

Perceived Threat of Unhealthy and Unsafe Eating Behaviors in Iranian Adolescent Girls: A Qualitative Study

Mohammad Hossein Kaveh¹, *Leila Moradi², Mohammad Ali Morowatisharifabad³, Azadeh Najarzadeh⁴, Hossein Fallahzadeh⁵

¹PhD, Associate Professor and Head of Health Education and Promotion, Research Center for Health Sciences, Institute of Health, Department of Health Promotion, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran. ²PhD Candidate of Health Education and Promotion, Social Determinants of Health Research Center, Department of Health Education and Promotion, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran. ³PhD, Professor of Health Education and Promotion and Head of the Elderly Health Research Center, Department of the Elderly Health, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran. ⁴PhD, Associate Professor of Nutritional Sciences and Head of the Nutrition and Food Security Research Center, Department of Nutrition, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran. ⁵PhD, Professor of Biostatistics and Head of the Research Center of Prevention and Epidemiology of Non-Communicable Disease, Department of Biostatistics and Epidemiology, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

Abstract

Background: Perceived threat is particularly important in health-related behaviors. The aim of this study was to explain the perceived threat of unhealthy and unsafe eating behaviors in Iranian adolescent girls.

Materials and Methods: In this qualitative study, directed content analysis was used and participants were selected by purposeful sampling. Data were collected using focus groups and semi-structured, in-depth individual interviews with 60 girl students of the eighth grade who studied in the government schools of Shiraz City, Iran in 2019. Sampling continued until data saturation was achieved. Data were analyzed by Graneheim and Lundman's approach of conventional content.

Results: From the data analysis, five categories were drawn. Perceived susceptibility comprised of (1) disease risk-increasing factors and (2) disease risk-decreasing factors and perceived severity consisted of (3) individual, (4) familial, and (5) social consequences of the disease. The perceived susceptibility consisted of the subcategories, namely, biological susceptibility or body's protective mechanisms, individual behaviors, and risky or protective environmental factors for food and health safety. Perceived severity included the subcategories: physical, mental, educational, and medical problems for the individual, psychosocial problems, and imposing heavy treatment costs on family, economic, and social problems for the community.

Conclusion: The perceived threat of unhealthy and unsafe eating behaviors in adolescents includes perceptions of disease risk increasing and disease risk-decreasing factors, as well as personal, familial, and social consequences following disease development. Understanding these perceptions can help adolescents engage in health-promoting eating behaviors.

Key Words: Adolescent, Eating behaviors, Perceived threat, Qualitative research.

*Please cite this article as: Kaveh MH, Moradi L, Morowatisharifabad MA, Najarzadeh A, Fallahzadeh H. Perceived Threat of Unhealthy and Unsafe Eating Behaviors in Iranian Adolescent Girls: A Qualitative Study. Int J Pediatr 2021; 9(2): 13049-57. DOI: [10.22038/IJP.2020.46975.3810](https://doi.org/10.22038/IJP.2020.46975.3810)

*Corresponding Author:

Leila Moradi, Address: Alam Square, Shohadaye Gonnab Blvd, School of Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

Email: lmoradi20072007@yahoo.com

Received date: Feb.11, 2020; Accepted date: Nov.12, 2020

1- INTRODUCTION

Forming inappropriate eating behaviors in adolescence can threaten health during adulthood. Today, nutrition is a global challenge for adolescent health, and the prevalence of inappropriate eating behaviors in adolescents puts them at risk of developing diseases related to unhealthy and unsafe eating diseases (1). Various factors influence adolescent eating behaviors so that cognition of determinants can play an important role in preventing diseases and maintaining adolescent health (2, 3). Perceived threat is a combination of perceived susceptibility and severity that can help us to understand health-related behaviors, including eating behaviors, as one of the constructs of health belief model. Perceived susceptibility refers to one's intellectual perception of the likelihood of illness exposure and perceived severity refers to one's perception of the seriousness of the illness (4). Adolescents' perceptions of the threats and risks of inappropriate eating behaviors during adolescence can provide an opportunity to adopt and reinforce appropriate eating behaviors and serve as a kind of investment for adulthood health (5). Evidence suggests that implementing health education programs based on health belief model constructs, including perceived threat, can help adolescent girls adopt appropriate eating behaviors to prevent osteoporosis (6). Although there are numerous qualitative studies using health belief model to understand health related behaviors (7-9), and few studies have been conducted to explain perceived threats in adolescent eating behaviors (10, 11); therefore, in this study, a qualitative approach was used to explain the perceived threat of unhealthy and unsafe eating behaviors in adolescent girls.

