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Original Article

The Relationship Between Perceived Stress Level and Consumption of Fast Foods Among Female Students of Shahrekord University of Medical Sciences

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Abstract

Background and aims: Nowadays, with the advancement of science and technology, lifestyle has changed and fast foods are being commonly consumed. Due to their special circumstances, university students are susceptible to stress, anxiety, and bad nutritional patterns and, because of the consumption of high amounts of fat and salt and physical inactivity, are at increased risk of overweight and obesity. Therefore, the present research was conducted to study the relationship between the consumption of fast foods and perceived stress level among female students of Shahrekord University of Medical Sciences.

Methods: The present research was a descriptive-analytical study conducted on female students of different faculties and majors in Shahrekord University of Medical Sciences in the academic year 2016-2017. From the study population, 152 students were selected as the samples using random cluster sampling method. Data were collected using a demographic information questionnaire (age, major, parents' education level, education level, and place of residence), a standard 14-item scale for the measurement of perceived stress level, and a checklist to record the frequency of fast foods consumption in university and home or dormitory (daily, weekly, and monthly). Data analysis was conducted using descriptive and analytical tests (chi-squared, independent t test, and Spearman's and Pearson's correlation coefficients) in SPSS 18. Participation in the study was voluntary.

Results: Results showed 45.4% of participants aged 18-20, 16.4% of whom were studying in public health, and 85.8% were BSc students. The mean scores of perceived stress and fast foods consumption were 51.36 ± 13.52 and 12.42 ± 5.42, respectively. There was a significant relationship between age and perceived stress ($P=0.000$), and between mother's education level and perceived stress ($P=0.011$). There was no significant relationship between the mean score of perceived stress and fast foods consumption in participants ($P=0.072$)

Conclusion: Considering the level of perceived stress and fast foods consumption in university students, it is necessary to apply effective patterns and theories of health education and promotion and also to direct attention to interpersonal and environmental factors to reduce stress and encourage healthy eating habits.

Keywords: Stress, Fast foods, University, Student, Health

Introduction

Nowadays, non-communicable diseases such as diabetes, obesity, and cardiovascular diseases are on rise, mainly because of the change in lifestyle. Diet is one of the factors affecting the pattern of chronic, non-communicable diseases. The nutrition pattern affects mental status and depression, brain function, stress response, and oxidative reactions. Many people overeat to overcome emotional and anxiety problems.[1]

Inappropriate nutritional patterns in youth are one of the main causes of chronic diseases in middle-aged people, and selection of appropriate foods is essential for the health of young girls who will serve as the mothers of the future. Therefore, adolescence is a golden opportunity to receive various types of training and intervention in order to improve the nutritional and health status of students.[2]

In many cases, shortage of time influences the type of food consumed by university students.[3] Due to their special circumstances, university students are susceptible to stress, anxiety, and bad nutritional patterns[1] and,

because of the consumption of high amounts of fat and salt and physical inactivity, are at increased risk of overweight and obesity.[4]

Some studies indicate that food intake of university students is not compatible with the recommended daily amounts and depends on their purchasing power.[3] During the youth, mental changes and attitudes play a major role in the adoption or withdrawal of nutritional habits and behaviors.[5] With the advancement of science and technology in recent years, lifestyle has changed and fast foods consumption has grown dramatically,[6] so that about one-third of adolescents consume fast foods outside the home every day. Fast foods are foods that are cooked instantly and usually outside the home.

The calorie and fat content of fast foods are higher but their nutrients are less than those of home-made foods. It is argued that change in the traditional structure of families, deliciousness, inexpensiveness, and easy and fast preparation are the main reasons for the widespread consumption of fast foods.[7]

In the workplace and academic settings, due to time and place limitations, conditions for cooking are not provided and, as a result, staff and students have to use fast foods.[8] Fast foods include a variety of sandwiches, hamburger, cheeseburger, chicken, fish, fried shrimp, chicken nuggets, pizza, sausage, lunch meat, and hot dogs which are fattening and harmful, and increase the risk of developing cardiovascular diseases, diabetes, and osteoporosis because of the high calorie and trans fatty acid contents. In addition, the use of harmful stuff like sauces and soft drinks doubles the risk of fast foods consumption.[9]

