Nutrition and Food Sciences Research No 1, Vol 1, Jul-Sep 2014:33-40

Original Article

Perceptions of Local Parents and School Staff on Childhood Obesity Prevention Interventions in Iran

Behnoush Mohammadpour-Ahranjani[1], Morteza Abdollahi[*1], Miranda J Pallan[2], Peymane Adab[2]

1. Department of Nutrition Research, National Nutrition and Food Technology Research Institute, Faculty of Nutrition Sciences and Food Technology, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Unit of Public Health, Epidemiology and Biostatistics, School of Health and Population Sciences, College of Medical and Dental Sciences, The University of Birmingham B15 2TT, Birmingham, UK

Received: April 2014 **Accepted:** May 2014

ABSTRACT

Background and Objectives: Childhood obesity is an increasing public health problem in Iran, and there is no evidence for effective prevention strategies to date. The aim of this qualitative study was to identify and prioritise perceived potential interventions by parents and school staff to help inform the development of an obesity prevention intervention for Iranian school children.

Materials and Methods: Focus groups were held with the parents of primary school aged children and school staff working in primary schools in Tehran city. Additionally, three interviews were held with two physical education teachers and one school nurse. The participants were asked about the causes of obesity and what activities they believed would help children to maintain healthy weight. Then they were asked to prioritise the activities that would have the greatest impact on children to maintain their healthy weight. Thematic analysis was used to analyse the data. Parents were selected from a range of socio-economic backgrounds to include two groups from each of high, medium, and low socio-economic districts of Tehran. Eleven focus groups were held with a total of 85 participants.

Results: Public policy interventions included the provision of valid nutrition information, physical activity promotion, and accessibility to healthy foods. School-based interventions included improving physical education, providing organised physical activity, provision of good quality education for children, parents and school staff, improving school shops, and using rewards and competitions. The findings suggest that close liaison should be established between the school, the family, and the broader community.

Conclusions: This study provided important contextual data on where the emphasis should be placed in developing the childhood obesity prevention interventions for the school children in Tehran. The findings further highlight the importance of involving a wide range of stakeholders, and including multiple components to maximise the chances of success.

Keywords: Child, Obesity, Prevention, Intervention, Qualitative research, Iran

Introduction

In recent years, Iran has been experiencing a nutrition transition (the changing structure of dietary intake that accompanies rapid economic growth) (1), and overweight and obesity have been identified as a serious growing problem (2,3), particularly among the children and adolescents (4-9).

A broad range of environmental factors (10) and genetic susceptibility to the obesogenic environment (11) are associated with the onset of obesity in children and adults worldwide. This has resulted in the development of a variety of strategies internationally, including the implementation of prevention programmes, pharmacological treatments, and surgical interventions (12-14) for the prevention and treatment of obesity.

Several researchers have undertaken qualitative work with a variety of stakeholders to explore childhood obesity and its influencing factors. The next step of accessing the stakeholders' views to inform the development of childhood obesity prevention interventions has been also undertaken in a few studies (15-19). However, these studies have been mainly carried out in the western societies, and the findings may not be applicable to the Iranian context. In the present study, qualitative research methods were used to access specific contextual

***Address for correspondence:** Morteza Abdollahi, Department of Nutrition Research, National Nutrition and FoodTechnology Research Institute, Faculty of Nutrition Sciences and Food Technology, Shahid Beheshti University of MedicalSciences, Tehran, Iran, Tel: +9821 22357486;
E-mail address: morabd@yahoo.com

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information from the relevant stakeholders in Iran that will directly inform intervention development.

Some research has sought to identify possible contributors to overweight and obesity in Iran (20-22), but intervention development and evaluation studies have not been undertaken. This is the first study in Iran to explore the perceptions of parents and school staff regarding the approaches to childhood obesity prevention. This study uses the UK Medical Research Council Framework for Complex Interventions (23) to guide early intervention development, and lays the foundations for an exploratory trial of a multi-faceted childhood obesity prevention programme in Iran.

In this paper we report the data gained from the local stakeholders including parents and school staff on their perceptions of the most feasible and effective ways of intervening to prevent childhood obesity in Iran, and to gain insights into the barriers and facilitators to intervention. The resulting information will inform development of an intervention programme that is tailored to the Iranian context.

