

Iranian Female Adolescent's Views on Unhealthy Snacks Consumption: A Qualitative Study

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Abstract

Background: Given the increasing prevalence of obesity among Iranian adolescents and the role of consumption of unhealthy snacks in this issue, interventions that focus on factors influencing food choice are needed. This study was designed to delineate factors associated with unhealthy snack use among female Iranian adolescents.

Methods: The theory of Planned Behavior served as the framework of the study. Qualitative data were collected via nine focus group discussions in two middle schools (6th to 8th grades) in a socio-economically diverse district in the city of Tehran in spring 2008. The study sample included 90 female adolescents aged 12-15 years. The sampling strategy was purposive method. Data analyzed using the "framework" method.

Results: Major factors identified by the respondents were taste, peer pressure, parental influence, easy access to unhealthy snacks, limited availability of healthy snacks, appeal of snacks, habit, high price of healthy snacks, and media advertisements. Nutritional value and healthiness was not one of the first priorities when buying snacks, as adolescents thought it was too early for them to worry about illness and adverse consequences of eating junk foods.

Conclusions: For developing culturally sensitive evidence-based interventions that can motivate adolescents to choose healthy snacks, a broad range of factors should be taken into account.

Keywords: Adolescent, Snack, Qualitative research, Iran

Introduction

Childhood obesity and overweight is one of the most serious public health challenges of the 21st century that is steadily increasing both in developed and many low- and middle-income countries (1, 2). Indeed, today more than 155 million children worldwide are overweight or obese (3). Changes in diet and physical activity have led to an increase in obesity in the developing world, particularly among children (4). The dietary patterns of children have been affected by the globalization of fast foods in many of countries undergoing nutrition transition (5).

Additionally, even as the gross national products of these countries increase, the burden of obesity

is being shifted towards individuals with lower socioeconomic status (SES) (6). The changes in the diets and physical activity patterns, and the increasing prevalence of obesity in some lower- and middle-income countries is occurring at a great speed and at earlier economic and social stages of development (7). Thus, in these countries, there is a need for the prevention of the adverse health consequences of this shift, including cardiovascular disease, diabetes, and cancer (4, 7, 8).

Iran is the most populated country in the Middle East (9). The occurrence of nutrition transition in the country is an important health concern, which has led to the prevalence of obesity and diet-related diseases among the Iranian population,

particularly in urban areas and especially among young women (10, 11). Of the approximately 70 million people living in Iran, nearly 18 million (27%) are adolescents (12). A recent national study on the prevalence of nutritional problems among Iranian students aged 6–18 yr, which was conducted among a representative sample of 21,111 children from urban and rural areas, suggests the beginning of an epidemic in childhood obesity (13, 14). Additionally, this study revealed unhealthy dietary habits among Iranian children and adolescents, including the consumption of salty, fatty, or sweet snacks, and also a low intake of healthy foods, particularly fruits, vegetables, and dairy products (14).

An unhealthy diet, including snacks in particular, are dominant factors contributing to overweight and obesity among children and adolescents (15, 16). Research conducted in other countries has identified a number of risk factors for unhealthy weight and/or diet among school-aged children and adolescents, including: physical inactivity (17–18), unhealthy eating patterns (16), excessive use of television (19), high soft drink consumption (20), breakfast skipping (13, 17, 18), and inappropriate frequency of family meals and home food environment (21).

A thorough needs assessment and a scientific examination of schoolchildren snacking habits may provide a foundation for behaviorally focused interventions (22). However, the effectiveness of interventions designed in Western society and their applicability in Middle Eastern countries remains unknown. Due to different cultural expectations, teen is not a uniform concept (23). Hence, designing culturally sensitive evidence-based interventions that can be delivered at a population level requires a clear understanding of major determinants of unhealthy snack choices. To the best of our knowledge, no data exists that identifies adolescents' views about factors associated with their snack choices in Iran or any other Middle-East countries. Thus identifying the factors that contribute to unhealthy diet in Iranian children and adolescents is a priority. It is suggested that using the theoretical models to explain the causes of

health problems (24). Ajzen's theory of Planned Behavior (TPB) (25) has been used to explain many of health behaviors. This theory has potential value in predicting and explaining adolescent diet and physical activity behaviors (26, 27). The TPB is an extension of the Theory of Reasoned Action (TRA), which suggests that an individual's intention to perform a particular behavior is the single most important predictor of behavior. Intention is the cognitive representation of a person's readiness to perform a given behavior and is determined by the individual's attitude toward the specific behavior, subjective norms, and perceived behavioral control (25). Godin and Kok's meta-analysis showed that TPB can explain 41% of variance in intentions and 34% of variance in future behaviors (28). Qualitative research is an approach used to answer complex issues such as people's attitudes, behaviors, value systems, culture or lifestyles, thus the present study was designed based on qualitative methods to identify female adolescent perceptions about factors influencing unhealthy snack choices, using the TPB framework.