Therefore, nutrition status is one of the factors affecting health.[6] Previous studies have shown that nutritional patterns of students change since when they enter the university, and this change is more prominent in those living in dormitories. Accordingly, students use less vegetables but more of snacks such as cakes, biscuits, and sandwiches.[10] For certain reasons such as being away from the family, entering a new and stressful environment, economic problems, the large volume of courses, and heavy competition, university students are vulnerable to the loss of mental health. It is therefore essential to pay attention to the mental health of university students.[11]

Most of the studies conducted on the nutritional pattern of individuals to date, have addressed anthropometric indices, indicating the prevalence of obesity and overweight, increased cholesterol intake, and reduced fiber intake.[3,4] While anxiety is a common and fundamental mental health issue among students, a few studies have been conducted to investigate the relationship between nutrition patterns and severity of anxiety. For instance, Homayounfar studied the relationship of fast foods consumption and anxiety level, and observed the consumption of fast foods in male students was two times higher than in female ones, and anxiety level increased with the increase in the consumption of fast foods.[12] The results of Jacka et al showed that there is an inverse relationship between magnesium consumption and depression score.[13]

The above-cited studies cannot provide a complete image of the association of anxiety and stress with the consumption of fast foods, because the former has studied only the effect of fast foods on the above points and since no study in Iran has yet been published regarding the level of perceived stress in university students and its relationship to fast foods consumption, high consumption of fast foods is an indicator of the lifestyle, high workload, and insufficient time. Considering the fact the diet affects the pattern of non-communicable diseases, the present research was conducted to investigate the relationship between fast foods consumption and perceived stress level among female students of Shahrekord University of Medical Sciences in 2016.

Methods

The present research was a descriptive-analytical study which was conducted in 2016. The study population consisted of all female students of different faculties and majors in Shahrekord University of Medical Sciences in the academic year 2016-2017. According to a sample size calculation formula and given a confidence level of 95% and test power of 80%, the sample size was determined to be 152. Given an attrition rate of 10%, the final sample size was decided to be 152. The participants were selected using random cluster sampling method. After the approval of the project protocol at the Student Research Committee of Shahrekord University of Medical Sciences, obtaining a code of ethics and also a letter of introduction from the university, the authors referred to the faculties and briefed their staff on the research objective and procedure. After faculties' officials provided consent to selection of participants from the students of their respective faculties, a number of students were randomly selected from each faculty. The number of students selected from each faculty was determined to be proportionate to the total number of students in the faculty. The selected students were enrolled in the study after they provided oral consent to participate in the study. The exclusion criteria were withdrawal from the study, incomplete or incorrect filling out of questionnaires, and inappropriate physical conditions to answer questions.

Data were collected using a demographic information questionnaire (age, major, parents' education level, education level, and place of residence), a standard 14-item scale for the measurement of perceived stress level, and a checklist to record the frequency of fast foods consumption (daily, weekly, and monthly). To measure perceived stress level, the global scale developed by Cohen et al in 1983 was used.[14] Gharibi et al also used this scale

and reported its Cronbach α as equal to 0.86.[15] Cohen et al found out that this scale provides a better prediction of psychological symptoms, physical symptoms, and the use of health services compared to the Life Events Scale. Generally, this scale was developed in order to cognitively assess stressors, i.e., the degree at which people feel that their life events are unpredictable, uncountable, and hectic.[16] Perceived stress scale has been developed in 4-, 10-, and 14-item versions. The 14-item version was used in the present study (e.g., In the last month, how often have you been upset because of something that happened unexpectedly? In the last month, how often have you felt nervous and "stressed"?). The items are rated on a 5-point Likert scale (0: *Never*, 1: *Almost Never*, 2: *Sometimes*, 3: *Fairly often*, 4: *Very frequently*). It is noteworthy that items 4, 5, 6, 7, 9, 10, and 13 are scored inversely (e.g. In the last month, how often have you felt that things were going your way? In the last month, how often have you been able to control your time).