Materials and Methods

Participants: Two initial focus groups (FGs) with parents were held in summer 2007 to test all procedures and the topic guide. Following these sessions, the two facilitators met and reflected on the FGs, and updated the topic guide and procedures accordingly. The main FGs were held with the parents (mainly mothers) of young children and the school staff (mainly teachers) working in the primary schools in Tehran city, Iran. The Parents were selected from a range of socio-economic backgrounds to include two groups from each of high, medium, and low socio-economic districts of Tehran. The families were approached through the primary schools in District 2 (north of Tehran, high socio-economic level), District 6 (centre of Tehran, nominated as typical middle class district), and District 15 (south- east of Tehran, a less privileged district with few immigrants). The Participants were purposively sampled in consultation with the school staff to represent parents of children from years 1 and 2 (aged 6-8 years), with the children having a range of weight status.

Data collection: Information sheet was sent to the invitees through the school offices, and informed consent was obtained prior to holding the FGs. All FGs were facilitated by a moderator (the Principal Investigator of the study: female, Iranian), and an assistant moderator (a member of the research team: male, Iranian). Following the study topic guide (Table 1), the participants were asked about the causes of obesity, and what activities they believed could help children to maintain a healthy weight. Then they were asked to prioritise the activities that would most effectively help children to maintain a healthy weight, and would be the most feasible and practical to implement. They were also asked to identify facilitators and barriers to the suggested activities.

Table 1. Focus groups with parents and school staff: research questions and topic guide

Research questions to be addressed
• What are the main perceived contributors to the development of childhood obesity? (reported elsewhere) (24)
• What are the perceived barriers and facilitators to children maintaining a healthy weight?
• Which settings are perceived to be most appropriate for intervention to help children maintain or achieve a healthy weight?
• What activities and interventions are perceived to be important to encourage children to maintain or achieve a healthy weight?
• Which types of intervention are perceived to be most effective, and which are most practical to deliver?
Topic guide
Main questions for discussion
• What do you understand by the terms “overweight” and “obesity”? (reported elsewhere) (24)
• To what extent are overweight and obesity important as health issues in children? (reported elsewhere) (24)
• How and to what extent do you believe it is as an important health issue among Iranian children? (reported elsewhere) (24)
• What are the most important contributors to childhood obesity? (reported elsewhere) (24)
• What are the best approaches for dealing with childhood overweight and obesity?
• What are the most feasible activities for preventing/controlling overweight and obesity among children in our community?
Further questions
• Who should be mainly responsible for preventing overweight and obesity?
• To what extent should schools play an active role in running preventive health programmes?
• To what extent could parents (home environment) play an active role in running preventive programmes?
• Are there others who should be involved in prevention?
• How could parents and school staff interact in developing and running such a programme?
• What are the community barriers towards prevention of overweight and obesity, which could be lessened by the school- or home-based activities?
• How could we use community facilities for implementing preventive health programmes?
• What kind of resources, support, or training would make it easier for you to be active in preventing or dealing with the problem?

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The FGs were scheduled to last about 90 minutes, including about 25 minutes to open discussion and generating ideas on potential interventions, and 65 minutes for more directed prioritising of the interventions that were discussed. Travel costs and simple refreshments were offered to all participants, and they were given a gift for their time and cooperation. All FGs and interviews were audio-recorded using a digital recorder and transcribed verbatim.

Data analysis: An iterative approach was used for data analysis. The data were analysed thematically by using an open coding method. Coding and analysis were undertaken by the main FG moderator, and were reviewed by another member of the research team.

Results

General description of the participants: In total, there were 11 FGs (7 with parents, 3 with school staff, and 1 mixed) with a total of 85 participants. Data saturation was reached by the 9th FG, as no new information emerged in the last two FGs. In addition to the FGs, three interviews were undertaken with two Physical Education teachers and one school nurse, as it was not logistically possible for these participants to attend the FGs. The interviews followed a similar format to the FGs.

All participants were Iranian and residents of the capital city of Tehran. The mean age of the participant parents was 30.3 yr (23-47 yr). Most of the mothers (89.1%) were housewives. The mean age of the school staff was 39.9 yr (35-53 yr), and 26% of the attendees were male (5 out of 19). Most of the school staff participants had a university degree (75%) compared to less than half of the parent participants (44%).

Perceived contributors to childhood overweight and obesity were discussed elsewhere (24). The findings suggest that parents and school staff have sophisticated views on the possible causes of childhood overweight and obesity, which encompass behavioural, structural and social causes.

