



Original Article

The Relationship of Perceptions, Self-efficacy, and Junk Food Consumption With Demographic Variables in Female Students in Shahrekord

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Abstract

Background and aims: Inappropriate or imbalanced consumption of foods may lead to several health problems, especially among adolescents, the complications of which will remain for several years. This study aimed to investigate perceptions, self-efficacy, and the status of junk food consumption and their relationship with demographic variables in female high school students in Shahrekord using Health Belief Model (HBM).

Methods: This is a descriptive-analytic study conducted in academic year 2016-2017. Three hundred twenty-three adolescent girls (second grade high school students of Shahrekord) were selected through cluster sampling method. A standard questionnaire, according to the structures of health belief model (perceived susceptibility, severity, benefits, barriers, and self-efficacy) and a checklist for assessment of junk food consumption was used to collect data. The obtained data were analyzed using SPSS software, version 16 and descriptive as well as analytic tests.

Results: The mean age of the participants was 16.03 ± 1.24 years old. The mean scores of knowledge, perceived susceptibility, severity, benefits, barriers, and self-efficacy in proper consumption of junk foods were 55.66 ± 20.95 ; the mean frequency of junk food consumption among the students was reported to be 6.17 ± 3.18 times. There was a significantly inverse associations among perceived self-efficacy, severity, and benefit and junk food consumption. The mean frequency of junk food consumption in the schools under investigation was 6.67 ± 3.62 times.

Conclusion: Considering the consumption of relatively high amounts of junk foods, the students' low levels of knowledge and perception and the effect of peer groups, it is necessary to promote students' nutritional knowledge, change adolescents' diet, and pay more attention to packaging of healthy foods and making them more attractive.

Keywords: Behavior, Junk foods, Knowledge, Perception, Student

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Introduction

Healthy nutrition is one of the main factors in human health.¹ Inappropriate or imbalance consumption of foods in adolescents may lead to several health problems the complications of which may remain for several years.² Nutritional habits are formed during childhood and stay for the lifetime. Proper nutrition during childhood leads to the promotion of growth and development and reduces the risk of chronic diseases in adulthood.³ Proper nutrition is also an important factor in learning and results in educational growth, an increase in the efficiency in educational investments, and eventually national productivity.⁴ In addition, adolescence is one

of the critical periods of growth in which the potential of growth increases. Overweight and abdominal obesity during adolescence, even independent of the obesity during adulthood, increase the risk of metabolic diseases in future.⁵

Due to the extensive physical and behavioral changes in adolescence, the nutritional status and eating habits are also affected.⁶ Because of the change in the life style, individuals are facing a nutrition transition and change in eating patterns and physical activity in recent years.⁷ Other than three main meals, students need snacks as well.⁸ Researches have shown that consumed snacks in Iranian schools do not have the minimum nutritional

standards.⁹ It is very important to choose an appropriate snack for the students. They may consume low nutritional value snacks like potato chips, cheese puffs, and fruit leather instead of high nutritional value ones like nuts.¹

Owing to high amounts of salt, fat, and sugar, the consumption of low nutritional value snacks may cause chronic diseases (including cardiovascular diseases, obesity, and hypertension) in adulthood.¹⁰ Unfortunately, some of the junk foods are overused by the children. These junk foods are usually low in fiber, vitamin A, calcium, iron, and other nutrients needed for growth. Therefore, choosing the right snack has a positive effect on receiving the required nutrients in adolescents.¹¹ School buffet is one of the main suppliers of snacks for the students.¹² The consumption of low nutritional value foods available in school buffets such as cheese puff, potato chips, junk foods, and candy leads to the deficiency in receiving main nutrients like vitamins and minerals.¹³

Correction of nutrition during adolescence is one of the priorities of the Ministry of Health and Medical Education (MOHME) in Iran. Therefore, knowing the nutrition patterns of adolescents especially for girls, is an important issue in planning and implementation of nutritional programs.¹⁴

