

## The Impact of Adolescent Friendships on Unhealthy Eating Behaviors of Overweight and Obese Adolescents: A Qualitative Study

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### Abstract

**Background:** Childhood obesity has reached epidemic proportions and become one of the most important public health issues globally. One of the significant determinants of childhood obesity-related behaviors such as poor dietary habits relates to role of friends and peers. This study aimed to explore the role of interaction within the social network of friends on unhealthy eating behaviors of overweight and obese adolescents.

**Materials and Methods:** This qualitative study was conducted between 2016 and 2017 in Mashhad and Isfahan, two large cities of Iran. Ten parents and 52 overweight and obese adolescents were selected through purposeful sampling. To obtain perceptions and experiences regarding the role of adolescent friendships on unhealthy eating behaviors, in-depth semi-structured interviews and focus group discussions were conducted. Data were analyzed based on conventional content analysis.

**Results:** Six themes which contributed to following unhealthy dietary habits when adolescents are in the friend networks were identified: "Eating in the peer networks as a usual way for social interaction", "Peers' pressure to have unhealthy dietary habits", "High availability and accessibility to unhealthy foods", "Lack of nutritional knowledge", "Neglectful parenting style", and "Passive interaction in the friendship networks".

**Conclusion:** Our findings indicate that peer support along with appropriate parenting style are necessary to affect adolescent eating behaviors when they are in the friend social networks, but are not sufficient per se. Being a confident, decisive and self-determined adolescent and owing a high level of behavioral confidence and self-esteem might reduce the impact of friends for adhering to unhealthy dietary habits in youth.

**Key Words:** Adolescent, Dietary habits, Friends, Obesity, and Qualitative research.

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## 1- INTRODUCTION

Nowadays, childhood obesity has reached epidemic proportions and become one of the most important public health issues globally (1). During the last three decades, the prevalence of overweight and obesity among children and adolescents has dramatically increased, though with later onset, and more rapid increases in prevalence were reported in some low and middle-income countries (1, 2). A recent meta-analysis showed that overweight and obesity are prevalent in about 16% of Iranian children and adolescents (3). Childhood obesity causes several physical and psychological long-term adverse consequences including increased risk of developing chronic diseases, arthritis, sleep apnea and bronchial asthma, as well as depression, discrimination, low self-esteem, peer rejection and stigmatization (4, 5). Overweight and obese children and adolescents are more likely to become obese adults and develop non-communicable diseases in later life (4).

However, in spite of considerable efforts and implementing several interventional programs, only a limited success has been achieved to prevent and treat childhood obesity, which might be due to the challenges of working among children and adolescents, lack of attention to mediating behavioral variables and focusing on conventional approaches to prevent childhood obesity (6). Therefore, new studies should be conducted to discern better strategies and novel approaches paying special attention to the socio-cultural contexts of the communities (7-9). One of the significant determinants of childhood dietary habits pertains to friends and peers (10). Eating is an important form of socialization and recreation and it has been shown that youths' dietary choices and energy intake might be influenced by their peers and friends (11). In this regard, several studies have investigated the impact of friends on

dietary choices of children and adolescents but their results have not been consistent. For example, although it has been shown by some studies that friends' unhealthy food consumption such as fast-foods and total energy intakes were associated with youths' unhealthy food choice and total energy intakes (12), yet in some other studies it has been found that presence of friends and peers caused less energy intake and improved dietary choices toward healthier food items (13, 14). Overall, it is proposed that friendship networks could contribute to youths' obesity-related behaviors, particularly among adolescents (15). However, it has been suggested that more theoretical and empirical studies particularly in-depth qualitative enquires be undertaken to clarify the specific mechanisms underlying the effects of peers on youths' eating behaviors in the future (10). Iran, like several other developing countries, has faced accelerated nutrition transition and urbanization which has led to unhealthy dietary habits and physical inactivity and corresponding increases in overweight and obesity prevalence among all age and sex groups (16, 17).