Interventions for obesity prevention: The summary of prioritised intervention components and the related quotes are presented in Table 2. All of the suggested intervention components target children either directly or through families, schools, or the community.

Public policy interventions: Governmental level or public policy interventions were broadly related to 'providing accurate nutrition information', 'physical activity promotion', and 'accessibility to healthy foods'. There was a widespread belief that conflicting and even misleading messages in relation to nutrition and health are distributed through the media. Therefore, there was a great emphasis on the importance of conveying the correct information, especially through the media. The participants felt that children are interested in news, and especially medical news, and this could be an opportunity for targeting and informing all family members, including children.

The Ministry of Education was seen as a key player, as this is the only decision making body regarding the educational organisations in Iran. It was felt that the Education Office should review and revise the curriculum content to allow children more free time to play both at school and at home. In relation to general physical activity promotion, the main theme was related to increasing the opportunities to expose children to active environments through providing accessible organised physical activities. The need for provision of more activities for children from all socio-economic backgrounds was highlighted.

Availability of healthy foods at a reasonable price and decreasing the production of unhealthy foods were prioritised by some groups.

School-based interventions: The Ministry of Education was identified as the main body responsible to improve physical education sessions. However, the participants also suggested some activities (see Table 2) to improve physical education sessions within the available resources. School was considered the most important setting for increasing the opportunity for learning, and undertaking sports and physical activity. There was recognition that liaison between family and school is needed as the parents also need to encourage play and active games. The participants considered those approaches to physical activity intervention in school that would require only minimal alterations to the current school facilities. With regard to providing sports facilities and equipment, most participants agreed that provision of basic sports equipment such as balls and skipping ropes would be a good start. Some participants suggested developing unused areas in schools as a way of increasing the space available for physical activity.

Compulsory morning exercise under supervision of trained staff and in appropriate space during the winter time was repeatedly brought up by the participants. The word 'compulsory' was added because the parents believed that undertaking morning exercise is an existing part of the school timetable in theory but it is often not implemented, or does not occur regularly. Non-competitive activities, such as running, were also thought to be important, as it was recognised that some children may prefer non-competitive activities. There were suggestions that planning sports events for the school staff and children together would be well received by both groups, and would be effective in increasing the level of physical activity in the long run.

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Table 2. Prevention interventions to maintain healthy weight in children