Adolescents' health is one of the crucial objectives in the health programs in the Islamic Republic of Iran. Due to insufficient knowledge of most girls during adolescence, they may experience irrecoverable complications. As a result, it is essential to identify the contributing factors using health education and promotion models. In this study, health belief model was used. It is one of the oldest and yet most comprehensive models mostly used in disease prevention. According to this model, a person's decision and attitude to adopt a healthy behavior is related to three issues including personal perception, modifying behaviors, and the probability of doing that behavior.¹⁵ Health belief model consists of the following substructures: perceived susceptibility, severity, benefits, barriers, and also self-efficacy. This study aimed at investigating the perceptions, self-efficacy, and the status of junk food consumption and their relationship with demographic variables among female high school students in Shahrekord using substructures of health belief model.

Methods

This descriptive-analytical study was conducted in academic year 2016-2017. A total number of 323 adolescent girls (the second grade high school students in Shahrekord) were selected through cluster sampling technique. First, permission was obtained from district superintendent of Ministry of Education of

Chaharmahal and Bakhtiari province and the researchers were introduced to the Education Department of 2 districts of Shahrekord. A list of all second grade high schools in those districts was obtained. In each district, 6 high schools were randomly selected from the above-mentioned list and each student was given a code. The participants were randomly selected as well.

Inclusion Criteria

The inclusion criteria were as follows: (1) being a second grade female high school student studying and living in Shahrekord, and (2) having the informed consent as well as a desire to voluntarily participate in the study.

Exclusion Criteria

The exclusion criteria were the lack of desire to participate in the study and the absence or transfer of the students to other schools.

Questionnaire

A standard questionnaire (Cronbach alpha coefficient was calculated, $r = 0.92$) based on the health belief model, was the way through which the data was collected.¹⁶ The questionnaire was composed of demographic information (that is, information about participants' age as well as parents' age, occupation, and education), knowledge (12 questions); for example which of the following substances contain more junk foods? How much junk foods should be consumed daily?, perceived susceptibility (3 questions on 5-point Likert-type scale); for example: I have the risk of heart disease and other illnesses, perceived severity (4 questions on 5-point Likert-type scale); for example: I am worried about getting cardiovascular disease by excessive consumption of junk food, if I get obese or overweight, I will lose a lot of my friends, perceived benefits (4 questions on 5-point Likert-type scale); for example: consumption of healthy foods like pistachios, almonds, etc will make me confident to keep myself healthy, avoiding junk foods such as cheese puff, chips, pastilles results in better performance of the cardiovascular system, perceived barriers (4 questions on 5-point Likert-type scale); for example: considering nutritional principles, consumption of healthy foods is difficult and troublesome, I cannot refrain from eating junk foods because their taste is very pleasant, and self-efficacy (6 questions on 5-point Likert-type scale); for example: I can recognize harmful food, I can avoid eating junk foods.

The next part of the checklist was related to the assessment of the status of junk food consumption by adolescents.¹⁶ They were asked to choose the junk foods and write the number of times they have had them during the last week. The list of junk foods was as follows: gum,

chips, cheese puff, soft drinks, candy, crunchy, crackers, popcorn, cheese puff, biscuit, tamarind, ice cream, fruit leather, and so on.

Data Analysis

After collecting the data and entering them in SPSS software, version 16, descriptive and analytic tests were run. In order to investigate the correlation between health belief model substructures and behavior of consuming snacks, Pearson correlation test was used. In addition, to explore the relationship between health belief model substructures and behavior of using snacks among students with demographic variables, one-way analysis of variance (ANOVA) and correlation tests were performed.

Results

The average age of the participants was 16.03 ± 1.24 years. About 74% of the fathers and 57.6% of the mothers were in the age groups of 40-50 and 30-40 years, respectively. Nearly 51.1 % of the students' fathers were self-employed and 94.4% of their mothers were housewives.