Consumption of fast foods was measured using a checklist including products such as sausage, lunch meat, hamburger, pizza, and other processed meat products like chicken nugget. The frequency of consuming these products per day (*Never, Once a day,* and *More than once a day*), week (twice a week and 5 times a week), and month was recorded. The data were analyzed using descriptive (mean, standard deviation, number, and frequency) and analytical statistics (e.g., Spearman correlation coefficient to investigate the relationship of demographic characteristics and fast foods consumption with perceived stress) in the SPSS version 18. Significance level (*P*) was considered <0.05.

Results

According to the results, 69 (45%) of students participating in this study aged 18-25. Regarding major, 16.4% of our participants were studying in public health and 13.8% were studying in nursing. In addition, 85.8% of participants were BSc students. Regarding father's education level, 34.9% of fathers had guidance school degree and 27% had academic degree. Among mothers, education level was guidance school in 36.8% and elementary school in 21.7%. Place of residence in 75% of participants was urban areas.

Among fast foods consumed more than once a day,

sausage and hamburger had the highest consumption (5.3%). In addition, the least frequently used fast food was pizza (1.3%). In fast foods with a consumption frequency of five times a week and twice a week, the highest frequency was obtained for nugget. Among fast foods with a consumption frequency of once a month, pizza was the most frequently consumed fast food (57.2%). Among all fast foods, the least frequently used fast food (*Never*) was lunch meat (Table 1).

The mean score of perceived stress was obtained 51.36 ± 13.52. There was no significant relationship between the mean score of perceived stress and status of fast foods consumption among the participants (*P* = 0.072) (Table 2). In addition, the mean score of fast foods consumption per week was obtained 12.42 ± 5.42.

There was a significant relationship between age and perceived stress (*P* = 0.002), as students aged 20-22 had a higher level of perceived stress. In addition, a significant relationship was found between perceived stress and mother's education level (*P* = 0.11), as students with an illiterate mother or elementary school degree showed higher levels of perceived stress. The results also indicated there was a significant relationship between fast foods consumption and age (*P* = 0.035). Accordingly, fast foods consumption increases with increasing age. Moreover, a significant relationship was found between fast foods consumption and major (*P* = 0.049), as students of medical majors, followed by those of midwifery, had the highest rate of fast foods consumption (Table 3).

Discussion

The present research was conducted to investigate the relationship between fast foods consumption and perceived stress level among female students of Shahrekord University of Medical Sciences. The results of this study showed students of medical fields and midwifery had the highest consumption of fast foods.

There was no significant relationship between the mean scores of perceived stress and status of fast

Table 2. The Mean Score of Perceived Stress and Status of Fast Foods Consumption in Participants

Variable	Mean ± SD	P Value
Perceived stress	51.13±36.52	0.072
Fast foods consumption (weekly)	42.42±5.12	

Table 1. Status of Fast Foods Consumption in Participants

Fast Food	Consumption Frequency					
	More Than Once a Day	Once a Day	Five Times a Week	Two Times a Week	Monthly	Never
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Sausage	8 (5.3)	4 (2.6)	6 (3.9)	7 (4.6)	49 (32.2)	78 (51.3)
Lunch meat	6 (3.9)	3 (2)	5 (3.3)	1 (0.7)	47 (30.9)	83 (54.6)
Hamburger	8 (5.3)	3 (2)	5 (3.3)	6 (3.9)	53 (34.9)	73 (48)
Pizza	7 (4.6)	2 (1.3)	1 (0.7)	10 (6.6)	87 (57.2)	44 (28.9)
Nugget	6 (3.9)	7 (4.6)	6 (3.9)	9 (5.9)	48 (31.6)	74 (48.7)

Table 3. The Relationship of Perceived Stress and Fast Foods Consumption With Demographics of Participants

Variable	Age	Major	Educational Level	Father's Education Level	Mother's Education Level	Place of Residence
Perceived stress	0.002*	0.128	0.047	0.820	0.011*	0.261
Fast foods consumption	0.035*	0.049*	0.087	0.088	0.058	0.431

*The significance level $P < 0.05$.

foods consumption among our participants, while Homayounfar et al[12] reported that students who often consume fast foods are about seven times more likely to be classified as suffering from moderate or severe state anxiety than those who use less fast foods. In addition, fast foods consumption is 2 times higher in male students than in female ones, and anxiety level increases with increasing consumption of fast foods. These findings are not consistent with the results of the present study.