2- MATERIALS AND METHODS

2-1. Study design

This qualitative study was conducted using a directed content analysis approach during 6 months in 2019 in Shiraz, Iran, to achieve the purpose of the study.

2-2. Participants

Participants were 60 girl students aged 13-15 years who were enrolled in the government schools in Shiraz, Iran. Inclusion criteria included being eighth grade girl students, volunteering to participate in the study and being able to communicate with the interviewer satisfactorily. Purposeful sampling was performed with the maximum variation in terms of girl students' demographic characteristics such as age, education level, employment status, and number of children in the family (**Table.1**).

Table-1: Demographic characteristics of participant students.

Variables	Students	Parents	
		Mothers	Fathers
Age			
Range	13-15	31-50	31-55
Mean \pm SD	13.77 \pm 0.69	38.37 \pm 3.76	42.57 \pm 5.24
Education N (%)			
Illiterate and primary school	-	5 (8.3)	2 (3.3)
Secondary school	60 (100)	10 (16.7)	12 (20)
High school and diploma	-	28 (46.7)	25 (41.7)
Academic	-	17 (28.3)	21 (35)
Occupation N (%)			
Housewife	-	42 (70)	-
Self-employed	-	7 (11.7)	31 (51.7)
Employee	-	11 (18.3)	19 (31.7)
Worker	-	-	10 (16.7)
Number of children		Girl	Boy
Range	-	1-3	0-4
Mean \pm SD	-	1.55 \pm 0.59	0.63 \pm 0.84

N: number, SD: standard deviation.

2-3. Data Collection

Data were collected using focus groups as well as semi-structured, in-depth individual interviews based on predetermined guide questions. Focus group discussions were conducted using semi-structured and open ended questions in three 45 to 65-minute sessions with six participants in each group. The individual interviews were conducted with 32 participants and each interview lasted 45-75 minutes. Data were collected in a quiet location in the schools of the participants to ensure privacy. All interviews were recorded and sampling continued until data saturation was achieved, so that no new conceptual information was obtained after 3 focus group discussions (18 in total) and 32 individual interviews. However, to further ensure data saturation, individual interviews continued with 10 other individuals and no new conceptual information was obtained from these 10 interviews.

The questions addressed demographic information and key questions were based on the perceived threat construct, e.g., "*Do you consider yourself at risk of developing disease due to unhealthy or unsafe eating behaviors? Please explain your reasons*" and "*What consequences can the disease have for you? Please explain*" and follow-up questions that were asked to gain a more in-depth insight into the participants' experiences included "*Can you explain your experiences with an example?*" and "*Please explain a little more*".

2-4. Ethical considerations

The protocol of the study was approved by the Ethics Committee of Shahid Sadoughi University of Medical Sciences, Yazd, Iran (IR.SSU. SPH.REC.1397.071). At baseline, participants were given complete explanations about the aims and procedure of the research, the voluntary participation in the study, the confidentiality of the information and performing study in the

school environment. Then, they were asked to sign an informed consent form if they volunteered to participate in the study.

2-5. Data Analysis

All interviews and focus group were recorded using a voice recorder by the second author and none of the interviews was conducted twice. Graneheim and Lundman approach of conventional content was used for data analysis (12). According to this method, data analysis was performed in several steps. In the first step, all interviews and focus group discussions were transcribed verbatim immediately after each interview and focus group. In the next step, manuscripts were carefully and repeatedly reviewed and re-read by researchers to identify semantic units. Afterwards, the semantic units were summarized and transformed into codes and the initial coding of the text was conducted. Then, the subcategories and categories were drawn according to the similarities and differences. MAX-Q-DA software (version 10) was used to perform data analysis. All data analysis was performed under the supervision of supervisors and consultants.