Level	Intervention	Examples	Quotes
Public policy	Providing valid nutrition information	Establishing a nutrition counselling system Good quality health education through media Continuing Professional Development (CPD) for teachers	*I think all bodies should have a nutrition counsellor, all organisations like Education Office, IRIB* (National TV Station)*, the military,...it'd be very useful* (A deputy). *I believe in accurate information because there are many articles being distributed, then the incorrect messages result in giving unnecessary foods to children* (A father)
	Physical activity promotion	Improving policy on physical education in primary schools Adopting supportive strategies to promote active lifestyle Appropriate signposting	*What you can't see you won't miss. When a child sees a range of games and play equipment in the neighbourhood, at school, then he would feel like playing, but when he just sits in front of TV and new computer games where he thinks he is driving in the middle of a road, then he would not leave that and go somewhere else* (A physical education teacher) *The council have built sports called "Al Zahra". The halls are in all areas, especially built for ladies. Moreover, they arrange hiking trips for children for free and hold competitions… physical fitness classes are also available for all ages. I go to one of the halls on Fridays, I am the supervisor there. But unfortunately just older ladies come along. No children... (*A physical education teacher*)*
	Accessibility to healthy foods	Statutory nutrition labelling Improving accessibility to healthy foods	*I was in Sepah shopping centre* (a chain store) *yesterday. I looked for crisps for a while… I didn't find it there* (where it used to be stored)*, it might have been downstairs, but I don't think so. I mean crisps and flavour corn puffs were not there. …I wondered why they were not there, then I thought maybe they had been instructed not to store them where the kids select snacks.* The second mother: (It is in) *the beans section… where oil, dressings, and peas and beans are. Somewhere that is not interesting for children (*Two mothers from the middle class area*)*
School	Improving physical education	Raising the importance of physical education as a subject Giving certificates and points for regular attendance	*School should take children's' presence seriously. Children normally find it hard to wake up. Mothers would say OK, you've got physical education, and arts, no need to go to school (*A physical education teacher*)* *Marks are important. She* (her daughter) *can't do skipping, so she won't get a good mark. She will try to learn, she does exercise, she has to practise at home (*A mother*).*
	Providing organised physical activity	Providing basic sports equipment Compulsory morning exercise 5-minute daily physical activity in the classroom Non-competitive physical activities for children and teachers Painting playgrounds to encourage playground games	*There is no facility. There was a swimming competition, I went with some children, and we selected from those who had already won* (in the past)*... because there is no opportunity to take them to a swimming pool to practise and see who can swim well... (*A physical education teacher*)*
	Education for all	Improving the children's self-esteem Providing good quality information to the parents and developing parental skills through meetings, lectures, and fact sheets	*My daughter didn't use to take cheese and bread to school..., but now she herself tells me 'put bread and cheese and herbs for me, I like to take it', or 'cheese and bread and walnut, let me take it so my teacher will see what I have, she will give me points'...well it was a kind of encouragement and now she eats, sometimes she makes it at home and eats it (*A mother from the middle class area*).*
	Improving school shops	Controlling opening hours Trained staff/volunteer parents to run the shops Provision of more fresh and healthy foods	*I just popped out to pick up my son (at noon)… the school shop was open and it was crowded. Kids having some junk just before lunch; they will either eat too much or lose their appetite… (*A mother from the affluent area*)* *There is a successful scheme in two schools. Families run the school shops, and it is a nice system. Families get involved, they provide hot food, then five are there with gloves, under control, providing sandwiches for all children... it is not against the law, and they just need to get health certificates... (*A school nurse*)*
	Rewards and competitions (in liaison with families)	Rewards for healthy behaviours including bringing healthy snacks Praising children for healthy behaviours at school assemblies and in the classroom	*He* (child) *might do it as he is encouraged, but when he gets home, he may not eat healthy things… Encouragement would work if it would be continuous both at home and school, not just as a temporary programme at school (*A teacher in school staff meeting*)*
	Other activities	Celebrating 'health day' Art competitions Cooking demonstrations Exercise demonstrations for children in school	*Most obesity* (in children) *is abdominal obesity. Because of eating junk foods, their tummy gets obese… Sit ups, I think, are very good for children… In school, we need to have a foam mattress, but they can do it at home as well. It would be better if we take time for a day and explain* (the activity) *in the school playground; it would be better if we train them rather than describing it schematically. They might not understand and do it wrong (*A physical education teacher*)*
Family	Activities for family	Developing a family physical activity action plan including limited sedentary activities and agreeing a time table for watching TV/screen viewing (tailored activities for girls may be needed in certain areas) Setting up family and friends group activities Taking children to parks regularly including joining team sport activities Walking as a means of transportation where feasible	*Our neighbours in the flat below us have a daughter, she comes to our place. When she is with us I know her mother knows that she is with other children. Then I tell them to do something active… (*A teacher who lived in the lower socio-economic area*)* *There is a football pitch in front of our house. My daughter is dying to play there, but there is limitation for girls to go, and her father believes that she is not a child anymore, and it is not nice to do such things. I mean this is our attitude that when girls grow up, it would not be nice for them to be active. She is supposed to be like a lady, polite, and calm...(*A mother from the low socio-economic district*)* *Kids hardly sit in the parks. Children at age 8-9 very rarely sit in the parks. They go everywhere, so it* (going to park) *would be much better than staying at home (*A physical education teacher*)*
	Parenting skills	Improving family food and physical activity habits Informing the children of the consequences of obesity Arranging healthy meals at regular times Improving parental skills on healthy food shopping and cooking	*When my son's friends come to our house, I don't give them crisps and corn puffs. I just offer traditional foods … like dried apricots, hazelnuts. Kids love these foods. They get used to eating crisps and flavour corn puffs, but they are very happy with eating those* (traditional snacks) (A mother from the affluent area) *I think we should give kids insight that some foods, some snacks are unhealthy. I mean by eating those* (foods)*, some complications would occur. My daughter… I mean she hardly ever eats flavour corn puffs… she came to me a couple of days ago and said that flavour corn puffs are carcinogenic and I won't eat them again. I mean I had instilled in her attitude, awareness, and I had told her… and I bought them* (flavour corn puffs) *very rarely (*A mother from the middle class area*)* *One who skips breakfast, I mean he is hungry and wants to eat a lot for lunch to compensate for the energy he spent since the morning and this brings about obesity… (*A mother from middle class area*)* *… We should eat dinner at 7 and do some activity till 10. If they want to have something at 10, they can have some fruits and go to sleep…(* A mother from low socio-economic area*)*

