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ORIGINAL ARTICLE

Barriers to a healthy lifestyle among obese adolescents: a qualitative study from Iran

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Abstract
Purpose Existing data show a rising prevalence of overweight and obesity among Iranian adolescents. The current study investigates adolescents' perceptions regarding overweight/obesity and explores barriers to a healthy life style among Iranian adolescents.

Methods A grounded theory approach was used for analyzing the participants' experiences, and their perceptions. To collect data, semi-structured focus group discussions and in-depth interviews were conducted with 51 adolescents (27 girls and 24 boys), aged 15–17 years, who were either overweight or obese. Qualitative content analysis of the data was conducted manually and differences in coding were resolved via discussion by four independent reviewers.
Results Two main barriers, personal and environmental emerged from data analysis. Positive perception of condition, priority of studying, lack of willingness, unsatisfactory results, low self-esteem, and perceived lack of control were the major personal barriers while lack of family and cultural support, inadequate education and scarcity of resources were the common environmental barriers to adolescents' healthy lifestyles.
Conclusions Findings demonstrated the main personal and environmental barriers for a healthy life style as perceived by adolescents. Understanding these barriers might contribute to existing literature by providing evidence from a different culture, and help to design effective preventive strategies, and implement appropriate interventions.

Keywords Barriers · Life style · Adolescents · Obesity · Overweight · Qualitative study

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Introduction

Overweight and obesity during adolescence have significant impacts on both physical and psychological health and present major risks for a wide range of health problems in adulthood (Anavian et al. 2001; Dietz 1998; Lobstein et al. 2004; Rosenbloom 2002; Styne 2001). It is argued that an

unhealthy life style might be an important factor that contributes to overweight and obesity among adolescents (Farooqi and O'Rahilly 2000; Kelishadi et al. 2008; Sinha et al. 2002). However, evidence suggests that obesity prevention programs in early life fail to achieve (Baranowski et al. 2002; Flodmark et al. 2006). Lack of attention to mediating behavioral variables and conventional thinking about overweight and obesity prevention in children and adolescents may be significant factors conducive to this condition (Baranowski 2006).

The prevalences of overweight and obesity among Iranian adolescents are relatively high (Kelishadi 2007; Moayeri et al. 2006; Mohammadpour-Ahranjani et al. 2004; Rashidi et al. 2005). Existing data show more than 8.82 percent of school aged children in Iran are presently overweight and another 4.5 percent are obese (Kelishadi et al. 2007). Iran has a population of 70 million and given that 25 percent of Iranian people are under 15 years of age and more than five million are preadolescents (http://www.sci.org.ir), then the extent of significance of the problem is obvious.

This paper attempts to explore the problem more closely by conducting a qualitative study, the main objective of which is to determine barriers to a healthy lifestyle and variables that underlie overweight/obesity in adolescents from their perspective. Understanding these barriers might contribute to existing literature by providing evidence from a different culture, and help to design effective preventive strategies, and implement appropriate interventions.

Methods

Participants and data collection

A total of 7 focus group discussions and 15 in-depth interviews were conducted, between January and September 2008, to explore adolescents' perceptions about underlying factors of their overweight/obesity and barriers to a healthy lifestyle. The participants were 51 school children (27 girls and 24 boys), aged 15–17 years. To obtain views across a range of socioeconomic backgrounds, two demographically diverse areas in Tehran were selected; one area was in the north of Tehran where the socio economic status of people is mostly high, and the other area was selected from the south of Tehran with low socio economic status. In each area, participants were recruited from schools. The criteria for selection were adolescents with overweight or obesity. We used Center for Disease Control and Prevention (CDC) criteria weight classifications for youth using BMI [defined as weight (kg)/height $(m)^2$] percentiles ranges: overweight ($\geq$85th to $\leq$95th), and obese ($\geq$95th) (Kuczmarski et al. 2000) considering the age and sex specific percentiles of Iranian youth (Kelishadi et al. 2007).