Materials and Methods

The present study was part of a multi-part study examining the effectiveness of TPB based interventions.

Qualitative data were collected via nine focus group interviews. Focus group discussions are a well-known qualitative approach for data collection in health science research. Group interaction, inherent to focus groups, can help shed light on issues that may not come up in other qualitative research methods (29). Focus groups were conducted at two large middle schools in district 14 of Tehran. This district is a socio-economically diverse district in the city of Tehran, hence selecting of this area was based on purposeful sampling. Study inclusion criteria included being enrolled in 1st, 2nd and 3rd grade (6th to 8th grades) aged 12–15 yr. Two schools were selected out of 26 middle schools in the district. One or two classes were randomly selected from each grade within each school. Nine classes were selected.

Within each class, students were selected from an enrollment list using a systematic sampling method. Groups were formed based on an average of nine students per focus group (range= 7-12). The study protocol was approved by the Institutional Review Board (IRB) of the Tehran University of Medical Sciences. All the selected students agreed to participate in the study. Parental written informed consent was obtained from all subjects.

At the beginning of each focus group session, all participants were asked to complete a short socio-demographic survey. All focus groups were conducted in a private room within the school setting. Each focus group was facilitated by two trained moderators. A co-researcher audiotaped the proceedings and took notes. Each session took 70 to 80 min. New focus group discussion sessions were planned until data saturation.

The moderators followed a topic outline with the flexibility to allow for the generation of new inquiries. A series of eight semi-structured questions based on the TPB theoretical framework were developed. The questions were evaluated for their content by two experts and then pre-tested with five students in the same age group. Based on their feedback, minor changes were implemented. Fig. 1 shows the focus group questions as related to the TPB construct. In the first three questions, adolescents discussed their definition of snacks and the nutritional value of snacks. Then unhealthy snacks were defined as snacks that contain large amounts of fat, salt, or sugar, and finally exemplified with available and commonly used snacks.

Data analysis

Focus group interviews were transcribed from the tape recordings. Then data were analyzed using the "framework" method consisting of five steps: familiarization, identification of a thematic framework, indexing, charting, and mapping and interpretation (30, 31). Each transcript was read several times before beginning the analysis. The research team developed a set of decision rules to standardize the coding procedure. One of the researchers generated a thematic coding list us-

ing three focus group transcripts, and then other researchers coded the remaining focus group transcripts independently using the coding list and adding to it as new themes emerged. A primary analyst checked themes using purposefully selected focus group scripts. Ultimately, themes were enlarged or subsumed as supra-themes evolved within groups. Inter-rater reliability was calculated using percent agreement (inter-rater reliability $r = .89$). This agreement indicated that the coding list was reliable. Disagreements were discussed and new or adjusted coding categories applied to all transcripts.

Results

Ninety students aged 12-15 yr participated in the focus groups. Mean age of students was 14.2 yr. The educational levels of the parents of participants were relatively low. Only 23% of fathers and 9% of mothers had college-level educations. Family size in 61% of adolescents was four or less. Determinants identified by the adolescents were taste, peer pressure, parental influence, and easy access to unhealthy snacks, limited availability as well as high price of healthy snacks, appeal of snacks, habit, and media advertisements. These determinants were organized to reflect TPB constructs.