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The influence of peer pressure on children was discussed. For example, children sometimes refuse to eat healthy home-made or traditional snacks because they feel embarrassed, preferring the unhealthy alternatives that their peers eat. The participants recommended a range of approaches for addressing peer pressure, in part through improving self-esteem. A weekly snack schedule for schools (i.e. a list of snacks allowed for each day) was prioritised by almost all groups, and yet some groups confirmed the feasibility of such activity as it has been implemented in some schools, and has been found to be practical and easy to follow. It was acknowledged that a weekly snack programme had to be in line with the common items in the family food basket. In addition, it was thought that school policies should prohibit children bringing unhealthy snacks to the school.

The provision of continuing professional development (CPD) on health and nutrition related topics for the school staff who would then disseminate this to pupils and parents was discussed. While all participants agreed that habits are built up in the family, almost all groups (including teachers and school staff) referred to the powerful effect of teachers on children's behaviour. It was felt that children listen to the school staff and then convey the messages to their families.

The parents discussed their need to receive accurate information regarding the unhealthy food culture and dietary habits. School was perceived as one of the appropriate settings that can provide parents with the health and nutrition knowledge and skills. Suggested activities included providing and distributing fact sheets, and lectures and discussions relating to health and nutrition at parents' meetings with teachers, but none of these were prioritised as feasible and sustainable. School was also suggested as one of the channels for distributing health and nutrition materials developed at governmental level (Health and Nutrition related Departments).

Almost all groups, including the school staff, discussed approaches to improve school shops. Most groups ultimately perceived that a balance between selling healthy foods and drinks and less healthy options (i.e. not completely banning less healthy food) would be most effective in the long-term. The participants noted that children could buy treat foods from the nearby shops before and after school time, though they are mostly come to the school either by the school bus or with their parents. Availability of healthy food options in the school shop was believed to help develop a taste for such items from the childhood. It was commented that children like to eat similar foods together and they like shopping. Availability of healthy foods at the school shop would build up healthy shopping ability in children and an excellent opportunity for them to do something they enjoy.

A range of approaches to encourage children to have a healthy lifestyle were suggested, all of which centred on encouraging young children's healthy behaviours, which in turn would form good habits. Competitions and rewards such as giving certificates or points, and verbally praising children were seen as among the effective approaches to encouraging healthy behaviours.

Interventions for families: Most of the suggested activities at family level are micro-activities, and can be adapted according to the family resources.

Activities for families: All groups agreed that it is feasible for children to be kept more active in the home, and the participant mothers suggested that all mothers would find their own way in encouraging the children to be physically active, such as encouraging them to help with daily chores. Among the suggested activities, walking to and from the school and developing a walking habit from the early childhood were emphasised frequently.

Parenting skills: It was recognised that the family has a pivotal role in building and initiating healthy attitudes and behaviours. Development of general parenting skills was discussed as a vehicle for getting parents to nurture a healthy attitude among the children from the early years. Suggested parenting approaches were persistence whilst avoiding extreme strictness, and applying 'non-compulsory' and 'non-judgmental' methods.

A few groups of mothers suggested that the children could be involved in shopping, cooking, and drafting a weekly healthy meal plan, particularly for breakfast. Healthy cooking, which was characterised by using fresh and healthy ingredients as well as healthy cooking methods (e.g. baking instead of frying), was often prioritised as an important and feasible activity. Related to this was the importance of cooking light and simple foods for dinner, in contrast to traditional customs. The importance of healthy food shopping for the family and limiting the purchase of unhealthy snacks was considered a prerequisite for healthy cooking.

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Discussion

This study provided important contextual data on where the emphasis should be placed in developing the childhood obesity prevention interventions for Tehrani school children. The findings showed that at macro-level, provision of good quality information for the public, physical activity promotion, and accessibility to healthy foods were identified as the most important interventions. At the school level, improving physical education, providing organised physical activity, education for children, parents, and school staff, improving the school shops, rewards and competitions, and a few other activities such as art competitions and cooking demonstrations were suggested. General physical activity at school was identified as a more important activity than physical education, which is limited to low quality and short duration sessions. Moreover, it is practical to develop tailored physical activity programmes for different populations and situations. Home level activities were mainly dependent on educating the parents in the first place. Activities for families and support with parenting skills were prioritised. Encouraging the families to eat healthy foods and lead an active lifestyle seems challenging, and strategies at governmental level were seen as a way of improving the current situation.