In spite of Western countries, there is limited research in Iran to assess determinants of childhood obesity, particularly the role of friend networks on the eating habits of youth. Given the different sociocultural contexts of Iranian families, differences in infrastructure, policies, economics and the physical and social environment in Iran, it seems that more studies, especially comprehensive qualitative studies will be required in this field. Thus, the aim of the current study was to explore the role of interaction in the social network of friends on unhealthy eating behaviors of overweight and obese adolescents using content analysis. Such endeavor would be indispensable toward designing and implementing interventional studies for childhood obesity prevention.

## 2- MATERIALS AND METHODS

### 2-1. Research design and setting

This qualitative study is a part of a large protocol of a qualitative study conducted in Mashhad and Isfahan, two metropolises of Iran, during 2016 to 2017 with the aim of exploring perceptions and experiences of Iranian adolescents from obesity. Parents and overweight and obese adolescent students who were studied in the middle or high schools of the city center and border site of the city comprised the research population of the study.

### 2-2. Sample size and sampling methods

Similar to other qualitative studies (18), there is no statistical formula to calculate sample size in the current study. Due to the subjective nature of sample size in qualitative studies, the sample size might be different in the various studies depending on required information, participants' availability, willing to share their ideas and opinions (19, 20). It is important to investigate a wide range of experiences and sampling must continue to reach data saturation (19, 20). In the current study, purposive sampling with maximum variability in terms of age and socioeconomic status was used to select participants with good communication ability that were interested and willing to share their ideas and opinions and provide the best information on the intended phenomenon. This sampling procedure was continued until achieving data saturation. Data saturation was deemed to have been achieved when new samples added no new information to the previous data and more sampling only provided repetitive records.

### 2-3. Recruitment of the participants

Since Iranian families have almost a similar social and cultural background, we started sampling from Mashhad city (North East of Iran), then, to achieve

saturation of ideas sampling was continued in another big city of Iran, Isfahan city, which is located in the center of the country. To collect data of all socio-economic backgrounds, according to the city councils of Mashhad and Isfahan cities announcement, these two cities were divided into three demographically diverse regions; high, middle and low socioeconomic status. Then, from each region, we selected some schools randomly. In each school, overweight and obese 12-18 year students who, based on WHO 2007 Table (21), had a body mass index (BMI)  $\geq$  85th percentile were selected to participate in the study. Parents (father or mother) who had at least one overweight or obese adolescent also participated in the study at their children's schools. Exclusion criteria were consuming drugs associated with gaining weight such as nerve drugs and corticosteroids, and having any metabolic diseases such as endocrine disorders and diabetes.

### 2-4. Data collection

At first, according to the inclusion criteria students who were interested and willing to share their ideas and opinions and provide the best information on the intended phenomenon invited to participate in the study. Then all of the participants were notified about the aims of the project and received the information sheet related to the study. Next, we allocated sufficient time to the participants to ask their questions and if they were in agreement to participate in the study, they were asked to fill and sign the written consent form. Parents of the students also asked to fill the consent form. Finally, if both students and their parents were agreed to participate in the study, we arranged a time for interview. In-depth and semi-structured interviews were used to obtain data. In addition, to explore the role of interaction in social network of friends on unhealthy eating behaviors of overweight

and obese adolescents four focus group discussions were held. Similar to the other qualitative studies, open-ended questions were applied for interview/discussion, which allowed subjects to fully explain their own opinions, perceptions, and experiences and provide in-depth and flexible interviews. All interviews were collected in a private room of the schools by the main researcher. At the beginning of each session (interview/discussion), students were asked to explain their own feelings, perceptions and experiences on overweight and obesity and factors which cause and influence these conditions. Then, students were requested to explain the impact of their peers and friends on their eating behaviors and weight gain.

With focus on the main topic, subsequent questions were asked depending on the responses of the participants. Similar questions were also asked from parents. They were asked to clarify their feelings and ideas about overweight status and obesity and explain the underlying factors that contributed to the weight gain in their children and whether they blamed themselves on these issues or not. Each individual interview lasted between 30 and 90 minutes and some participants were interviewed more than once. The duration of focus group interviews were also between 60 and 150 minutes. Symbolic interaction approach was used to write notes nonverbal signals by the main researcher. In the focus group interviews, to write notes about the nonverbal signals and monitor the sessions, two trained researchers assisted the main researcher.