Attitudes toward unhealthy snack consumption

A majority of participants reported consuming snacks such as crisp and puffed cheese snacks during the 24 h prior to the focus group. When the adolescents were asked to judge the nutritional value of what they had eaten within those 24 h, a clear majority identified snacks such as crisps, puffed cheese, and soft drinks as low-value and harmful. They believed that eating unhealthy snacks and junk foods would lead to adverse effects such as obesity and overweight: "*I know that eating such foods will one day end in bad results. For example eating crisps and puffed cheese can lead to distorted body shape.*" Other outcomes of junk food consumption that adolescents stated included skipping meals or eating less, impaired growth, cancer, diabetes, tooth decay, heart disease, anemia, hypertension,

and osteoporosis. Body size and appearance were important for a majority of participants, and obesity and inadequate growth were mentioned as the most harmful consequences of eating unhealthy snacks: *"The most important thing that can stop me from eating is when I feel I am getting fat."* Another student said, *"What works for me is not when my mother tells me don't eat crisps, you will get cancer, because I think I will die anyway, but rather, when she says you will gain too much weight, I stop eating because being in a good shape is important for me."* However, participants noted that while healthy snacks had certain benefits, the taste was not as good as junk food: *"I never enjoy drinking milk since it does not really have a good taste, although I know that I should drink 3 glasses daily."*

When participants were asked whether eating healthy is a priority in choosing snacks, the majority responded negatively. Some argued that they were too young to be worried about their health: *"I can't tell that nutritional value of snack has any priority for me when I purchase them. Although, it counts, but other factors such as taste is more important for me."* Some other students stated, *"It is too early for us to worry about infirmity (with laughter)."*

Subjective norms and social pressure

Almost all adolescents considered friends and peers to be the most important social force on their snacking choices. They mentioned that the snack choice of one member of the group often reinforces the choice(s) of the others. Even if that choice is an unhealthy choice, it will be followed by the rest of the members in the group. One participant said, *"When I am with my friends I usually eat the type of snacks they eat because it makes me feel fit in the group."* They also mentioned that as a member of a group you do not want to be laughed at. One participant stated, *"My friends make comments about my snacking, for example if I have feta cheese sandwich as a snack at school they make fun of me."* Others also mentioned that when they are with their friends, they eat more unhealthy snacks than in

other situations: *"I eat more unhealthy snacks when I am with my friends, because eating these types of snacks is more fun when you're with friends. I feel more comfortable eating junk foods with my peers."*

A majority of the participants believed that their parents exert control over their snacking choices both directly and indirectly. They believed that their parents' support and the type of snacks their parents purchase are important: *"If we had more healthy snacks than junk foods at home, this would make us choose healthier snacks."* One participant said, *"Sometimes I decide to start eating healthy but then in the morning I see my mom hasn't prepared me a healthy snack and instead gives me money to buy snacks. Then it is natural that I go for buying things such as crisps and puffed cheese."*

Forming unhealthy eating habits during childhood was mentioned as another parental factor associated with choosing unhealthy snacks: *"I think, for example, if parents of a 2 yr old child feed him/her salty food, the child will continue developing a taste for salty food."* In addition, adolescents believed that parents could change eating habits of their children by changing their own eating habits: *"My parents have been a positive role model for me. As far as I remember, I have never seen them eating unhealthy food, so I have been following the same eating habits."* Some adolescents believed that siblings, teachers, physicians, as well as nutritionists who are invited in regular TV talk shows are among other people with the potential to form their snacking choices.

Perceived behavioral control

Across focus groups, adolescents consistently mentioned easy access to junk foods, lack of availability of healthy snacks, unappealing look, and taste of healthy snacks, media advertisements, high price of healthy snacks, and inadequate knowledge as reasons or motivating factors to consume unhealthy snacks. Participants discussed that they eat what is conveniently available to them, and often that does not include healthy snacks. One participant said, *"When hot-*

dogs are easily available at school and are cheaper to buy than other snacks, of course I will prefer them over other foods." Another participant indicated, "When I get home from school I am usually very hungry. I eat whatever is available at home, and most of the time I end up eating junk foods because nothing else is there to eat."

Other motivating factors for choosing unhealthy snacks among participants included the attractive coloring and packaging of the snacks. The majority of participants believed that if industries use attractive packaging for healthy snacks and make them tastier, they would eat those snacks more often. Some of the adolescents claimed that they would never try certain healthy snacks or foods only because they look awful. One participant said, "If raisins are packaged like crisps, I may go for it." The low price of junk foods as compared to healthy snacks was important among some adolescents. One participant said, "Usually unhealthy snacks are cheaper than healthy ones; for example soft drinks are much cheaper than milk."

