problem, not limited to the developed countries.^[1-4] Childhood obesity is associated with adverse health effects and many overweight children tend to grow into obese adults.^[5-7] Development of childhood obesity interventions is, thus, an international health priority.^[2] Obesity and overweight are among the main public

health problems in Iran, too.^[8,9] The prevalence of overweight or obesity among Iranian men and women has been reported to be high as 42.8% and 57%, respectively;^[8] the corresponding proportions for Iranian school-students aged 6-18 years are 10.1% and 4.79%.^[10] Despite the importance of the problem, few interventions have been developed so far to prevent or control obesity in Iran. Hence, developing effective interventions to prevent or control obesity, especially among children, is essential. Considering the proposed frameworks to prevent obesity in the literature, it is of utmost importance to involve stakeholders in developing interventions.^[11] A review showed that interventions, which considered children's views were either effective or unclear in their effects; however, none were ineffective or harmful.^[12] As the first step for developing a childhood obesity prevention intervention, in a recent study stakeholders' preferences were explored,^[13] although children's preferences, as the key stakeholders, were not fully understood. Therefore, the current study was designed to fill the gap and complete our understanding about stakeholders' preferences and explore ideas, attitudes, beliefs and preferences of primary school children about obesity intervention.

METHODS

Data for this study were collected through four focus-group discussions (FGDs) in two primary schools in District 6 of Tehran, a typical middle-class district, representing the city of Tehran.^[13] The methodology of our study was content analysis. A total of 27 grade-five primary school-students (11 boys, 16 girls), whose age ranged between 10.6 and 11.6 years, participated in the study. All boys were obese ($\geq 97^{\text{th}}$ centile of body mass index [BMI] for age, World Health Organization^[14]). Most of the girls were also overweight or obese ($\geq 85^{\text{th}}$ centile of BMI for age, World Health Organization^[14]), except for four (two were $> 75^{\text{th}}$, one was $> 50^{\text{th}}$ and one was in the 15^{th} centile of BMI for age, World Health Organization^[14]). We also invited normal weight students to participate in the FGDs assuming that participation of normal weight students in the study may decrease stigmatization of obese children.

We asked the school staff to invite the children who were apparently overweight or obese and

volunteered for participation in the study. In one FGD, the researcher herself selected the participants from a group of students who were eager to take part in the study. The school staff assured us about satisfaction of the students' parents for participation of their children in the study. We informed the children about general objectives of the study and explained that we expected them to express their ideas and views about the objectives before initiation of the discussions. All participants were completely satisfied to take part in the study and stated it verbally. To avoid stigmatization, the participants were not informed of the reason for their selection. They knew their voices were being recorded. They were also assured that their names and dialog would not be revealed to anybody.

The study protocol was approved by the Institutional Review Board of Tehran University of Medical Sciences, which follows the Helsinki Declaration.^[15]

A questionnaire was developed by the authors after a review of literature and consultation with experts and qualitative researchers. It included eight main questions.

The research team consisted of a moderator and a note-taker with a M.Sc. in the nutrition. The person selected as the moderator was a female Ph.D. student with experience in qualitative studies and working with children. She was a good listener, flexible, open-minded, and able to establish a rapport with the children and encourage them to talk freely. The note-taker was swift and accurate in writing, with experience in note-taking in interviews and FGDs. Each FGD was held with five to ten participants and each session lasted for 22-55 min. The participants sat circularly so that they could see, listen and interact with each other in the discussion. The moderator conducted the FGDs based on the questionnaire guide. All FGDs were held in the schools (the library or a classroom) and were transcribed and taped simultaneously by a digital recorder. After each session the transcriptions were completed by rereading and correcting inaccuracies according to the actual tape recording. Data collection continued until reaching saturation, which means when no new ideas or comments arose from the discussion.

Trustworthiness

To ensure that the moderators understood participants' responses, the ideas delivered were

checked during, and at the end of, each session. All sessions were kept private and in the absence of school staff.