### **2-5. Data analysis**

All the interviews were audiotaped and subsequently transcribed verbatim. Data were analyzed simultaneously after incorporation of written notes into the text and reviewing and rechecking for their accuracy. Conventional content analysis was used to analyze data using MAXQDA

software (version, 2010). At first, after the transcribed interviews were read precisely line-by-line for several times, the main concepts were specified and data reduced to codes. In this regard, the text was divided into meaning units, which consisted of a group of words related to the same meaning. The process of data reduction continued with labeling meaning units with codes. The extracted codes were classified and code comparison was conducted based on the codes similarities and differences. After data analysis, 312 codes were emerged related to the impact of adolescent friendships on unhealthy eating behaviors that after reviewing the similarities and merging of the codes, they reduced to 84 cods and categories developed. After linking the underlying meanings of categories using inductive analysis, themes were emerged. After careful study and analysis of the text of each interview, the next interview was planned.

### **2-6. Trustworthiness of Data**

Study rigor was confirmed by four criteria, namely credibility, dependability, confirmability and transferability proposed by Lincoln and Guba (22). In this regard, the following methods were used to verify the study rigor:

1. *Prolonged engagement with data.* In this regard, interviews were repeated if required. In addition, to achieve a deep understanding of the phenomenon, interviews were reviewed several times, the initial codes and their modification were also reviewed, and the various stages of analyses were reviewed by the process of data reduction, and considering enough time to provoke the underlying meaning of participants' experiences.
2. *Peer debriefing.* In this step, some experts in qualitative studies were asked to review the codes and

emerged categories and assess the analysis method and provide feedback on its validity.

3. *Member checking.* To investigate whether the extracted codes and emerging categories are similar with the study participants' point of view, a summary of the results of data analyzing including emerging codes and categories were returned to interviewee and they were asked to evaluate and comments if the authors' interpretation match with their explanation regarding their perception and experiences.
4. *Providing audit trail and evaluation of the study by external supervisor.* All stages of the study from the beginning to the end and all the made decisions were documented to allow the external supervisor and other researchers auditability and to perform the authors' method and the steps of the research in future studies.

## 2-7. Ethical Considerations

The ethics committee of Mashhad University of Medical Sciences approved the study (ID- code: 950618). All of the study participants were assured about their right to leave during the study. Confidentiality of information was also guaranteed. Before participation in the study, students and their parents were asked to fill written informed consent. Explicit permission was acquired from the study participants, prior to the start of each

interview and its audiotaping. At the end of the study, three nutritional educational lectures were performed for the students and their parents to notify them about the importance of healthy eating and physical activity to prevent and treat childhood obesity.

## 3- RESULTS

### 3-1. Sociodemographic characteristics

Fifty-two adolescents (27 [52%] boys and 25 [48%] girls) as well as 10 parents (nine mothers and one father) participated in this study. The mean age and BMI of adolescents were  $14.6 \pm 0.9$  years and  $27.7 \pm 3.1$  kg/m<sup>2</sup>, respectively and these values were  $41 \pm 4.4$  years and  $26.7 \pm 3.9$  kg/m<sup>2</sup>, respectively for the parents. Socio-demographic outcomes of the students are shown in **Table.1**. In general, 20 adolescents and all parents participated in in-depth interviews. In addition, 32 adolescents through four focus group discussions (each group comprised of 8 subjects) participated in the study.

As shown in **Table.2**. according to the participant declarations, six themes were identified: "Eating in the peer networks as a usual way for social interaction", "Peers' pressure to have unhealthy dietary habits", "High availability and accessibility to unhealthy foods", "Lack of nutritional knowledge", "Neglectful parenting style", and "Passive interaction in the friendship networks". These themes are classified in four levels: "personal", "family", "social" and "community/policy".

**Table-1:** The educational and occupational status of fathers and mothers of the adolescents.

Variables	Number	Percent
Father's Job		
Government job	25	48.1
Private job	27	51.9
Mother's Job		
Housekeeper	44	84.6
Government or private jobs	8	15.4

Father's Education		
Under Graduate	29	55.8
University Degree	23	44.2
Mother's Education		
Under Graduate	36	69.2
University Degree	16	30.8

**Table-2:** Emerged themes related to the impact of adolescent friendships on unhealthy eating behaviors of overweight and obese adolescents.