Regarding advertisements and TV commercials for unhealthy snacks, adolescents said they are

easily enticed by their messages. One participant said, "There are many TV commercials for puffed cheese and crisps but not for healthy snacks such as raisins and fruits." One participant said, "I think, when in movies, soft drinks are displayed at the dining table, it conveys a message that encourages its use." Nevertheless, some students argued that when they learn about unhealthy ingredients that are used in some snacks and their negative health consequences, they are less likely to use them, especially when this information is delivered by a health care provider or nutritionist: "Until a person don't know the adverse effect of junk foods, he/she feels there is no need to change his/her diet." Along the same line of argument, some of the participants mentioned that they are more likely to eat healthy foods and avoid unhealthy snacks if their parents have taught them about the nutritional values of healthy foods. One participant said, "Many times my mother reminds me that I will be out of shape and will get sick, if I continue eating unhealthy snacks and foods. She warns me that if I don't eat healthy I will be sick all the time like my grandmother."

Focus group questions	TPB constructs
-What do you consider as snacks?	Ice breaker
- Think about what snacks you ate in the last 24-hours. Can you discuss the nutritional value of each of the snacks that you ate? How healthy are they?	Ice breaker
- What snacks would you like to have at home and at school?	Ice breaker
What factors influence your snack choices?-	
-Is one of the factors you mentioned as influencing your snack choices particularly strong?	Attitude/Subjective norm/ Perceived behavioral control
Does this factor vary during different times? -	
-In what situations and for what reasons do you or do you not eat snacks? unhealthy	Attitude
-What do you consider healthy eating? Is eating healthy important to you?	
-How important are healthiness and nutritional quality for you when selecting snacks?	Subjective norms
-Do other individual(s) have an influence on your snack choices? If yes, who?	
What makes it hard to reduce eating unhealthy snacks?-	PBC
-What makes it easier to reduce eating unhealthy snacks	PBC

Fig. 1: Focus group questions

Discussion

Our results indicate that adolescents' consumption of unhealthy snacks was influenced by a broad range of factors, including taste, lack of a sense of urgency for personal health, peer pressure and parental influence, easy access to unhealthy snacks, limited availability and high price of healthy snacks, inadequate knowledge, appeal of snacks, habit, and media advertisements.

Adolescents in our study were well informed of the negative health consequences of unhealthy snacks but were less likely to practice eating healthy snacks. Nevertheless, they emphasized that when information about negative health consequences of unhealthy foods/snacks are delivered by "important others," it motivates them to eat less of them. This finding reemphasizes the notion that knowledge at some level is a logical prerequisite for the adoption of healthy behaviors, but acquisition of knowledge by itself does not seem adequate to assure behavioral change (32). Based on Mirmiran et al, despite the acceptable level of knowledge in Tehrani adolescents, only 25% of boys and 15% of girls had good nutritional practices (33). Therefore, focusing only on delivering information and increasing adolescents' knowledge about the short and long-term benefits of a healthy diet may not be an appropriate or sufficient strategy for this age group (34). Adolescents often do not think of a healthy diet as a priority or a matter to be concerned with (35). However, female adolescents mostly avoid use of unhealthy snacks/food to control their weight, or to gain a socially acceptable body size (36), and to ward off undesirable comments for their weight (37).

There are several studies devoted to understanding the role of peers in determining food choices (37, 39). The results of this study also points to the impact that friends and peers seemingly have on snack choices among participants. With no exception, there was an undivided belief among participants that friends and peers have power to influence their snacking choices. This persuading role of friends and peers is deeply rooted in the Iranian culture around eating that heavily empha-

sizes the sharing of food. In Iranian culture, it is considered rude if a person who is eating food does not offer it to others who are around him or her, particularly friends and regardless of the amount of food (i.e. whether there is enough to share). Offering food to others named as "ta'arof" is a routine practice that is mandated by the culture. According to this cultural phenomenon, one offers something, particularly food, out of politeness to another person and on the receiving end, refusing what has been offered is considered out of politeness, whether or not he/she wants it. An adolescent who takes snacks to school or any peer gathering knows that it will be offered to friends and therefore will be inclined to choose a type of snack that will gain everybody's approval and even further, will be praised. This is done to avoid negative judgment from friends regarding one's snacking choices.