The main researcher contacted each of the potential participants to explain the objectives and the research questions, and if the participant agreed to take part in the research, his/her BMI were determined and an interview or discussion was scheduled. All the interviews and focus group discussions were conducted in a private room using a semi-structured interview guide. The interview/discussion guide consisted of open-ended questions to allow respondents to fully explain their own opinions, perceptions, and experiences. To begin, each participant was asked to describe his/her own typical day; then they explained their individual perceptions and experiences on "overweight/obesity", the "factors influencing it", "relationship between weight and health" and "effective ways to prevent of obesity".

During the interviews and focus group discussions, notes were written about the nonverbal signals and the topics they raised. Data collection was carried out by the main researcher, and audio taped. Then, these records were transcribed verbatim and analyzed consecutively.

Purposive sampling was used and followed with theoretical sampling according to the codes and categories as they emerged. Overall 38 participants attended the focus groups, with an average of 5 participants per group; durations of interviews and focus groups lasted between 30 min and 3 h.

Data analysis

Data collection and analysis were done simultaneously according to the grounded theory approach. The interviews and focus group discussions data were analyzed manually and were guided by constant comparative analysis (Juliet and Anselm 2007). Differences in coding were resolved via discussions by four independent reviewers. Open, axial, and selective coding was applied to the data. During open coding, each transcript was reviewed several times and the data reduced to codes; codes that were found to be conceptually similar in nature or related in meaning were grouped into subcategories; in axial coding the aim was to clarify how the subcategories that emerged were related to preliminary categories. Analytical tools, included asking questions and making comparisons, were utilized to find the properties of each concept. When data saturation occurred, interviewing was stopped.

Validity

In this study, conformability and credibility of the data were established in three main ways, participant's revision, in-depth prolonged engagement with participants and

faculty member's revisions. Maximum variation of sampling also confirmed the confirmability and credibility of data; participants were contacted after the analysis and were given a full transcript of their coded interviews with a summary of the emergent themes to determine whether the codes and themes matched their point of view. To establish auditability, four faculty members conducted a second review. Results were also checked with some of the adolescents who did not participate in the research and they confirmed the fitness of the results as well. Sampling strategies allowed for maximum variation to occur and a vast range of views and perspectives to be considered. Prolonged engagement with participants in the research environment allowed the researcher to gain participants' trust and better understanding of their situations. The researcher documented the steps followed in the research and the decisions made to save the auditability for other researchers to perform the steps of the research in future studies.

Ethics

The scientific research committee of the Tarbiat Modares University (TMU) approved the study. Participants provided written informed consent before the beginning of interviews and focus group discussions and explicit permission was sought before audiotaping.

Results

In all 51 adolescents (27 girls and 24 boys), aged 15–17 years, took part in the study. The characteristics of the study participants are shown in Table 1. Overall, two main categories of barriers emerged from the data analysis: "personal and environmental barriers for a healthy lifestyle". Presented here is summary of the findings (Table 2).

Table 1 The study participants' characteristics

	Number	Percentage
Sex		
Girls	27	52.0
Boys	24	48.0
High school grade		
9th year (first year)	17	33.4
10th year (second year)	9	17.6
11th year (third year)	25	49.0
Mothers' information		
Educational level		
Primary	11	21.6
Secondary	30	58.8
Higher	10	19.6
Occupation		
Housewife	38	74.5
Employed	13	26.5
Fathers' information		
Educational level		
Primary	6	11.8
Secondary	24	47.0
Higher	21	41.2
Occupation		
Employee	49	96
Unemployed	2	4.0
Residential area		
North of Tehran (high socioeconomic area)	27	52.0
South of Tehran (Low socioeconomic area)	24	48.0

Table 2 A summary of findings

Personal barriers	Environmental barriers
Positive perception of condition	Unsupportive family
Positive self- image	Unhealthy modeling
Lack of threat	Failure to accompany
Studying as a priority	Priority of studying
Lack of willingness	Inadequate knowledge
Unsatisfactory results	Cultural barriers
Low self-esteem	Social norms
Low self-worth	Cultural transience
Lack of self-confidence	Inadequate education
Perceived lack of control	Scarcity of resources
Low self efficacy	
Belief of uncontrollable weight	

Personal barriers

Positive perception of condition

A sense of satisfaction of participants from their current condition was one of the main barriers for modifying their lifestyle. In this regard, two contributing factors were evident: positive self-image, and lack of threat.