2-6. Data trustworthiness and rigor

In this study, four criteria of Lincoln and Guba including credibility, transferability, confirmability and dependability were taken into consideration to investigate the trustworthiness and rigor of the data (13). The research team devoted enough time to gathering data and allowed participants adequate time to talk of their experiences. The researchers also maintained a long-term engagement with the study through repeated review and immersion in the data. In order to confirm the content validity of the data drawn from the content analysis, a number of coded texts were returned to a number of the participants to fulfill member reviews. The dependability of the data was ensured by peer (individuals

outside the research team that did not contribute to data collection), and member (supervisor and advisor) check after providing coded transcripts to them. Finally, a consensus was achieved on the data codification. The researcher also precisely explained the sampling process and the time and location of data gathering to participants, and made an attempt to improve data credibility and confirmability by explaining the study procedure to them in detail and recording all stages of data collection (transcription, coding and analysis).

3- RESULTS

In total, 60 girl students with mean age 13.77 ± 0.69 years participated in the present study. The mean age of the mothers and fathers in the study was 38.37 ± 3.76 and 42.57 ± 5.24 years, respectively. Other demographic variables of the students studied are shown in **Table.1**. From qualitative data analysis, five categories were drawn that consisted of 14 subcategories of perceived sensitivity and severity combination. Adolescents' perceptions of the likelihood of disease in themselves as well as the consequences of disease in various dimensions following unhealthy or unsafe eating behaviors are presented in **Table.2**.

Table- 2: Categories and subcategories of perceived threat of unhealthy and unsafe eating behaviors in adolescents.

Construct	Categories	Subcategories
A. Perceived susceptibility	1. Disease risk-increasing factors	1.1. Perceived biological susceptibility 1.2. Risky individual behaviors 1.3. Risky environmental factors
	2. Disease risk-reducing factors	2.1. The body's protective mechanisms 2.2. Protective individual behaviors 2.3. Protective environmental factors
B. Perceived severity	1. Individual consequences of disease	1.1. Physical problems 1.2. Mental problems 1.3. Academic problems 1.4. Medical problems
	2. Familial consequences of disease	2.1. Psychosocial consequences in the family 2.2. imposing medical costs for the family
	3. Social consequences of disease	3.1. Economic problems of the disease 3.2. Social problems of the disease

A. Perceived sensitivity

In this study, adolescents had various perceptions of their susceptibility to the risk of unhealthy and unsafe eating diseases, so that they addressed various factors that made them more or less susceptible.

1. Disease risk-increasing factors

Some adolescents believed that they were at comparably higher risk of developing disease because of their biological susceptibility, individual risky behaviors and exposure to more environmental factors.

1-1. Perceived biological susceptibility

One of the causes of higher susceptibility in adolescents was reported as allergy to

certain foods and inherited diseases in the family.

"My mom goes to work, whenever she can't make food, she tells me to warm [and then] eat this food. I have an allergy to leftover food that is why I get sick" (Participant 3).

"My cousin has had breast cancer since two years ago, all her hair has fallen out because of the chemotherapy, so I'm too scared of being like her" (Participant 9).

1-2. Individual risky behaviors

Unhealthy and unsafe eating behaviors in adolescents were other contributing factors to their susceptibility.

"I eat a lot of pizza. I will definitely get fat. My body fat goes up" (Participant 16).

"At school as I'm going to have a meal, sometimes I don't wash my hands, so many germs enter my body" (Participant 32).

1-3. Risky environmental factors

Unhealthy eating patterns and disregarding the principles of food health and safety at home, school, and other environments were the last cause of susceptibility from the perspective of most adolescents.

"My mom's food is oily and greasy. She doesn't care at all, this way she makes us sick" (Participant 24).

"Many times in the factory, those who pack food don't wear gloves, their hands are likely to be dirty [so that] they [may] contaminate the food" (Participant 11).

"Our school buffet most of the time brings snacks with color additives to sell, these will make us sick and color additives [-containing] things [to sell], we'll get sick eating these kinds of foods " (Participant 41).

2. Disease risk-reducing factors

Some adolescents believed that they were at lower risk of developing disease due to their body's protective mechanisms,

individual protective behaviors, and exposure to less environmental factors.