About 28.5 % of the mothers and 35% of the fathers held high school diploma. The results showed that the mean score of participants' knowledge was 54.15 ± 21.65 , which is regarded as moderate. The average scores for perceived susceptibility, severity, benefits, barriers, and self-efficacy in proper consumption of the snacks were 35.55 ± 23.22 , 53.74 ± 22.55 , 57.70 ± 19.62 , 49.52 ± 22.94 , and 42.48 ± 18.83 , respectively (Table 1). The mean score for perceived susceptibility was very low. However, the average scores obtained from the substructures of perceived severity, barriers, and self-efficacy were moderate. The mean score for perceived benefits was relatively acceptable. The mean frequency of junk food consumption in the schools under investigation was 6.67 ± 3.62 times which is high.

There was a significantly direct association between mothers' age and consumption of junk foods ($r = 0.149$, $P = 0.017$). In other words, with an increase in mothers' age, students reported more junk food consumption. There was a significant correlation between fathers'

job and consumption of junk foods as well ($r = 0.424$, $P = 0.005$). Therefore, students whose fathers were employees consumed more junk foods. In contrast, there was a significantly negative relationship between mothers' education level and consumption of junk foods among adolescents ($r = -0.421$, $P = 0.004$). Namely, students whose mothers had higher educational level reported less junk food consumptions.

Significant association was observed between perceived self-efficacy and father's age ($P = 0.025$, $r = 0.249$). That is, an increase in father's age led to higher perceived self-efficacy of the students. There was a significantly direct association between perceived severity and mother's age ($P = 0.034$, $r = 0.236$). Accordingly, an increase in mother's age resulted in more perception on the part of the students regarding the complications and consequences of excessive consumption of junk foods leading to a better understanding of its negative consequences. There was also a significantly direct association between perceived barriers and mother's age ($P = 0.012$, $r = 0.278$), so, students whose mothers were above 40 years old, reported more perceived barriers. A significantly direct correlation was observed between self-efficacy and mother's age as well ($P = 0.007$, $r = 0.299$), meaning that, the perceived self-efficacy was higher in students whose mothers were older. Conversely, however, there was a significantly inverse relationship between perceived severity and mother's education level ($P = 0.018$, $r = -0.262$). That is, students whose mothers had higher education level, reported lower perceived severity. There was also a significantly negative correlation between perceived barriers and mother's education level ($P = 0.034$, $r = -0.235$), therefore, an increase in mother's education level led to less perceived barriers by the adolescents. The mean frequency of junk food consumption in the schools under investigation was 6.67 ± 3.62 times which was high). There was a significantly inverse association among perceived self-efficacy, severity, and benefit and also junk food consumption indicating that students with higher perceived self-efficacy, severity, and benefit reported lower Junk food consumption (Table 2).

Discussion

The results showed that the mean score of participants' knowledge was 55.66 ± 20.95 , which is moderate. The findings indicated that the students' knowledge about variety of snacks and frequency of their daily use was not enough, as a result, it is necessary to raise the individual's knowledge in this regard. De Ruyter et al reported that the mean score of knowledge in the target group was low.¹⁷ Azadi et al¹⁸ in their study also reported that knowledge of adolescents was not enough.

It is clear that before any action to perform a particular

Table 1. The Mean and Standard Deviation of Health Belief Model Substructures in Junk Food Consumption Among Girl Students

Variables	Mean \pm Standard Deviation
Knowledge	54.15 ± 21.65
Perceived susceptibility	35.55 ± 23.22
Perceived severity	53.74 ± 22.55
Perceived benefits	57.70 ± 19.62
Perceived barriers	49.52 ± 22.94
Perceived self-efficacy	42.48 ± 18.83

Table 2. Association Between Health Belief Model Substructures and Demographic Variables Among Girl Students