Regardless of specific factors associated with the participants' culture, similar to previous research, our findings show that adolescents tend to be sensitive to the way their peers view them when it comes to eating. This supports the argument that peers have an important role in adolescents' social life. In our study, adolescents noted that when they are with their friends and peers, they eat more unhealthy snacks because it is the norm. Herman and colleagues argue that in the absence of clear eating guidelines, people use the behavior of others as a sign of 'appropriate' eating behavior (40). As noted by Monge-Rojas, the practices followed by the majority are considered "normal," whereas the practices that are individually defined are considered "weird" (34).

Since eating behaviors are learned actions, and parents are a primary source of socialization, they play an important role in children's eating habits. In our study, parents are reported as influencing factors in adolescents' snacking choices. Iranian cultural principles put a great deal of emphasis on care and feeding ways of children. This responsibility particularly is assigned to mothers. In other hand, cultural norms expect children to obey their parents' instructions (23). Adolescents believed that

parents can directly impose changes in their eating habits by setting eating rules and purchasing only snacks and foods they consider healthy. They also can indirectly make changes in the eating habits of their children by making changes in their own eating habits. Previous studies have investigated the effects of parental food choices, purchasing behaviors, and family food environments on various (un) healthy eating behaviors (41-44). A vast majority of these studies showed the positive impact of healthy family food environment and parental control on adolescent healthy eating behaviors. However, Stevenson noted that although parental supervision may translate into less consumption of unhealthy food by their children in the short-term, it may impede adolescents' self efficacy (45). Adolescents may rebel against too much parental control and adapt unhealthy diets as a way to show their autonomy.

Another important finding of this study that warrants further discussion has to do with the strong opinion and judgment that participants had placed on the packaging of snack products. To the view of our participants, look, color, and packaging quality of a snack are all important criteria for choosing them. It is important to note that snacking is a new phenomenon in Iran and is heavily advertised by using Western styles of packaging in order to attract consumers. Commercial snacks that are offered to kids in Iran are often wrapped in colorful packages and have an attractive appearance.

In this study most participants claimed they were more or less in control of their diet, however, factors such as easy access to junk foods, personal taste preferences, and social pressure by the media lowered their behavioral control. This result is somewhat similar to previous studies. For example in the systematic review by Shepherd and colleagues, barriers to healthy eating included poor school meal provision, ease of access to unhealthy snacks/foods, relative cheapness of unhealthy snacks/foods, and personal taste preferences for fast foods (46). However, family support, availability, and accessibility of healthy foods, desire to look good, and will power were reported to be facilitators (46).

Our study had a number of limitations that need to be addressed. In this study, only the views of students were assessed. Obtaining views of parents and school staff might have improved the understanding of the issue. The study was only conducted among female adolescents and focused on their attitude, motivation, and self-control on unhealthy snacking. Therefore, the results may be generalizable only to females but not necessarily to male adolescents. Another limitation of this study has to do with the possibility that some adolescents in this study might have given socially desirable responses instead of discussing their own views. This especially happens when issues are discussed in-group settings. Despite the limitations, results obtained in this study can be used to improve our understanding of issues involved in unhealthy snacking behavior among female adolescents in Iran and similar societies.

In summary, the implications of this formative research are threefold: First, socio-cultural and psychological variables can have profound influences on female adolescents' unhealthy eating behaviors. Hence, interventions aimed at improving adolescents' nutrition, especially reducing snack consumption, are likely to be more effective if these factors are taken into account. Second, educational messages should be tailored based on Iranian's deep cultural beliefs regarding food sharing and the power of Western style commercialization and advertisement of healthy snacks. Finally, it seems that besides interventions that focus on environmental changes such as increasing availability of healthy snacks, interventions with female adolescents should also address the following areas: applying persuasive messages to promote adolescents' internal locus of control; linking dietary behaviors to physical appearance; and training skills such as how to resist peer /media pressures as well as strategies for making informed decisions.

Ethical considerations

Ethical issues (Including plagiarism, Informed Consent, misconduct, data fabrication and/or

falsification, double publication and/or submission, redundancy, etc) have been completely observed by the authors.