Positive self-image

Healthy lifestyle was perceived to be of less interest in participants who had a positive self-image. Three main factors contributed to the development of this perception: first, the beliefs that overweight persons are strong and resistant to physical blows and illness.

> My body form is strong, I don't get sick much or when the guys joke around and hit me, I don't feel

any harm even when they hit me hard. (16-year-old boy)

Second, the similarity of the body type of these individuals to that of their family members that created a feeling of normality for them.

My weight is naturally high, because high weight and big bones are usual in our family. (17-year-old boy)

Finally, their ability to compete with their peers especially in sports and physical activity, that made them feel satisfied with their condition.

I'm fat, but I don't have a problem with being fat. I'm physically fit; I mean being overweight hasn't caused me to stop exercise and stuff, at PE in school I play sports just like everyone else. (16-year-old boy)

Lack of threat

None of the adolescents believed that their health is at risk. On the contrary, most perceived themselves as healthy individuals and had no concerns about obesity or its complications.

I've never had a problem. I mean, I'm not worried about anything, there's nothing wrong with my health. (17-year-old boy)

Even in cases where obesity was acknowledged as an illness, the problem was recognized as a problem of the future and not for the time being.

Right now, it's not something important that could create a problem for my health. Maybe in the future I need to be more careful about my weight. (16-year-old girl)

Studying as a priority

For all participants, regardless of their educational status, studying was found to be a priority. When describing a typical day, all of them mentioned that their most important duty throughout the day is to do their schoolwork, and pointed out a direct relationship between the amount and difficulty of the schoolwork and their lifestyle.

Studying is most important for me. Last year I used to work out, but then I didn't have the energy to study, I would just fall asleep. So I just quit working out. (17-year-old boy)

I used to walk until last year, but the schoolwork is hard this year, and I can't. Because of my studying, I can't go to the club, our major is hard. (17-year-old boy)

Therefore, the lifestyle of students would follow a seasonal pattern; the amount of physical activity and attempts to adhere to a diet and weight loss would increase during the summer vacation with the additional free time, and would decline or even stop during the school year.

I tried to go along as my doctor told me. And I did during the summer, but during the school year, I couldn't exercise as much. (16-year-old girl)

This effect would be amplified in final year school students since they have to take part a national exam for university entrance.

After school I have classes, I get home dead tired and until I'm awake I have to do my schoolwork. How am I supposed to exercise? (17-year-old girl)

The importance of educational success and university acceptance in the adolescents' life was so intense that it could influence lifestyle modification decisions, or at least postpone them.

I will finally go on a diet someday. I'm thinking that after I take my university entrance exam, I can spend time on managing my weight loss. (17-year-old girl)

Lack of willingness

Many participants recognized the main reason for not implementing a healthy lifestyle was due to lack or weakness of willingness. Comments implying temporary decision-making or the need for being forced by others could represent a lack of willingness.

I have to be under supervision of a doctor, or like a friend or someone else. I have to be under pressure to lose weight. (17-year-old girl)

Unsatisfactory results

Participants believed that weight loss through the modification of unhealthy behavior to be a slow, and disappointing process and were generally not satisfied with the results from their own previous experiences.

When you go on a diet that shows its results after a year, you get disappointed. Who doesn't want to lose weight fast? (17-year-old boy)

I'm very careful, but when I see that when I work so hard and only lose 2 kilograms, I get disappointed. I start eating; I say to myself all this work and only 2 kilograms? Better not work out at all. (15-year-old girl)

In fact, most participants usually indicated that as prerequisites for accepting lifestyle modification, they want fast solutions that guarantee definite weight loss.

> I say if someone can guarantee that I do all this, say, do half an hour of exercise a day at home or go walking and have this diet, and lose 3 to 5 kilograms in a month, I certainly would do it. But to do all this, the exercise, the pressure, and then lose half a kilogram, it's pointless. (16-year-old girl)

Low self-esteem

Participants with low self-esteem were less likely to make contact with peers and appear in a crowd, which was a large barrier for lifestyle modification, especially regarding physical activity and in group sport participation. Two concepts derived in this context were low self-worth and lack of self-confidence.