	Levels of influencing factors on adolescent behaviors	Emerged themes
1	Personal	Lack of nutritional knowledge
		Passive interaction in the friendship networks
2	Family	Neglectful parenting style
3	Social	Eating in the peer networks as a usual way for social interaction
		Peers' pressure to have unhealthy dietary habits
4	Community-Policy	High availability and accessibility to unhealthy foods

### 3-2. Themes

#### 3-2-1. Eating in the peer networks as a usual way for social interaction

Being in the social network of friends was expressed as one of the main factors causing unhealthy eating habits. In some cases, students declared that when they go out with their friends, they eat lot of junk foods as a routine way of social interaction. In this respect, one of the participants said:

*"If I go out with my friends, we usually eat fast foods. When in leisure time we go to the cinema, we eat a lot of junk-foods such as potato chips, French fries and cakes and snacks like sandwich. Indeed, it is not possible to go out with my friends and don't eat these junk-foods and snacks"* (Participant N.11, 16-year-old boy).

In this regard, some of the students expressed that when they are with friends, they eat more than when they are alone. Indeed, it seems that social-facilitation of

eating has a salient role in overeating when they are in the friend networks.

*"I do not eat anything when I'm alone. But in the school, I eat a lot with my friends. They start to eat; I'm starting to eat too"* (Participant N.39, 15-year-old girl). Another student stated: *"Usually, if I went out with some of my friends, I do not comeback home for lunch or dinner. I eat out a fast-food or sandwich with my friends"* (Participant N.24, 14-year-old boy).

#### 3-2-2. Peers' pressure to have unhealthy dietary habits

Some participants stated that when they are with their friends, high persistence and pressure of their peers (as a social force) persuades them to eat unhealthy foods such as fast foods.

*"My friends had a substantial role in my unhealthy eating habits, we went out together a lot, they often insisted to eat something such as fast foods"* (Participant N.3, 15-year-old boy).

Sometimes, at first adolescents were not in agreement to eat out whenever they go out with their friends, however, after high pressure of their peers and receiving interesting suggestions, they finally accept their friends' suggestions. Indeed, as the students confessed themselves, they entice to eat unhealthy foods when they are in the friend networks even when they know that these foods are harmful for their health. In this regard, one of the participants said:

*"Whenever we went out with my friends, they insistent a lot to eat something; because I know that outdoor foods are not good for my health, I didn't accept. But sometimes I couldn't say no to my friends. For example, if your friends invite you to eat pizza with mushrooms with them, can you say no?"* (Participant N.43, 14-year-old girl).

### **3-2-3. High availability and accessibility to unhealthy foods**

Poor national and public policy which provides unhealthy foods such as junk-foods and high calorie ready to eat meals such as fast foods available and accessible in the community facilitated unhealthy dietary choices in the youths' friend networks. Poor public policy considering high accessibility of fast food restaurants in all regions of the city was being criticized by one of the study participant:

*"My friend often comes to our house. He would take two pizzas every time. In the city, there are at least 5-6 pizzerias in each region. Too many fast food outlets make it easily accessible! Should be collected or reduced their numbers"* (Participant N.34, 14-year-old boy).

Likewise, availability of unhealthy foods in the school, which provided by school cafeteria or buffet could result in unhealthy dietary behaviors among students and their peers in the school environment. One of the students said:

*"The school buffet sells junk foods such as potato chips and delicious candies and chocolates, cakes and juices and even a variety of sandwich types. They really affected me, particularly in presence of my friends. Most of the food items that made me fat in a recent year were related to the school buffet"* (Participant N.8, 14-year-old boy).

In this respect, one of the parent said:

*"In the first days of the academic year, school officials and teachers said that the student's diet should be appropriate and they advise students and their parents to following healthy eating, however, after some weeks, they will sell everything in the school buffet"* (Participant N.63, 37-year-old mother).

In addition, proximity to several fast food outlets in the school neighborhood tempted students to eat these unhealthy foods accompanying with their friends along the home-school commute.

*"One of the reasons of my overeating is my friends, for example, there is a sandwich shop near here [near the school] that all school children know this store. Everyday my friends go there and eat sandwich and every time they encourage me to accompany them"* (Participant N.9, 13-year-old boy).