Our results also indicated the consumption of fast foods increased among students as their age increased. In the study of Kouhi et al,[8] the relationship between age and the tendency to use fast foods was not confirmed. Talaei et al[2] reported that the amounts of fatty acids, fibers, and some micronutrients received from various sources were not compatible with the recommended values. This corroborates the findings of Doostan et al[3] regarding balanced diet, increasing fiber intake, and reducing cholesterol intake. The mean daily fiber intake in girls was reported to be 15.65 ± 3.65 by Talaei et al[2] and 16 ± 8.65 by Doostan et al.[3]

The results of Yarmohammadi et al[7] showed that only half of the students are aware of fast foods negative effects and there was a direct correlation between parents' education attainment and fast foods consumption, which is not consistent with the findings of the present study.

In the study of Fazelpour et al,[9] it was found that employees, young people, singles, and university students are the main groups consuming fast foods. This suggests that they do not have the experience and knowledge about healthy nutrition and are less concerned with their health. This is consistent with the findings of Dadipour et al[17] who reported that university students, followed by employees, have the highest rate of fast foods consumption. In the study of Abedi et al,[4] based on body mass index, 6.9% of university students were obese and 49.1% had abdominal obesity. Furthermore, Salem et al[18] reported that 1.4% of university student were obese and 7.8% had abdominal obesity.

Fazelpour et al[9] reported that 18.8% of university students consumed fast foods at least once or twice per week, which is less than the corresponding figures obtained in the present study (21.7%). Yarmohammadi et al[7] reported that 2.7% of university students consumed fast foods more than three times per week and 12.5% once or 2 times per week. Larson et al found that 21% of women used to consume fast foods more than three times a week during their adolescence.[19] Peyman and Nasehnezhad[20] reported that 82.2% of the students used fast foods at least twice per month, and also Seo et al[21] reported 27.6% of the students consumed fast foods two or three times a week.

ALFaris et al[22] reported among participants, 95.4% consumed restaurants' fast foods and 79.1% used fast foods at least once per week. In the present study, sausage and hamburger were reported to be the main fast foods consumed by the participants, while Yarmohammadi et al reported that sandwiches and snacks were the most popular fast foods.[7]

ALFaris et al showed that burgers and carbonated soft drinks were the main fast foods and beverage usually eaten by girls.[22] The findings of Seo et al showed that the most popular fast foods among students are burgers, pizza, chicken, and French fries,[21] while Dadipoor et al reported pizza as the most favorite and the most frequently consumed fast foods. They also found a relationship between fast foods consumption and place of residence, as residents of urban areas were found to consume fast foods more frequently than rural residents.[17] This is not consistent with the findings of the present study.

The study of Kouhi et al indicated that the frequency of fast foods consumption in students with better economic status was comparatively higher and the frequency of fast foods consumption in the study samples was more than the expected level.[8]

This suggests that the consumption of traditional and home-made foods has decreased in communities with higher education level and income and has been replaced with fast foods. Since harmful nutritional patterns, high consumption of fast foods, and low physical activity are three risk factors for overweight in adolescents,[5] there is a vital need for training programs and empowerment of families and youth in order to help them select healthy foods, adopt more active lifestyles, follow a favorable diet appropriate for their age, body size pay attention to food labels when buying, minimize the consumption of fast foods and high-fat foods, and reduce watching TV. In addition, it is necessary to perform the required interventions for preventive behaviors and healthy eating habits such as replacing healthy and delicious foods and increasing the consumption of fruits and vegetables by university students. Hence, nutritionists recommend that fast foods are better to be eaten with salads because vegetables are rich in antioxidants which reduce the harmful effects of fast foods ingredients and somewhat prevent the risk of cancer.[8] Diets rich in sugar, saturated

fat, and salt and high-calorie foods can lead to early incidence of health issues in adolescents.[23]

The increased tendency to consume fast foods is alarming to families. Therefore, families can inform their children about disadvantages of such foods in order to prevent the incidence of above-mentioned conditions. However, social authorities have the main responsibility in this regard that should carefully monitor such foods to prevent many social costs, because fast foods have grown such that it is no longer possible to completely eliminate them from people's food basket.