2-1. Body protective mechanisms

Exercise and the body's immune system function were reported as one of the protective factors against disease in adolescents.

"My body's immune system is compatible with most foods, that's why I don't get sick" (Participant 7).

"When I eat oily things I burn fat by exercising so I don't get sick" (Participant 50).

2-2. Protective individual behaviors

Healthy and safe eating behaviors in adolescents was another protective factor against disease.

"I won't get sick because I eat junk food that harms me very little" (Participant 47).

"I always look at the appearance of the food. If I see that it smells bad or has mold, I won't use it" (Participant 30).

2-3. Protective environmental factors

The existence of healthy eating patterns and adherence to food health and safety considerations in the home were the last protective factors from adolescents' perspective.

My mom makes her foods [with] low salt. She does not even let us put salt on the table, [she] says too much salt is not good (Participant 19).

"My mom washes her hands to be clean when she wants to make something [so that] our food won't get contaminated germs" (Participant 38).

B. Perceived severity

In this study, adolescents looked at the extent of the damage caused by eating diseases from different perspectives. They talked of the consequences of the disease for themselves, their families and the community.

1. Individual consequences of disease

Physical, mental, educational, and medical problems were among the consequences of disease from the adolescents' perspective.

1-1. Physical problems

Dysfunction of various systems of the body and impairment of health and beauty were one of the consequences of disease.

"Some foods cause us to get [high] blood sugar, for which they may have to cut off our leg" (Participant 45).

"Fatty foods can disturb my physical appearance, my face will get acne [and] I will look ugly". (Participant 27).

1-2. Mental health problems

Changes in mood, problems in interpersonal relationships, and fear were reported as the mental problems due to disease.

"If I get high blood sugar and have to take insulin because of my obesity, I'll be depressed" (Participant 21).

"When I get sick, I'm always afraid that my health won't return [and] I will remain so till the end of my life" (Participant 36).

"The pressure of the disease can make me aggressive. My friends may become upset and angry with me" (Participant 44).

1-3. Academic problems

Impairment of academic performance and mental and learning problems were also reported as the consequences of disease.

"Sickness results in me not being able to do my homework, to fall behind my classmates and feel bad" (Participant 22).

"Sickness can affect my memory and damage my learning and talent" (Participant 2).

1-4. Medical problems

The need for prolonged treatment, surgical procedures and complications of

hospitalization were reported as the last consequences of developing disease.

"If I get stomach ulcers because of junk food, I will have to go to the doctor for a few years to become well" (Participant 43).

"My heart's vessels may become obstructed due to fat, then they have to operate on my heart" (Participant 34).

"When I'm admitted to the hospital, every day they want me to have a blood test. It is really distressing" (Participant 20).

2. Familial consequences of disease

Psychosocial problems and imposing medical costs were one of the consequences of disease for the family.

2-1. Psychosocial problems for the family

Psychosocial problems, waste of resources, and confinement of the family were among the psychosocial consequences of disease for the family.

"If I get a serious illness that has no treatment, my family will be worried and depressed" (participant 49).

"If I get sick, my family may have to spend a lot of time for me to be treated" (Participant 14).

"Sickness would cause my family not to travel, they would have to take care of me" (Participant 10).

2-2. Imposing medical costs for the family

The adolescents pointed to the high cost of prolonged treatments and surgical procedures due to disease.

"If I get cancer, my parents will have to pay for expensive drugs for my treatment" (Participant 13).

"I may develop a heart problem, then my dad will have to pay a large amount of money to have me operated on" (Participant 5).

3. Social consequences of disease

Economic and social problems following development of disease were among the consequences of disease for the community.

3.1. Economic problems of disease

Adolescents believed that disease could reduce the efficiency and waste resources in the community.

"If I get sick, I may not be able to go to work [and] like this I won't be efficient for my community" (Participant 15).

"With our sickness we harm society, the government has to pay a lot of money to get medicine from other countries" (Participant 29).

3-2. Social problems of disease

Adolescents believed that disease, in addition to disrupting social activities such as sports and art activities, could lead to death and shorten life expectancy.