Analysis and interpretation

The analysis was conducted manually. To develop themes, the contents of all notes were read and re-read several times, followed by organizing based on the main objectives (coding), and creating themes and subthemes. Finally, three main categories and nine themes emerged.

RESULTS

Description of obesity

All the students' deprecated obesity and they stated that they disliked it. They described obesity as "excess fat mass," "big body," "overeating," "overweight," "excess body weight" and "glutting." They believed obesity was an awkward condition that causes people to be "lazy," "ugly" and "heavy." A boy said: "Beautiful clothes become tight for us (fat children)." Some of them mentioned obesity as a disease, whereas some considered it as a cause of other diseases, stunting, a short life, or deprivation. A girl said: "Fat accumulates in the body and becomes fat glands which cause cancer or other diseases," and a boy said: "They (his classmates) do not let us participate in the games, which need running." In their opinion, obesity was a barrier for physical activity and alacrity, routine activities, appearance in the society, speaking in front of others, and progress (in life). They also stated that people make fun of obese children and obese children get upset easily. A boy said: "The adults expect a fat child to work more (because they think he is strong)."

Causes and/or prevention of obesity

In general, factors such as "overeating, eating avidly, eating energy-dense foods, oversleeping, sitting in front of TV and computer, inactivity, and genetic predisposition" were among causes of obesity mentioned by the students. A girl said: "If we eat while we are not hungry or if others force us to eat while we are not hungry, we will get fat." The students also listed some factors as preventing factors for obesity, including "exercise and activity; decreasing food consumption; increasing fruits and vegetables consumption;

abstaining from eating high-calorie foods (such as rice, bread and yogurt); abstaining from eating rice and yogurt for dinner; abstaining from eating rice and bread; limiting the time of TV viewing and sleeping; eating a light dinner and a larger lunch; going on a diet; visiting a dietician; and a strong will." Some believed watching TV (programs) can prevent obesity. A boy said: "Appropriate foods for obesity prevention are (those in) the food pyramid. (we should) eat more bread, cereals and vegetables, but less meats and fast foods." Table 1 illustrates the main categories, themes and subthemes related to barriers of losing weight and children's attitudes towards, and preferences for, an obesity prevention intervention.

Barriers for losing weight

The students' views toward barriers for losing weight are categorized into three main topics: Environmental, psychological, and physiological barriers.

Environmental barriers

The participants stated that limitation of exercise in the school is an obstacle for being active and energetic. They also added that passing by a delicatessen, which served tempting foods makes it very hard to stick to a diet. A girl said: "When we exercise or run in the street we get embarrassed." Being at a party, a family/friends gathering, etc., and temptation by classmates who persuade them to eat were other environmental barriers.

Psychological barriers

The findings indicated that in the students' opinions the strongest barrier to weight loss was being ridiculed by others. For example a boy said: "My teacher made fun of me and I got embarrassed." The students stated that the way people look at them, and the words they use when talking to them, imply that "you are a child; you cannot," which made them hopeless. An obese girl said: "When my friend offers me some foods and I say that I cannot eat, my friend scorns and makes fun of me." Some also mentioned that abstaining from eating what they like, quitting of habits, resisting hunger, or being physically active for a long time, are difficult for them. "Wanting to lose weight quickly" was as another obstacle for losing weight.

Table 1: Emerging themes extracted from FGDs with primary school children, 2012

Categories	Themes	Subthemes
Barriers of losing weight	Environmental barriers	Limitation of exercise in schools Exposures to stores which serve tempting foods
	Psychological barriers	When they are offered foods at a party Temptation of classmates Being ridiculed by others Difficulties of weight management such as abstaining from eating of what they like, quitting of habits, enduring hunger, being physically active for a long time Wanting to lose weight quickly
	Physiological barriers	Stomach ache (pain in the belly) due to being on a diet Skin disorders
Intervention components	Nutrition improvement	Planning of a dietary program Holding festivals of dietetic foods Providing healthy snacks or meals in schools
	Physical activity improvement	Playing games involving much movement Providing adequate sports equipment and clubs in schools Diversity in school sports Hiring a coach Changing the current atmosphere of schools from soccer-oriented to other sports like basketball and swimming
	Social support	Reducing sedentary activities, such as using computer and watching TV Keeping fast foods away from the kids Supervision of restaurants Supervision of school canteens and/or reforming of school canteens Removing or reforming of school canteens Cooperation of all schools to provide a suitable sporting area for all of students
		Education
Intervention condition	Deliverer	Parents, classmates, friends, family and relatives, school staff with teacher, researchers who work on obesity, the students, nutritionist with parents, benefactors and TV
	Setting	School and/or home An institution or park specific for obese people Parks and sports clubs On the street