Variable	Father's Age	Mother's Age	Father's Job	Mother's Job	Father's Education	Mother's Education
Knowledge	<i>P</i> = 0.445 <i>r</i> = -0.085	<i>P</i> = 0.5213 <i>r</i> = -0.052	<i>P</i> = 0.818 <i>r</i> = 0.015	<i>P</i> = 0.505 <i>r</i> = 0.075	<i>P</i> = 0.920 <i>r</i> = -0.011	<i>P</i> = 0.509 <i>r</i> = -0.074
Perceived susceptibility	<i>P</i> = 0.920 <i>r</i> = -0.011	<i>P</i> = 0.330 <i>r</i> = -0.120	<i>P</i> = 0.924 <i>r</i> = 0.042	<i>P</i> = 0.558 <i>r</i> = -0.036	<i>P</i> = 0.355 <i>r</i> = -0.104	<i>P</i> = 0.168 <i>r</i> = -0.145
Perceived severity	<i>P</i> = 0.995 <i>r</i> = -0.001	<i>P</i> = 0.023* <i>r</i> = 0.236	<i>P</i> = 0.974 <i>r</i> = -0.044	<i>P</i> = 0.144 <i>r</i> = -0.164	<i>P</i> = 0.183 <i>r</i> = -0.150	<i>P</i> = 0.018* <i>r</i> = -0.262
Perceived benefits	<i>P</i> = 0.506 <i>r</i> = -0.075	<i>P</i> = 0.188 <i>r</i> = 0.148	<i>P</i> = 0.561 <i>r</i> = 0.067	<i>P</i> = 0.709 <i>r</i> = -0.042	<i>P</i> = 0.367 <i>r</i> = -0.120	<i>P</i> = 0.611 <i>r</i> = -0.057
Perceived barriers	<i>P</i> = 0.242 <i>r</i> = 0.134	<i>P</i> = 0.001* <i>r</i> = 0.378	<i>P</i> = 0.687 <i>r</i> = -0.046	<i>P</i> = 0.131 <i>r</i> = -0.169	<i>P</i> = 0.253 <i>r</i> = -0.128	<i>P</i> = 0.024* <i>r</i> = -0.225
Perceived self-efficacy	<i>P</i> = 0.024* <i>r</i> = 0.243	<i>P</i> = 0.027* <i>r</i> = 0.299	<i>P</i> = 0.657 <i>r</i> = 0.044	<i>P</i> = 0.365 <i>r</i> = 0.103	<i>P</i> = 0.353 <i>r</i> = -0.121	<i>P</i> = 0.264 <i>r</i> = -0.136
Junk food Consumption	<i>P</i> = 0.125 <i>r</i> = 0.209	<i>P</i> = 0.017* <i>r</i> = 0.149	<i>P</i> = 0.005* <i>r</i> = 0.424	<i>P</i> = 0.395 <i>r</i> = 0.085	<i>P</i> = 0.379 <i>r</i> = -0.017	<i>P</i> = 0.004* <i>r</i> = -0.421

behavior, knowledge and awareness of individuals about that issue should be investigated and they should be trained, in case there is any deficiency in their knowledge, about that behavior and its various aspects. And then, they should be familiarized with the way to do that behavior. In that case, it is expected that the person to perform the certain behavior well.

The mean scores of perceived susceptibility, severity, benefits, and barriers were 35.90 ± 23.41 , 52.39 ± 22.31 , 61.03 ± 16.89 , and 50.54 ± 22.19 , respectively. According to these results, the mean score for perceived susceptibility was very low. Besides, the mean score of perceived severity was not acceptable and thus requires more attention because low perceived severity and susceptibility may reduce the accuracy towards performing the behavior and as a result, individuals consume more junk foods.

As a general rule, people show better reactions to health and disease prevention messages when they feel that they are at serious risk. Therefore, they perceive a benefit regarding a change in their behaviors (perceived benefits). As a result, they easily remove barriers of these changes. In this situation, interventions and educational programs may be effective.¹⁹ In fact, if there is knowledge on factors affecting people's health behaviors, there will be better situations in providing solutions and ways that make health education goals practical and that success indicators are selected in more reasonable ways.¹⁹ The mean score of self-efficacy in proper consumption of junk foods was 56.69 ± 19.14 , which is moderate and requires the necessary measures to improve it. Self-efficacy is an assurance that a person feels about doing a particular activity^{20,21} and may enable him/her to adopt healthy behaviors and quit harmful practices. Therefore, perceived self-efficacy can maintain health promoting behaviors.²¹ Individuals with a low sense of self-efficacy believe that problems are too difficult and that they have

one-dimensional superficial view towards the problems.