Low self-worth

Low self-worth was a concept derived from the negative impression in overweight adolescents; some participants claimed they are comparing themselves with others, especially peers, and believed they were less valued than their normal weight counterparts.

> You always compare yourself to skinny people and see they're more agile and can do things faster, but you're slower. (15-year-old boy)

> You get frustrated seeing the thin people; you keep on saying 'what a body, you're so great, and I'm like this'. (16-year-old girl)

Lack of self-confidence

Low self-worth in obese and overweight adolescents was accompanied by a negative understanding of social judgment and decreased self-confidence. Participants identified themselves as having a negative effect on others and felt themselves worthy of ridicule from their normal weight counterparts. Fear of ridicule was an important barrier for their participation in-group sports.

> I'm afraid that if I join a crowd, someone might make fun of me, or make a joke, and I'd take it personally, because it's a weakness. (15-year-old boy)

> When I exercise, I think everyone's staring at me, or maybe even laughing, so I don't exercise anymore. (16-year-old boy)

Perceived lack of control

Lack of control was another main barrier for a healthy lifestyle in participants. Two related concepts included: low self-efficacy and belief of uncontrollable weight.

Low self-efficacy

The constant use of phrases such as "I can't", "I wanted to, but couldn't", and "it is too hard" represented low self-efficacy among participants regarding behavior change and lifestyle modification.

> I wanted to reduce my food intake, but I couldn't. Even now, however much I want not to eat, but I can't; I eat everything I find. I eat a lot for breakfast, lunch, and dinner. (16-year-old boy)

Data showed the pivotal role of the deficiency of skills such as effective stress management in the establishment of the above belief.

> My diets are usually broken during exam time. I can't keep from eating during the exams. I'm stressed; I study and eat. (17-year-old girl)

Belief of uncontrollable weight

In addition to the feeling of low self-efficacy, the belief that obesity and weight gain, per se are uncontrollable, was another concept derived from the data. This concept emerged from the claims of participants who believed that factors such as genetics or even God's will were more influential toward their obesity, than their lifestyle. Data analysis revealed the prominent role of such beliefs in creating a feeling of inefficiency in participants, leaving weight control in the hands of uncontrollable non-behavioral factors and outside of the realms of human will.

> Obesity is genetic, because I don't have a problem, not my thyroid, not anything else, but I don't know why I don't lose weight. (16-year-old girl)

> My body type is how God meant it to be, you can't change that. (17-year-old boy)

Environmental barriers

Unsupportive family

Adolescents mentioned an unsupportive family as the main barrier for their lifestyle modification. Four concepts that were derived in this context were unhealthy modeling,

failure to accompany, priority of studying, and inadequate knowledge.

Unhealthy modeling

Findings of the current study confirm that families present unhealthy role models for behavior, and therefore represent an important barrier in lifestyle modification for adolescents.

> In many cases, the kid sees the father eating so much, and tries to eat as much as his father. (16-year-old boy)

Failure to accompany

Each participant indicated insufficient help from her/his family as a reason for unhealthy behaviors.

> If the family is supportive, you can do whatever it takes, but if they're not and just go half way, it won't work. Like, my father tells me to go exercise. I can't just go out and exercise, they have to do something for me to go exercise. (16-year-old boy)

> When you're on a diet, you can't make food for yourself. Your parents have to make the food. But my mother makes the same food for everyone, when I see that all there is this food, I eat it. (15-year-old boy)

Furthermore, lack of psychological support of the family was also a barrier for adopting a healthy lifestyle.

> A girl my age is not only made fun of by others; her mother makes fun of her, her father makes fun of her, the whole family makes fun of her, telling her she's so fat and ugly. Eventually, she gets depressed and revolts. (17-year-old girl)

Priority of studying

Believing in children's educational success as a priority was among the main inhibitors of adolescents' life style modifications.

> I really like to go after sports and such, but one problem is my own parents. Whenever I want to go to the club or something, they say 'just wait for these next two years, take your university entrance exam and then do however much sports you like to'. When they say things like that, you suddenly feel unenthusiastic and give in. (16-year-old boy)

Inadequate knowledge

Inadequate knowledge of families was another barrier for a healthy lifestyle.