FGD=Focus-group discussion

Physiological barriers

The students identified some physiological conditions in which losing weight is hard for them. They mentioned that when they first start to decrease their food intake and increase physical activity they would have stomachache. A girl said: "Our faces get distorted (after losing weight)." Others reported that reducing the size of a big stomach (resulting from overeating) and cracking of skin are side effects of weight loss. A girl said:

"When we eat, we gain weight very easily, but we lose weight with much more difficulty." Another said: "It is hard to make our stomach small after it becomes large and we cannot get thin anymore."

Components of an appropriate intervention

The students welcomed the idea of developing and implementing a program to prevent or control childhood obesity. Their attitudes toward the intervention were diverse and mixed, and a definite

pattern did not emerge from the FGDs. We have categorized their ideas about components of an appropriate intervention to prevent or control childhood obesity into a few main groups as follows.

Nutrition improvement

The students stated that nutrition improvement was a basic component of any intervention. They made a few suggestions: Necessity of planning a dietary program (for obese children), holding festivals of dietetic foods, and providing healthy snacks or meals in schools. A boy said: "In my idea if we eat (whatever we like) and then exercise (to burn it)... is not effective; we should also know what we are eating. I mean we should eat foods which are low in fat. We should eat more fruits and vegetables."

Physical activity improvement

The students believed that many changes/measures are needed to provide a suitable environment for regular physical activity: Playing games involving much movement; possibility of running in schoolyards; availability of adequate sports grounds and facilities and clubs in schools; diversity in school sports; changing the current atmosphere of schools from soccer-oriented to other sports, such as basketball and swimming; hiring a coach; reducing sedentary activities, such as using a computer and TV viewing. A boy said: "If we eat little, not little but enough (food), and then exercise according to a program, and do all of our work ourselves, we never get fat."

Social support

In the students' opinion some environmental factors needed to be altered to facilitate losing weight. They proposed "keeping fast foods away from the kids, supervision of restaurants, removing or reforming school canteens, and cooperation of all schools to provide a suitable sporting area for all of the students." A boy said: "There should be supervision on restaurants and so that they would not serve foods that are rich in fat, but rather olive oil."

Education/Strategies of education

The students mentioned education/increased awareness as the main component of the

intervention. They suggested changing the curricula of schools (based on objectives of intervention), educating in an effective manner (giving examples by the instructor, kindly and calmly) and going on field trips. A girl implied that she did not like the educator stand beside the board, write something on it and tell the students to memorize it. There was no agreement as to who should be the educator; some agreed and some disagreed to their teachers to be the educator. A girl said: "We'd like to learn something, which increases our knowledge of nutrition, (we prefer) to be taught in a way, which would help us correct our behavior, not just talking."

Deliverer of the intervention

The students suggested the following individuals to be deliverers of an intervention: Parents, classmates, friends, family, and relatives, school staff, teachers, researchers who work on obesity, students, nutritionist with parents, and benefactors. Some students did not like their own teachers to be deliverers of an intervention. The participants described the ideal deliverer as a person who would not use force, was neither too intimate nor distant, somebody who is expert in his/her work. The students mentioned TV as a main deliverer of messages. They believed TV is the most popular medium among children; meanwhile they believed TV may persuade children to develop a taste for fast foods. They thought, however, that through TV they may get information on dietetic foods, dangers of obesity, disadvantages of obesity, home food preparation, and energy contents of the foods.