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References

1. Martorell R, Kettel Khan L, Hughes M, Grummer-Strawn L (2000). Overweight and obesity in preschool children from developing countries. *Int J Obes Relat Metab Disord*, 24(8): 959-67.
2. Anonymous, World Health Organization. Global Strategy on Diet, Physical Activity and Health: Childhood Overweight and Obesity on the Rise. 2008 (cited 2008 September). Available from: <http://www.who.int/dietphysicalactivity/childhood/en/>
3. Anonymous, International Association for the Study of Obesity. 2008 (cited 2008 Sept). Available from: <http://www.iaotf.org/millennium.asp>.
4. Popkin B (2004). The nutrition transition: an overview of world patterns of change. *Nutr Rev*, 62(7):140-43.
5. Adair L, Popkin B (2005). Are child eating patterns being transformed globally? *Obes Res*, 13(7): 1281-99.
6. Monteiro C, Moura E, Conde W, Popkin B (2004). Socioeconomic status and obesity in adult populations of developing countries: a review. *Bull World Health Organ*. 82(12): 940-6.
7. Popkin B (2002). The shift in stages of the nutrition transition in the developing world differs from past experiences. *Public Health Nutr*, 5(1):205-14.
8. Maziak W, Ward K, Stockton M (2008). Childhood obesity: are we missing the big picture? *Obes Rev*, 9(1):35-42.
9. Anonymous, World Statistics. 2008 (cited 2008 September); Available from: http://www.mongabay.com/igapo/world_statistics_by_area.htm
10. Ghassemi H, Harrison G, Mohammad K (2002). An accelerated nutrition transition in Iran. *Public Health Nutr*. 5(1):149-55.
11. Bidad K, Anari S, Tavasoli S (2008). Dietary Intakes of Adolescent Girls in Relation to Weight Status. *Iranian Publ Health*, 37(1):114-8.
12. Anonymous, World Factbook. Iran People. 2007 (cited 2008 September). Available from: <http://education.yahoo.com/reference/factbook/ir/popula.html>
13. Kelishadi R (2008). Thinness, overweight and obesity in a national sample of Iranian children and adolescents: CASPIAN Study. *Child Care Health Dev*, 34(1):44-54.
14. Kelishadi R, Ardalan G, Gheiratmand R, Gouya M, Razaghi E, Delavari A, et al. (2007). Association of physical activity and dietary behaviors in relation to the body mass index in a national sample of Iranian children and adolescents: CASPIAN Study. *Bull World Health Organ*, 85(1):19-26.
15. Jackson P, Romo MM, Castillo MA, Castillo-Duran C (2004). Junk food consumption and child nutrition. Nutritional anthropological analysis. *Revista Medica de Chile*, 132(10):1235-42.
16. Sebastian R, Cleveland L, Goldman J (2008). Effect of snacking frequency on adolescents' dietary intakes and meeting national recommendations. *J Adolesc Health*, 42(5): 503-11.
17. Mota J, Fidalgo F, Silva R, Ribeiro J, Santos R, Carvalho J, et al. (2008). Relationships between physical activity, obesity and meal frequency in adolescents. *Ann Hum Biol*, 35 (1):1-10.
18. Mahfouz A, Abdelmoneim I, Khan M, Daffalla A, Diab M, Al-Gelban K, et al. (2008). Obesity and related behaviors among adolescent school boys in Abha City, Southwestern Saudi Arabia. *J Trop Pediatr*, 54 (2):120-4.