> My family tells me to completely exclude bread and rice from my diet to lose weight, but you know, that's not possible, bread and rice are the most tempting. (16-year-old boy)

> Another problem is that my mother will get a diet from one of her friends or whoever else, and give it to me and say 'here, do this one'. (16-year-old boy)

Cultural barriers

Social norms

According to the participants, social norms could also be mentioned as environmental barriers in the implementation of healthy lifestyles. In this regard, many of the girls stated social intolerance as the most important reason for not wanting to engage in physical activity or exercise in public places.

> My brother would wake me up at 5:30 every morning to go jogging. I would tell him that it's not acceptable for me to go run in the street. (17-year-old girl)

> I like to exercise, but a woman who goes out early in the morning to exercise is made fun of, and we most definitely would be. (17-year-old girl)

Cultural transience

In addition, some cultural transience such as consumerism, the widespread enthusiasm of the younger generation toward computers and the internet, and the increasing popularity of food eaten outside the home, all manifestations of change in the traditional Iranian lifestyle were claimed to be barriers to moving toward a healthy lifestyle by participants in the study.

> We never used to have this much stuff. When I was 8, we didn't even have a computer, but now not only we do have a computer, we have a bigger TV, a bigger stereo, and… And if there were, like two pieces of furniture then, now there are three. There isn't any room to move. (16-year-old girl)

> Before, I mean 5-6 years ago, we would play soccer a lot, but now with computers and the internet, no one is like before anymore. (17-year-old boy)

> Now, when you go out, you can't even pass these various restaurants. Like, when I go out with my

mother, I make her get me something. (15-year-old girl)

Inadequate education

Participants claimed that the lack of knowledge they possessed rendered them incapable of adhering to a healthy diet.

> Everyone has a different way of talking to us, as if the guy studied 12 years and became a doctor, if he's tested something, right or wrong, he can suggest it to others. There is no reliable source to get right information. (16-year-old boy)

In this regard, ineffective health communication was another educational deficiency that was mentioned by participants.

> Doctors just tell us what to eat and what not to eat, but they seldom tell us how to prepare it. They give us a difficult instruction with no flexibility. (16-year-old girl)

Scarcity of resources

Participants mentioned small houses, inadequate sports facilities, and the high costs of healthy foods as barriers to healthy lifestyles.

> Our house is about 120 m^2, I can't do anything. (17-year-old girl)

> My friend went to a doctor and got a diet which had different kinds of meat in it. His father couldn't get it for him, and so he couldn't complete the diet. He gave up weight loss completely, and is still fat. (16-year-old boy)

Discussion

The findings of the current study are indicative of individual and environmental factors that impede lifestyle modification in Iranian adolescents. In this study, positive self-image among participants was an important barrier for changing their unhealthy lifestyle. The attitude of many of the participants regarding obesity as a normal or even positive occurrence and also their ability to do sports like their peers plays a significant role in creating this positive self-image. This finding is in accord with the findings of the study by Grignard et al. (2003), indicating a relation between the decrease of body mass index and negative self-imaging in adolescents and this confirms the findings of Alm et al. (2008), concerning the importance of maintaining an ideal physique and the ability to compete in sports to adoption of a healthy lifestyle in adolescents. An important difference between the findings of the current study and the study conducted by Alm et al., was the lack of concern among participants regarding their health conditions and an absence of the sense of threat of falling victim to the complications of obesity. According to findings available, perceived risk has a central role in creating motivation for healthy lifestyle in adolescents and is recommended as one of the effective solutions in weight management programs (Alm et al. 2008; Smalley et al. 2004; Walker et al. 2002).

By attributing obesity to non-behavioral factors, such as genetic and physiologic conditions, some study participants attempted to present achieving healthy lifestyle as a futile goal and believed themselves forced to accept their circumstances. This finding could imply the inhibitory role of an external locus of control on the adopting a healthy lifestyle in Iranian adolescents (Steptoe and Wardle 2001). In contrast, many of the other participants believed their low efficacy, especially regarding stress management to be the most important facilitator for their current lifestyles. These findings once again stress the importance of perceived self-efficacy on lifestyle modification and weight loss (Foreyt and Goodrick 1994; Roach et al. 2003).