School canteen

Most of the students were not satisfied with their school canteens. In their opinion an ideal canteen should serve healthy foods, such as milk, fruit juice, different kinds of sandwiches, salad and vegetables. There was, however, some disagreement among them. Some of them considered some food items to be of a questionable value, such as pizza, salami and sausages. Others believed that, as they are growing, they could/should eat everything. A girl said: "Eating salami and sausages even once a month causes cancer;" another girl said: "My dietician has told me that eating one or two slices of pizza a week is not harmful." Half of them liked fruit to be served in school canteens.

Setting of the intervention

Most of the students believed that the intervention should be implemented in different locations, such as school, home, on the streets, sports clubs, and parks. Half of them were in favor of school as a favorite setting for intervention because, in their opinion, since all of their classmates were losing weight, sticking a diet would be easier. Others preferred other locations: School and home, home, an institution or park specifically for obese people, parks, and sports clubs. A girl said: "A place that has a specific park for fat people (children) is good for intervention."

Other suggestions

The students had also some other suggestions for the intervention. They liked the intervention not to be obligatory, rather encouraging (for example through giving gifts/prizes, having contests, etc.); be more of an applied nature; involve parents; combine diet with exercise; not to be boring (for example, be combined with games); and finally, involve the children themselves in changing the environment.

DISCUSSION

To the best of our knowledge, this is the first qualitative study on a childhood obesity prevention intervention in Iran, which explores the attitudes and preferences of the key stakeholders, namely, children about the different aspects of the problem. Based on the findings, the general attitude of the children toward obesity is negative. Considering that almost all of them were overweight or obese, their description of obesity may somehow reflect their experiences with the issue. They described obese people with degrading words like "lazy" or "ugly" and stated that obese children are excluded from recreational activities. In a previous study, adults described their experiences with childhood obesity in which they expressed how they were isolated and discriminated.^[16] They also pointed to exclusion from social activities of obese persons, which to some extent originated from poor self-esteem so common in obese children and also evident from findings of the current study and other studies.^[17] The children stated that others made fun of obese people, expressing stigmatization of obese people, a fact which is well documented by several other studies.^[16,18-20]

The general knowledge of the students on obesity, its causes and prevention was satisfactory. On the whole they were aware of obesogenic foods and behaviors. For example, one of the children explained the food pyramid, though not quite well. Considering that almost all the children were overweight or obese, their awareness of the nutritional/health value of foods and energy expenditure of different activities indicates a "gap" between their knowledge and practice. Such a consistency was also found in another study in which, despite having good information on healthy foods and activities, children reported eating unhealthy foods and sedentary behaviors.^[21]

Children mentioned some situations in which control of eating was hard for them. In a study children admitted that in their opinion junk foods tasted good and were irresistible.^[21] When exposed to tempting foods in different situations such as in school canteens or at parties, some children would find it very difficult to refuse to eat; such children need to be supported and guided. The children considered lack of an appropriate sports ground for sports and games in schools to be a barrier for physical activity. Other studies confirm this. Other barriers mentioned by the children included air pollution, unsafe roads for cycling, lack of sidewalks, the traffic, lack of recreation-stimulating neighborhood, lack of household facilities and equipment, and general safety concerns.^[21,22] The situation is similar in our society; attempts to create a facilitating environment are certainly needed.

Another barrier was reported by a child who confessed she gets embarrassed when she runs on the street. The statement shows the culture of our society, which acts as an obstacle and needs modification.

The most frequent barrier mentioned for weight loss was humiliation by others. However, in some of other studies this was in fact found to be an incentive or one of the main reasons for wanting to lose weight.^[16,18] Interestingly, results of the current study showed that teachers were among people who children claimed had made fun of them. In a previous study, health professionals had ridiculed obese children and/or adults.^[16]

In a study on food items served in school canteens, children stated that the situation was not satisfactory.^[23] A major intervention component suggested by the children was careful control over the canteen food items and preparation in schools.