The findings from the FGs and interviews have provided important contextual data on where the emphasis should be placed for the prevention interventions. The findings should facilitate the development of tailored intervention programmes for Tehrani school children. Moreover, the data from this study can be used to develop an intervention programme suitable for the Iranian context (with minimal tailoring to the contexts outside of Tehran).

There was a general belief that successful interventions should include a range of activities in all settings. The types of proposed activities were similar between the different stakeholder groups. However, the mothers tended to endorse practical and simple activities like setting up group activities for children in their neighbourhood, and they put more emphasis on the details of activities like the ingredients of healthy dishes.

In general, the participants prioritised approaches targeting diet than physical activity solutions; this result is similar to the findings from other studies (17). It was perceived that improving dietary habits at the family level is more feasible than affecting change in diets at the wider societal level.

Potential intervention components that have been identified by a range of populations are very similar to those in this study (15-19). Inconsistency in food related messages and strategies for addressing the problem of obesity makes parents feel confused (18,25). All groups were interested in more accurate, detailed and consistent information being made available (18,26).

Whilst the proposed interventions are relatively similar in different countries, the structure, living standards, level of resources, and the culture of the people are different. Thus the implementation of intervention components may need to be tailored for specific populations. For example, in Tehran, improved provision of physical education at school would require the delivery of sessions by qualified physical education teachers rather than class teachers. However, improved provision of physical education in other contexts, where all sessions are delivered by qualified physical education teachers, would require the introduction of staff with expertise in certain sports (15,18). On the other hand, some community activities such as campaigns for healthy behaviours using celebrities and humour, and school activities, which need extra resources such as after-school clubs, were not suggested by any of the participants in the present study. This may reflect an appreciation of what would be culturally acceptable, and the awareness of limitations in available resources.

In general, greater concerns were expressed about physical inactivity and the limited opportunities for physical activity in girls, mainly because of cultural issues, especially in low income areas. However, a similar concern has been expressed in the western countries where strenuous exercise is not perceived as suitable for girls (17). It suggests that targeted physical activity interventions for boys and girls should be developed according to their needs and social acceptance.

The study had some limitations. Representativeness of FG participants is a common concern (19,27). The parents who attended FGs were not complete representatives of Tehrani parents. Private schools have not been included due to shortage of resources, most of the mothers were housewives and fathers attended only one focus group. The greater participation by mothers is similar to other studies, indicating the pivotal role of mothers as primary child carers in most communities (17). The participant fathers were recruited through the principal investigator's personal network, which may have resulted in a few issues including the participants' views being unrepresentative of fathers in general, and the potential effect of relationship between the researcher and the participants on the discussion flow within the FGs. More discussion and conflict was noted in the FG with both mothers and fathers, which may indicate that fathers have a different perspective.

FG dynamics can be troublesome, particularly with dominant participants. The moderators employed techniques to ensure that all participants were able to contribute to discussions. A total of three interviews were carried out due to practical issues preventing the school staff from attending the FGs. Interviews provide a

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different type of data, thus a greater number of interviews would have enabled triangulation of the data. Credibility of the data could have been enhanced by having a greater variety of stakeholders such as health representatives, and comparing their different views. Only one researcher analysed the data in full, which limits the confirmability of the data. However, the initial coding and emerging concepts were checked by another researcher.

Conclusion: Some important principles can be derived from the findings to enhance the success of obesity prevention interventions. A prominent emerging theme was the need for the state level intervention and support. Strategies to inform all community members of the risk of obesity and its associated consequences, liaison between school and home to implement the interventions which are not limited to a certain place and school year, simultaneous adoption of a range of appropriate activities in different settings, and sharing information with decision makers to receive state level support were identified as potential elements of a successful and sustainable prevention intervention.

Acknowledgment: This work was part of the first author's PhD project and she was funded by the Overseas Research Students Award Scheme, UK for three years (2006-2009). The original project was funded by The National Nutrition and Food Technology Research Institute, Shahid Beheshti University of Medical Sciences, Tehran, Iran. We would like to thank the Education Office, Tehran, Iran, and the school staff and parents who have made the project possible. We would like to acknowledge Professor Jayne Parry for sharing her valuable comments on analysing and presenting the data. We would also like to thank Dr. Arash Rashidi, Mrs. Moloud Pakravan, and Mrs. Narges Djazayery for their substantial contribution to performing FGs.

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