Story et al. (2002) demonstrated that motivation has a central role in weight control in children and adolescents, a finding similar to that of the current study, where lack motivation in participants was considered as one of the main barriers for a healthy lifestyle, in this regard studying and the university entrance were most emphasized as priorities. Possibly, low student admission rates in Iranian universities and tight competition or pressure for acceptance in their preferred majors could be contributing factors conducive to the creation of these circumstances. In addition, many of the participants believed their lack of motivation was due to their dissatisfaction with results obtained from previous experiences. Considering that the sole criterion for evaluating lifestyle modification in the current study was weight loss, many of the participants saw the process of weight loss as long and disappointing, and requested methods for considerable weight loss in short time periods. The inhibitive role of exaggerated unrealistic goals has also been demonstrated in previous studies (Locke and Latham 2002; Wadden et al. 2003).

Each participant in the present study identified support as a necessary prerequisite for healthy lifestyle and referred to various aspects of lack of support as a reason for her/his unhealthy behaviors. As in previous studies, family support was of utmost importance (Sallis et al. 1999; Thompson et al. 2003). Many of the participants identified their lifestyle as similar to that of their parents, and recognized the

parents' unhealthy behavior patterns as a barrier toward change in their own lifestyle. Thompson et al. (2003) reported an association between parental behavior patterns and obesity in children and Dietz and Gortmaker (2001) also previously claimed positive parental attitude and practice to be a prerequisite necessary for healthy nutrition and satisfactory physical activity in children.

In addition to the insufficient physical presence of the parents, for many of the participants, the lack of psychological support of the family was also a barrier for adopting a healthy lifestyle. Complaints by adolescents of ridicule and insult from the families, shown in previous studies, can be considered as examples of this effect (Chen et al. 2005). This lack of support was also evident in the cognitive dissonance of the participants regarding physical activity and study. The tremendous amount of effort put into studying against individual will, is to a large extent for the sole purpose of meeting parents' expectations and shows the central role of family values in the weight gain of Iranian children and adolescents.

A number of the participants mentioned cultural barriers that could influence their decisions in adopting a healthy lifestyle, to the extent that despite their claims of lack of interest in group sports, their negative perception of social prejudice toward overweight persons discouraged their presence in public places. Whether the lack of self-confidence in the participants caused their negative perception of social judgment or vice versa requires further investigation. In addition to the negative social label generally mentioned by participants, girls would specifically mention the inhibitory role of social norms in relations between women. Furthermore, the inhibitory influence of cultural and social changes, such as the ever-growing inclination to fast foods, and the popularity of computer games and the internet, on participants toward lifestyle modification was undeniable; this can be considered in general a product of industrial life in the Iranian society; all these findings confirm those of previous studies (Eisenmann et al. 2008; Galvez et al. 2009). As a significant finding and based on Iranian cultural changes, the current study showed consumerism and luxury to be barriers to a healthy life style for adolescents. Similar to the results of other studies (Sallis et al. 2000; Vilhjalmsson and Thorlindsson 1998) that insufficient recreational space and sports facilities were among the most important barriers for lifestyle modification in participants of the present study. The finding that was different from previous findings was that the limitations in space and facilities were more prominent for adolescent girls. In addition, the high cost of healthy food and difficulties in obtaining it, especially at school, deprived the participants from the chance of receiving a healthy diet.

Strengths and limitations

This study was a qualitative study and the findings can provide a deep understanding of healthy lifestyle barriers in adolescence that could not be achieved through quantitative studies. Variety in sampling was an advantage of the current study. Participants of the study belonged to different socio-economical backgrounds, were of various degrees of obesity, had different experiences of lifestyle modification and weight loss, and were of both genders. Because of the prospective nature of the present study, there is a possibility of existing recall bias. Moreover, voluntary participation made room for exclusion of the experiences of those who did not wish to participate in the study for any reason. In addition, all participants were selected from an urban community, and therefore the findings do not reflect barriers of healthy lifestyle in rural communities. Complementary studies are recommended in these areas.

Conclusion

We have explored the main individual and environmental barriers which influence healthy lifestyles in Iranian adolescents. Among individual barriers, the influence of priority of studying seems to be unique in our population. Findings of the current study may help to provide a realistic perspective of the current situation and in designing of future programs for weight control in adolescents.

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