From the FGDs it was implied that the children are bored of the traditional forms of education and that mere dictating of scientific facts was not enough for them. A review showed that children do not believe health messages to be personally relevant to them or credible.^[12] They preferred a program which would be fun, diverse and not obligatory, which is somehow in agreement with findings of a previous study.^[24] In another study^[25] stakeholders expressed that childhood obesity treatment should incorporate physical activity, nutritional and psychological components and be delivered in familiar environments to recipients.

In a recent study in Iran, views of parents and school staff about development of an obesity prevention intervention were explored.^[13] Overall findings were in agreement with the results of FGDs in the current study, although the children's ideas were expressed in their own language. For example, both groups of stakeholders, children and adults, believed provision of healthy foods are an essential component of an intervention. In this regard, the children simply mentioned that healthy foods should be provided, but adult stakeholders proposed some measures at the policy level, e.g., mandatory labeling and reasonable prices for healthy foods. In addition, psychological barriers for losing weight were more highlighted in the children's FGDs in the current study.

We can consider children's suggestions from another point of view. If we combine their suggestions to construct their proposed intervention, a multi-component intervention will result. Apart from the setting, the main parts of the intervention will include improvement of nutrition and physical activity, social support and education. Interventions with such a design, although rare, have been found to be effective.^[26,27] Since such an intervention will involve different sectors, it will be costly. Another point is human resources. Such an intensive study will demand trained staff which, in turn, will elevate costs. However, we found no cost-effectiveness study on this issue specifically, but it is documented that weight-managed programs for childhood obesity, either hospital- or community-based, and even with moderate effectiveness, are cost-effective and cost-beneficial in the long run.^[28,29] Social support is another element suggested by the children for an intervention. An environment which supports the availability of healthy foods at

home and school, the availability of equipment and space to allow physical activity at home and school, neighborhood access to physical activity facilities, and neighborhood safety are examples of social support.^[30] Although, the children favored schools as an ideal setting for intervention, in Iran most of successful interventions for prevention or control of childhood obesity are clinic- or hospital-based^[31-35] which, would, probably, imply that working in a school setting must be difficult.

This study reflects beliefs and ideas of school children in District 6 of Tehran. The schools, as mentioned before, were located in a middle-class region. Therefore, the results can be generalized at least to some other areas of Tehran and other similar cities in the country. However, the study was conducted in state schools, so the conclusion may not necessarily be generalizable to private schools.

CONCLUSIONS

The children explained their views on an appropriate intervention, which interestingly, were in agreement with adult stakeholders' views. They proposed a multi-component approach for development of an intervention. The study in turn provides valuable information for researchers to develop effective interventions. The findings also help researchers to persuade policy-makers to devise and implement such interventions. Regarding the barriers mentioned to weight loss by the children, attempts should be made to change attitude of the community toward obesity, especially childhood obesity. As weight losing is a time-consuming and difficult process, obese children must be supported against community humiliation. It should be noted that community means all strata, including peers, families, school staff and health practitioners, and is not limited to lay people.

ACKNOWLEDGMENT

The authors wish to thank Hamideh Jorbozeh and the staff of Qods and Andisheh primary schools for their support in data collection.

REFERENCES

1. Godoy-Matos AF, Guedes EP, Souza LL, Martins MF. Management of obesity in adolescents: State of art. *Arq Bras Endocrinol Metabol* 2009;53:252-61.