### **3-2-4. Lack of nutritional knowledge**

Another emerging theme that contributed to unhealthy dietary choices among study participants was a low level of nutritional information. Lack of knowledge and awareness about the negative health consequences (low outcome expectation) of following unhealthy nutritional behaviors could cause unhealthy eating habits in the peer networks. In this respect, one of the participants said:

*"When I was in fifth grade, I remember that every weekend my friends and I went game net and played computer games and then ate pizza or fast foods. At*

*that time, I was an 11 years old child and I did not know anything about the negative health consequents of these behaviors, I only realized the adverse outcomes of my behaviors, when I became fat and obesity was happened"* (Participant N.5, 16-year-old boy).

Limited and inaccurate health information of the parents and even the other childcare as well as mistaken beliefs and attitudes of parents, contributing to unhealthy behaviors of adolescents when they are in the friendship networks were noted.

*"I remember, when I went to my elementary school, my friends were giving me different sandwiches. Their mothers cooked verity kinds of sandwich like pizza, sausages and so on. They gave me these sandwiches and I ate. I didn't know anything about the harm of these foods. Interviewer: what about your parents? Did they notify you that these foods are harmful? No! No one reminded me that you might be obese in near future. My father just told me the boy should eat a lot. Eat everything that you like to get strong. You aren't a girl, only girls must follow a restricted diet"* (Participant N.26, 14-year-old boy).

### **3-2-5. Neglectful parenting style**

Neglectful parenting style in which parents show relatively low levels of strictness and involvement was another factor facilitating unhealthy dietary habits when adolescents interact in the peer networks. The main reason for this fact was that indulgent parents do not monitor their children's behaviors whether at home or outdoors. They do not teach their kids about healthy eating and correct nutritional facts.

*"Whenever in our pleaser time we (my friends and I) went outdoors, we ate hamburger or pizza. No body tell me fast foods are harmful, even my parents. If my father and mother told me about the negative health outcomes of following unhealthy diet, I didn't eat fast foods at all.*

*I didn't know that obesity is so bad and restrictive, I hate obesity. Maybe, my parents themselves didn't know anything about obesity, in my opinion; someone had to inform my parents"* (Participant N.46, 15-year-old girl).

Existing several issues in family life for parents, including destructive conflict with spouse, numerous psychosocial and financial problems (a troubled family system) caused parents to spend less time parenting and not allocating enough time to handle children's challenges. One of the mothers stated:

*"My husband is an addict, immoral, irritable and bad tempered person. Addiction is the worst thing. He always nags us. He made us (I and my children) nervous and anxious. I myself and my daughter are stressed out and depressed, we eat a lot. When I am depressed, I forget all things, even my children, even I myself. He (her husband) is definitely guilt in making us nervous and obese persons"* (Participant N.55, 42-year-old mother).

In this situation, parents only support their children financially and give money to their children more than their needs without any control over how to use it. One of the study participants said:

*"She (her daughter) eats a lot of junk-foods and snacks in the school. I give her a [healthy] sandwich in the morning and she brings it back at noon. She buys a lot of junk-foods from school buffet because her father gives her a lot of money every night"* (Participant N.60, 38-year-old mother).

One of the adolescent girl expressed:

*"I go out with my friends every Thursdays and Fridays, and always eat a lot, potato chips, cakes, Ice pack (ice cream), or .... Interviewer: Who does pay you money? My father gives me a lot of*



money" (Participant N.15, 14-year-old girl).

Thus, lack of nutritional knowledge of children or adolescent and high accessibility to unhealthy foods as well as access to money without any surveillance which all along with the pressure of the friends could result in unhealthy eating habits when adolescents are in the friend networks.

### 3-2-6. Passive interaction in the friendship networks

In the above emerging themes, most of the factors contributed to the unhealthy eating habits of the overweight and obese youth when they were involved in peer networks related to the function of peer and parents than the adolescent itself. In this point of view, based on the study participants' declarations, it seems that adolescents themselves play a substantial role in developing unhealthy dietary habits in presence of the friends. Students expressed that sometimes they are aware that eating an unhealthy food may have adverse effects for health, but because of being too bashful to refuse friends' request or fearing to disconnection of friendship, they inevitably eat unhealthy foods to accompany with their friends. One of the students said:

*"My friends bought fruit-flavored carbonated drinks from school's buffet for me and persisted that I drink it. If I didn't drink, it made them feel annoyed and angry, and our friendship would be over. I myself was drinking this beverage and making our friendship better".* (Participant N.28, 15-year-old boy).