Self-efficacy means believing in oneself to successfully perform a specific behavior and expect its consequences. It is an important prerequisite of behavior and affects one's motivation and makes the individual try and persist in doing that behavior.²²

Branscum and Kaye in their study, observed a high degree of perceived self-efficacy in opt for low-calorie snacks, drinks without added sugar, foods that contain less added sugar, fruits especially in the morning and even as a snack, and consumption of vegetables especially raw ones.²³ The mean frequency of junk foods consumption among studied students was 6.67 ± 3.62 times which is high. Adolescents' eating habits were different from other age groups. This age group tended to eliminate some meals, eat junk foods, consume inappropriate fast foods, adhere to weight-losing diets and use irrational diets. Neumark-Sztainer et al,²⁴ de Ruyter et al,¹⁷ and also Veugelers and Fitzgerald²⁵ in their studies, reported high consumption of low nutritional value foods.

Correction of nutritional behavior in childhood and adolescence has many benefits the most important of which is properly designing and implementing diet in schools to address nutritional problems and provide health conditions in this age group. Satisfying the short-term or transient hunger of malnourished school children helps increase attention and focus of these students and improve their learning performance.²⁶

Nutritious and suitable snacks during school hours are very important because even those children who have eaten breakfast are hungry in the hours around noon and this hunger makes it impossible for them to sit in the class and thus the required concentration for learning decreases. However, eating appropriate snacks help the students improve their working and learning abilities. Since most of the dietary habits are formed and stabilized during adolescence period, paying attention to

nutritional knowledge of the adolescents and their eating behaviors and attitudes, is important.²⁶

Nowadays, the role of diet and nutrition is well understood in health state and development of diseases. Other than being related to the growth and development, diet may reduce or intensify some of the specific health related problems in children and adolescents including bone health, dental caries, eating disorders, obesity, constipation, malnutrition, and iron deficiency anemia.²⁷ Students need at least 2 whole meals and 3 to 4 snacks in a day.^{28,29} Consumption of a suitable snack is one of the essential parts of students' diet. Physical and mental activity requires taking sufficient energy. Consumption of a suitable snack affects students' learning ability and education promotion status. Therefore, providing healthy snacks for them will be a necessity. These snacks may be fresh fruits and vegetables, natural juices, and nuts like walnut, pistachio, almond, and hazelnut.^{28,29} Throughout the recent decades, changes in nutrition patterns has led to the substitution of nutritious snacks with the low nutritional value foods.²⁹ The main characteristic of low nutritional value snacks is that the amount of their calorie, sugar, and salt is high. It is estimated that these snacks provide 40 percent of the students' daily energy needs in Iranian context.²⁹

Despite knowing about their harms, low nutritional value snacks and junk foods are selected by the adolescents owing to their attractive packaging and pleasant taste.

Limitations of the Study

The limitations of the current study included the application of self-report questionnaires. Additionally, sample size was small so the results of the study may not be generalized and that the study did not focus on all the students studying in the schools.

Conclusion

Providing a health supporting environment using various attractive designs and shapes (during healthy food supply), providing trainings tailored for the target group, and encouraging and motivating them (the students) to stay healthy and follow healthy food patterns are of great necessity. y.

The consumption of junk foods among other age groups and also across gender is suggested to be investigated in future studies. In addition, strong patterns and theories of health education and health promotion should be used in order to evaluate individual, social, and environmental factors influencing the individuals' behavior.

Ethical Approval

The project was reviewed and approved by Shahrekord

University of Medical Sciences under the number of 2341 and an obtained code of ethics (IR.SKUMS.REC.1395.256) as well as a letter of introduction from the university to introduce the researcher to the Ministry of Education. The aims of the study were also explained to the target group and they were asked to carefully fill out the questionnaires without any rush or force, thus, participation in this study was voluntary. Written informed consent was obtained from the students as well.

Conflict of Interest Disclosures

None.

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