2. Campbell K, Waters E, O'Meara S, Summerbell C. Interventions for preventing obesity in childhood. A systematic review. *Obes Rev* 2001;2:149-57.
3. Budd G. Obesity prevention: Feasible or futile? *Ped Health* 2007;1:233.
4. Chan RS, Woo J. Prevention of overweight and obesity: How effective is the current public health approach. *Int J Environ Res Public Health* 2010;7:765-83.
5. Verbestel V, De Henauf S, Maes L, Haerens L, Mårild S, Eiben G, *et al.* Using the intervention mapping protocol to develop a community-based intervention for the prevention of childhood obesity in a multi-centre European project: The IDEFICS intervention. *Int J Behav Nutr Phys Act* 2011;8:82.
6. Flynn MA, McNeil DA, Maloff B, Mutasingwa D, Wu M, Ford C, *et al.* Reducing obesity and related chronic disease risk in children and youth: A synthesis of evidence with 'best practice' recommendations. *Obes Rev* 2006;7 Suppl 1:7-66.
7. Wofford LG. Systematic review of childhood obesity prevention. *J Pediatr Nurs* 2008;23:5-19.
8. Janghorbani M, Amini M, Willett WC, Mehdi Gouya M, Delavari A, Alikhani S, *et al.* First nationwide survey of prevalence of overweight, underweight, and abdominal obesity in Iranian adults. *Obesity (Silver Spring)* 2007;15:2797-808.
9. Mirzazadeh A, Sadeghirad B, Haghdoost A, Bahreini F, Rezazadeh KM. The prevalence of obesity in Iran in recent decade; a systematic review and meta-analysis study. *Iran J Public Health* 2009;38:1-11.
10. Kelishadi R, Ardalan G, Gheiratmand R, Majdzadeh R, Hosseini M, Gouya MM, *et al.* Thinness, overweight and obesity in a national sample of Iranian children and adolescents: CASPIAN Study. *Child Care Health Dev* 2008;34:44-54.
11. Swinburn B, Gill T, Kumanyika S. Obesity prevention: A proposed framework for translating evidence into action. *Obes Rev* 2005;6:23-33.
12. Thomas J, Sutcliffe K, Harden A, Oakley A, Oliver S, Rees R, *et al.* Children and healthy eating: A systematic review of barriers and facilitators: The EPPI-Centre, Social Science Research Unit, Institute of Education, University of London; 2003. Contract No.: Document Number.
13. Mohammadpour-Ahranjani B. The epidemiology and prevention of childhood obesity in Tehran. Iran: The University of Birmingham; 2010.
14. Growth reference 5-19 years, 2013. Available from: http://www.who.int/growthref/who2007_bmi_for_age/en/index.html. [Last cited on 2013 Feb 03].
15. World Medical Association. World Medical Association Declaration of Helsinki. Ethical principles for medical research involving human subjects. *Bull World Health Organ* 2001;79:373-4.
16. Thomas SL, Hyde J, Karunaratne A, Herbert D, Komesaroff PA. Being 'fat' in today's world: A qualitative study of the lived experiences of people with obesity in Australia. *Health Expect* 2008;11:321-30.
17. Murtagh J, Dixey R, Rudolf M. A qualitative investigation into the levers and barriers to weight loss in children: Opinions of obese children. *Arch Dis Child* 2006;91:920-3.
18. Friedman JM. Modern science versus the stigma of obesity. *Nat Med* 2004;10:563-9.
19. Puhl RM, Latner JD. Stigma, obesity, and the health of the nation's children. *Psychol Bull* 2007;133:557-80.
20. Puhl RM, Heuer CA. The stigma of obesity: A review and update. *Obesity (Silver Spring)* 2009;17:941-64.
21. Hesketh K, Waters E, Green J, Salmon L, Williams J. Healthy eating, activity and obesity prevention: A qualitative study of parent and child perceptions in Australia. *Health Promot Int* 2005;20:19-26.
22. Gordon-Larsen P, Griffiths P, Bentley ME, Ward DS, Kelsey K, Shields K, *et al.* Barriers to physical activity: Qualitative data on caregiver-daughter perceptions and practices. *Am J Prev Med* 2004;27:218-23.
23. Esfarjani F, Zowghi T, Roostayi R, Mohammadi-Nasrabadi F, Eslami-Amirabadi M, Kamrani Z, *et al.* A survey on snack consumption of secondary school children and status of school canteens in Tehran: A qualitative study. *J Nurs Midwifery Fac* 2008;18:12-21.
24. Wilson DK, Williams J, Evans A, Mixon G, Rheume C. Brief report: A qualitative study of gender preferences and motivational factors for physical activity in underserved adolescents. *J Pediatr Psychol* 2005;30:293-7.
25. Staniford LJ, Breckon JD, Copeland RJ, Hutchison A. Key stakeholders' perspectives towards childhood obesity treatment: A qualitative study. *J Child Health Care* 2011;15:230-44.
26. Johnston CA, Tyler C, McFarlin BK, Poston WS, Haddock CK, Reeves R, *et al.* Weight loss in overweight Mexican American children: A randomized, controlled trial. *Pediatrics* 2007;120:e1450-7.
27. Perman JA, Young TL, Stines E, Hamon J, Turner LM, Rowe MG. A community-driven obesity prevention and intervention in an elementary school. *J Ky Med Assoc* 2008;106:104-8.
28. Ma S, Frick KD. A simulation of affordability and effectiveness of childhood obesity interventions. *Acad Pediatr* 2011;11:342-50.
29. Hollingworth W, Hawkins J, Lawlor DA, Brown M, Marsh T, Kipping RR. Economic evaluation of lifestyle interventions to treat overweight or obesity in children. *Int J Obes (Lond)* 2012;36:559-66.