In addition, they confessed that when they being in the friend or even other social networks, play a passive role and strongly influenced by their peer suggestions and when they friend ask or compliment to consume an unhealthy food, they cannot easily say "no".

*"Last year, I came from school classes with my friends, and we would have been inviting each other's to intake snacks every day. Most of the times, my friends invited me. Interviewer: Well, why do you accept? I couldn't, I was too bashful to refuse it. I felt embarrassing. We have ice cream, potato chips, and sometimes sandwich"* (Participant N.33, 15-year-old boy).

In this point of view, another student expressed:

*"In the school, I strongly influenced by friend's behaviors and always follow my peers. Sometimes, I simply impressed by the seductive suggestions of my friends and eat a lot of harmful foods, but later, in home, I become regret"* (Participant N.1, 15-year-old boy).

Indeed, adolescents declared that they were strongly influenced by their friends when they are in the friends' network. According to the participants' statements, the most important reasons for this kind of interaction were low self-esteem and self-confidence as well as having a dependent personality. One the adolescent boy stated as:

*"I'm so dependent to my parents. I really love them. When I wanted to go to school, I was very crying. I did not want to get separated from my parents. Sometimes, I pretended to be sick to stay home and don't go to school. In the school, after two hours, at 10 o'clock, I just cried, because I couldn't afford to split up from my parents"* (Participant N.4, 14-year-old boy).

Another student said: *"I have very low self-confidence. For example, I talk very well with my family members, but I talk to other people so calmly that nobody understands. I'm ashamed of others; I cannot speak loudly in front of others"*.

This student continued: *"Due to shyness and low self-confidence, I don't like to go out with my friends. Whenever, I go out*

*with them, if they offer anything to me, I immediately accept it; I'm embarrassed to deny it. After that I regret why I accept friend's request quickly"* (Participant N.31, 14-year-old boy).

Adolescents identified that the above conditions have existed since childhood and even before becoming overweight and obese and due to the devastating consequences of stigma and victimization, this situation has worsened since they became obese.

*"Often, my daughter is less active in group. My daughter get depressed when she's became obese; her self-confidence is reduced a lot"* (Participant N.61, 35-year-old mother). One of the adolescent said: *"I don't like to be in crowded places. I usually prefer to be in a private place where there are less people. I have a very low self-confidence. I think obesity made me ugly. Wherever I go, people hurt me and victimize me just like a convict person"* (Participant N.17, 16-year-old girl).

#### **4- DISCUSSION**

This study explored the role of interaction in social network of friends on unhealthy eating behaviors of overweight and obese adolescents in which six themes emerged as the main causes of following unhealthy eating behaviors when adolescents being in friends network. To the best of our knowledge, there are very limited studies investigating the eating habits of Iranian adolescents in the social network of friends. Eating in peer networks as a usual way for social interaction and friend and peer pressure are two emerging themes contributing to unhealthy eating habits in friend networks. It has been found that during the transition from childhood to adolescence, children spend more time with their friends providing opportunities to shape and influence adolescents' behaviors by their friends, particularly with regard to the fact

that eating is an important form of socialization and recreation (12, 23). Social facilitation, modeling and perceived norms are considered as the main mechanisms of friend influences on eating habits of adolescents (10, 12). In line with our results, it has been previously demonstrated that peer pressure and support can influence dietary choices of children and adolescents (10, 12, 24). High availability and accessibility to unhealthy foods and lack of nutritional knowledge have risen as facilitating factors of unhealthy dietary habits in the friend social networks. It has been previously shown that adolescents with lower educational levels consume more snacks and soft drinks when their friends eat these food items a lot (25).