19. Driskell MM, Dymont S, Mauriello L, Castle P, Sherman K (2008). Relationships among multiple behaviors for childhood and adolescent obesity prevention. *Prev Med*, 46(3):209-15.
20. Harrington S (2008). The role of sugar-sweetened beverage consumption in adolescent obesity: a review of the literature. *J Sch Nurs*, 24(13):3-12
21. Franko DL, Thompson D, Bauserman R, Affenito S, Striegel-Moore R (2008). What's love got to do with it? Family cohesion and healthy eating behaviors in adolescent girls. *Int J Eat Disord*, 41(4): 360-7.
22. Kasila K, Poskiparta M, Kettunen T, Pietila I (2008). Variation in assessing the need for change of snacking habits in school-children's oral health counselling. *Int J Paediatr Dent*, 18(2):107-16.
23. Mahdi AA (2003). *Teen life in the Middle East*. First ed. Westport: Green wood.
24. Sharma M, Romas JA (2007). *Theoretical Foundations of Health Education and Health Promotion*. Boston: Jones and Bartlett.
25. Ajzen I (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2): 179-211.
26. Hamilton K, White K (2008). Extending the theory of planned behavior: the role of self and social influences in predicting adolescent regular moderate-to-vigorous physical activity. *J Sport Exerc Psychol*, 30(1): 56-74.
27. Kassem NO, Lee JW, Modeste NN, Johnston PK (2003). Understanding soft drink consumption among female adolescents using the Theory of Planned Behavior. *Health Edu Res*, 18(3): 278-91.
28. Godin G, Kok G (1996). The theory of planned behavior: A review of its applications to health-related behaviors. *Am J Health Promot*, 11(2): 87-98.
29. Rubin H, Rubin I (1996). *Hearing about culture. Qualitative Interviewing: The Art of Hearing the Data*. Thousand Oaks, CA: Sage Publication
30. Rashidian A, Eccles MP, Russell I (2008). Falling on stony ground? A qualitative study of implementation of clinical guidelines' prescribing recommendations in primary care. *Health Policy*, 85(2):148-61.
31. Richie J, Spencer L (2002). *The Qualitative Researcher's Companion*. In: Huberman AM MM, ed. *Qualitative Data Analysis for Applied Policy Research*. Thousand Oaks CA: SAGE
32. Baranowski T, Cullen K, Nicklas T, Thompson D, Baranowski J (2003). Are current health behavioral change models helpful in guiding prevention of weight gain efforts? *Obes Res*, 11:23S-43S.
33. Mirmiran P, Azadbakht L, Azizi F (2007). Dietary behaviour of Tehranian adolescents does not accord with their nutritional knowledge. *Public Health Nutr*, 10 (9): 897-901.
34. Monge-Rojas R, Garita C, Sanchez M, Munoz L (2005). Barriers to and motivators for healthful eating as perceived by rural and urban Costa Rican adolescents. *J Nutr Educ Behav*, 37(1):33-40.
35. Croll JK, Neumark-Sztainer D, Story M (2001). Healthy eating: What does it mean to adolescents? *J Nutr Educ*, 33(4):193-8.
36. Messina F, Saba A, Vollono C, Leclercq C, Piccinelli R (2004). Beliefs and attitudes towards the consumption of sugar-free products in a sample of Italian adolescents. *Eur J Clin Nutr*, 58(3):420-8.
37. Salvy SJ, Romero N, Paluch R, Epstein L (2007). Peer influence on pre-adolescent girls' snack intake: effects of weight status. *Appetite*, 49(1):177-82.
38. Cullen K, Baranowski T, Rittenberry L, Co-sart C, Hebert D, de Moor C (2001). Child-reported family and peer influences on fruit, juice and vegetable consumption: reliability and validity of measures. *Health Edu Res*, 16(2):187-200.

39. Anonymous, Countries and their culture. culture of iran 2001 (cited 2008 September); Available from: <http://www.everyculture.com/Ge-It/Iran.html>
40. Herman C, Roth D, Polivy J (2003). Effects of the presence of others on food intake: a normative interpretation. *Psychol Bull*, 129(6): 873-86.
41. Hang CM, Lin W, Yang HC, Pan WH (2007). The relationship between snack intake and its availability of 4th-6th graders in Taiwan. *Asia Pac J Clin Nutr*, 16(2): 547-53.
42. Brown R, Ogden J (2004). Children's eating attitudes and behavior: a study of the modeling and control theories of parental influence. *Health Educ Res*, 19(3): 261-71.
43. de Bruijn GJ, Kremers SPJ, de Vries H, van Mechelen W, Brug J (2007). Associations of social-environmental and individual-level factors with adolescent soft drink consumption: results from the SMILE study. *Health Educ Res*, 22(2):227-37.
44. Epstein L, Dearing K, Handley E, Roemich J, Paluch R (2006). Relationship of mother and child food purchases as a function of price: a pilot study. *Appetite*, 47(1): 115-8.
45. Stevenson C, Doherty G, Barnett J, Muldoon O, Trew K (2007). Adolescents' views of food and eating: identifying barriers to healthy eating. *J Adolesc Health*, 30(3): 417-34.
46. Shepherd J, Harden A, Rees R, Brunton G, Garcia J, Oliver S, et al. (2006). Young people and healthy eating: a systematic review of research on barriers and facilitators. *Health Educ Res*, 21(2):239-57.