30. Lawman HG, Wilson DK. A review of family and environmental correlates of health behaviors in high-risk youth. *Obesity* (Silver Spring) 2012;20:1142-57.
31. Kelishadi R, Hashemipour M, Sarrafzadegan N, Mohammadifard N, Alikhasy H, Beizaei M, *et al.* Effects of a lifestyle modification trial among phenotypically obese metabolically normal and phenotypically obese metabolically abnormal adolescents in comparison with phenotypically normal metabolically obese adolescents. *Matern Child Nutr* 2010;6:275-86.
32. Kelishadi R, Sajjadi F, Ghatrehsamani S, Mohammadifard N, Khavarian N, Alikhasy H, *et al.* F A non-pharmacological trial for weight loss of obese children-parents pairs. *ARYA Atheroscler J* 2008;4:143-7.
33. Kelishadi R, Malekhamadi M, Hashemipour M, Soghrati M, Soghrati M, Mirmoghtadaee P, *et al.* Can a trial of motivational lifestyle counseling be effective for controlling childhood obesity and the associated cardiometabolic risk factors? *Pediatr Neonatol* 2012;53:90-7.
34. Sabet Sarvestani R, Jamalfard MH, Kargar M, Kaveh MH, Tabatabaee HR. Effect of dietary behaviour modification on anthropometric indices and eating behaviour in obese adolescent girls. *J Adv Nurs* 2009;65:1670-5.
35. Ghatrehsamani S, Khavarian N, Beizaei M, Ramedan R, Poursafa P, Kelishadi R. Effect of different physical activity training methods on overweight adolescents. *ARYA Atheroscler* 2010;6:45-9.

Source of Support: This work is funded by Tehran University of Medical Sciences, **Conflict of Interest:** None declared.

Author Help: Online submission of the manuscripts

Articles can be submitted online from <http://www.journalonweb.com>. For online submission, the articles should be prepared in two files (first page file and article file). Images should be submitted separately.

- 1) **First Page File:**
Prepare the title page, covering letter, acknowledgement etc. using a word processor program. All information related to your identity should be included here. Use text/rtf/doc/pdf files. Do not zip the files.
- 2) **Article File:**
The main text of the article, beginning with the Abstract to References (including tables) should be in this file. Do not include any information (such as acknowledgement, your names in page headers etc.) in this file. Use text/rtf/doc/pdf files. Do not zip the files. Limit the file size to 1 MB. Do not incorporate images in the file. If file size is large, graphs can be submitted separately as images, without their being incorporated in the article file. This will reduce the size of the file.
- 3) **Images:**
Submit good quality color images. Each image should be less than 4096 kb (4 MB) in size. The size of the image can be reduced by decreasing the actual height and width of the images (keep up to about 6 inches and up to about 1800 x 1200 pixels). JPEG is the most suitable file format. The image quality should be good enough to judge the scientific value of the image. For the purpose of printing, always retain a good quality, high resolution image. This high resolution image should be sent to the editorial office at the time of sending a revised article.
- 4) **Legends:**
Legends for the figures/images should be included at the end of the article file.