"I may get an illness so that I can no longer do my own sports and art activities in the community" (Participant 8).

"If I die because of a heart attack, with my death the population of our community will decrease" (Participant 33).

4- DISCUSSION

This study was conducted to explain the perceived threat of unhealthy and unsafe eating behaviors in adolescent girls. In the present study, adolescents had different perceptions of their susceptibility to diseases associated with unhealthy and unsafe eating behaviors, and pointed to the role of individual and environmental factors in developing these perceptions. Some adolescents attributed their high susceptibility to inherited illnesses and risky eating behaviors (such as unhealthy dietary patterns, disregarding health and food safety principles) in themselves, family, school, or other environments; while others reported protective mechanisms (such as immune system

adaptation, the role of sports activities), and protective eating behaviors (such as healthy dietary patterns and paying attention to food safety principles) in themselves and family as factors for their low susceptibility. Consistent with these findings, in previous qualitative studies, adolescents and adults reported the presence of genetic factors, lifestyle, and unhealthy eating behaviors as causes of their obesity or overweight and also home, stores and schools were easily accessible sources of unhealthy foods and barriers to health (14-17). In the qualitative study of Byrd-Bredbenner et al. (2010), adolescents reported contaminant transmission to food through sick people, contamination of food supply environments, and lack of workers' adherence to personal hygiene as causes of food-borne illnesses (18). In the qualitative study of Sedibe et al. (2014), adolescents found physical activity and the presence of healthy foods at home as factors for enhancing their body's strength to prevent disease and reduce susceptibility (19).

Unrealistic optimism of risk perception and feeling of less vulnerability in adolescents can inhibit them from adopting health-related behaviors. Risk perception is a vital component for health promotion, according to the Health Belief Model, risk perception and vulnerability against health threats is a driving force for adopting health-related behaviors (20). Regarding the extent of the harm caused by diseases associated with unhealthy and unsafe eating behaviors, adolescents broadly discussed the consequences of the disease for themselves, their families, and the community. Physical, mental, educational, and medical problems were among the consequences that adolescents believed the illness could bring about. In previous qualitative studies, adolescents and adults with cancer and overweight reported the problems such as psychological pressure, body image dissatisfaction, low self-esteem, negative thoughts, fear of bad

outcomes, and death (21, 22). Familial consequences, such as psychosocial problems and heavy medical costs, were the other dangers reported to be due to disease. In this regard, in the study of Kim et al. (2016), adolescents believed that their illness, in addition to causing depression and stress in family members, created economic problems for them (23). In the study of Nemati et al. (2018), participants reported the financial pressure for the family of cancer patients (24). Our participants reported social consequences as the last threat due to disease. The adolescents stated that their disease could have economic and social problems for society. Consistent with these findings, in the qualitative study of Das et al. (2014), students believed that lack of weight management could reduce quality of life, endanger occupational status, and limit activity (25). Koo et al. (2011) reported certain problems such as imposing heavy medical costs on the health care system and reducing the efficiency of individuals in the community (26). Overall, the results of the present study showed that adolescents had a deep perception of the severity of disease following unhealthy and unsafe eating behaviors, so that these deep perceptions can be a driving force for adopting health-related behaviors (20).

4-1. Limitations of the study

This study was limited to female students in the age range of 13-15 years and did not include the rest of the adolescents in different ages. Therefore, the results cannot be generalized to all adolescents and also to boys.

5- CONCLUSION

The perceived threat of unhealthy and unsafe eating behaviors in adolescents includes perceptions of increasing and decreasing factors for the likelihood of developing disease, as well as individual, familial, and social consequences of the illness. Understanding these perceptions

can help adolescents engage in health-promoting eating behaviors. The findings of this study may provide guidance for future studies aimed at investigating the role of perceived threat as a strong predictor for designing interventions to modify unhealthy and unsafe eating behaviors in adolescents.

6- ACKNOWLEDGMENTS

This article is a part of a PhD thesis of the corresponding author. Shahid Sadoughi University of Medical Sciences is appreciated for supporting this study (NO: 5334). Furthermore, we thank all students who participated in the study as well as the school administrators for their nice cooperation.

7- CONFLICT OF INTEREST: None.

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