In addition, low level of nutritional knowledge and low outcome expectations are important predictors of nutritional behaviors among youth (26, 27). It has been shown that high availability and accessibility to unhealthy foods are associated with unhealthy eating habits among children and adolescents (28). Thus, when youth are not aware of the negative health consequences of their poor eating practices and unhealthy foods are available and easily accessible in the community, it is not surprising if they follow unhealthy dietary patterns particularly in the presence of peer pressure and support. Neglectful parenting style is another emerging theme that results in adolescent's unhealthy dietary habits in the friend networks. It has been previously shown that in comparison to the neglectful parenting style, authoritative parenting, which provides warmth and emotional support and appropriate granting of autonomy to the children using clear and bidirectional communication leads to improving self-esteem and mental health of children and facilitating adherence to healthy lifestyles including healthy eating and physical activity among youth (29). A

growing body of evidence has indicated that poor family functioning and incongruent parenting style are associated with unhealthy dietary habits and being overweight and obese in youth (30). In fact, neglectful parents do not support and control their children behaviors both indoors and outdoors, so in this situation their children might be highly influenced by their friends. It has been shown that neglectful parenting style is notably related to the child's delinquency (31). In addition, our results indicated that indulgent parents give a lot of money to their children without any surveillance on spending it. Evidence showed that access to money is associated with poor dietary choices in children (32). One of the most important and novel findings of the current study is that although friends, parents and school authorities have a substantial effect on emerging unhealthy dietary habits among adolescents, due to the low level of self-confidence and self-esteem and having dependent characteristics, adolescents play passive role in the peer networks, and get blamed for developing the unhealthy dietary behaviors.

In this regard, self-confidence which is related to the construct of self-efficacy by Bandura (33), or the behavioral confidence by Sharma (34), is considered as the main predictor of health behaviors in several models and behavioral theories (33, 35). In one study, it has been shown that higher peer support and lower self-efficacy contributed to unhealthy dietary patterns among adolescents (36). Likewise, it is previously indicated that higher self-esteem might associated with a healthy lifestyle. In addition, people with higher self-esteem tend to be more active in the group, speak up and criticize the group's approach. Self-esteem may have indirect effects on leadership (37). Moreover, low self-esteem in children and adolescents is associated with higher BMI and could occur as a result of the underlying obesity

(38). Because of the unique family bond in Iranian culture (39), some children are too dependent on parents, which provide them with several challenges in the school. One of these challenges is that they are too bashful and they cannot be a decisive and insightful individuals, so, after the simple temptation by friends, easily accept friend's suggestions, even if they know following their friend's offer (for example eating junk-foods) which may contribute to undesired consequences. Overall, as our innovative results show, it seems that if the youth have a higher self-confidence, self-esteem and autonomy (i.e. independence or self-determination) by playing an active role (rather than passive role) then they could be less influenced in the friend networks and can even improve their dietary habits (toward healthy eating) and that of the peer network members.

In this study, a high variety in sampling was provided by participation of overweight and obese adolescents and parents with different BMI values, age, gender, and socioeconomic backgrounds. Another advantage of this study was that we selected participants from both urban and border site of the city were included. However, some limitations of this study should be considered. Dissatisfaction of some of the participants with recording of interviews particularly due to the privacy issues caused them to be unwilling to participate thus prolonging the process of data collection. To overcome this problem, the researchers explained and reassured participants the confidentiality of the interviews.

## 5- CONCLUSION

This qualitative study provides a deep understanding of how interaction in friend networks could affect the eating habits of adolescents. Our findings indicate that peer pressure and support along with inappropriate parenting style are necessary to affect adolescent eating behaviors when

they are in the social networks of friend but not sufficient. Being a confident, self-determined, decisive and insightful adolescent and owing high level of behavioral confidence and self-esteem might reduce the impact of friends to follow unhealthy dietary habits in youth. Thus, because parents play a key role in shaping the child's personality, intervention studies in future should firstly pay careful attention to change unsuitable parenting style to desirable parenting such as more authoritative style. Secondly, consideration of appropriate policies to reduce access to harmful food and raising public nutritional knowledge and awareness about healthy eating and the negative consequences of unhealthy food consumption is necessary. Finally, for success in childhood obesity prevention programs, along with youth and their parents, involving friends and peers in the study is crucial.

## 6- CONFLICT OF INTEREST

The authors state that there is no conflict of interest.

## 7- ACKNOWLEDGMENTS

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