The results also showed that the mean score of perceived stress in our participants was 51.36 ± 13.52. The findings of Najafi Kalyani et al reported that the mean score of perceived stress in girls was 8.63 ± 5.03.[24] Shahbazi Mogaddam et al reported that 39%, 16%, and 8% of students experienced mild, moderate, and severe levels of stress, respectively, with 37% experiencing no stress. The findings of this study demonstrate that there is a significant relationship between age and stress, as students aged 20-22 were found to have higher levels of perceived stress. This is not consistent with the findings of Shahbazi et al. They also found no relationship between place of residence and stress, which corroborates the results of the present study.[25] Khani Jeihooni et al observed that there is no significant relationship between perceived stress and major of students, which is consistent with the findings of the present study.[26]

Stress can be considered one of the factors involved in acceleration of aging. Based on the global index of disease burden, the World Health Organization predicts that psychological disorders such as stress caused by mental disorders will be the second leading cause of disabilities by 2020.[26] Learning is a stressful experience, especially in medical sciences, and healthcare occupations are known to be among the most stressful ones. In addition to the stress caused by theoretical training environments, students of these majors are influenced by various stressors in hospitals. The stressful situations can be a barrier to learning, reduce its efficiency, and makes it difficult to achieve educational objectives.

Given that the World Health Organization has officially placed processed products on the list of cancer-causing substances, including arsenic and asbestos,[27] it seems necessary to further study people's attitudes and the effect of awareness on fast foods consumption rate, and to seek out efficient solutions. To this end, increasing the quality of the foods served in universities and dormitories and also providing training in nutrition for students can also be useful. In addition, it is also necessary to direct special attention to the health of fast foods and to develop a nutritional pattern based on native eating habits.

Therefore, considering the wide scope of this subject, more studies should be conducted to investigate fast foods consumption and its associated factors and consequences.

Promotion of appropriate attitudes and beliefs regarding the consumption of fast foods can play a major role in the promotion of university students' health. Therefore, this should be given a top priority in health education programs and mass media advertisements.

Limitations of the Study
Some of the limitations of the current study are related to the age and gender of participants and use of a number of self-report items regarding fast foods consumption. In addition, the different definitions of fast foods in different cultures were another limitation of this study. Therefore, further studies should be conducted on different age and gender groups and also in different cultures. Our findings show there is no relationship between fast foods consumption and stress. However, since the present research was a cross-sectional study and recall bias in filling out the questionnaires is likely, longitudinal and more comprehensive studies can confirm our results. Moreover, given the higher tendency of this age group to consume fast foods, it is recommended to study their nutritional patterns and compare them with allowable daily values in order to prevent health issues associated with the consumption of these foods.

Conclusion
The mean scores of perceived stress and status of fast foods consumption in our participants were obtained 51.36 ± 13.52 and 42.42 ± 5.12, respectively. The results also demonstrated there was no significant relationship between perceived stress and status of fast foods consumption among the university students. In contrast, perceived stress was found to be significantly associated with age and mother's education level. In addition, a significant relationship was found between age and status of fast foods consumption. It seems necessary to perform health education interventions in order to remove or reduce barriers to consuming healthy foods of high nutritional value and also identify the factors affecting the stress level in university students. These measures can be greatly beneficial to reduce the health issues associated with nutrition and stress.

Ethical Approval
The research project protocol was reviewed and approved by the Student Research Committee of Shahrekord University of Medical Sciences (code of ethics: IR.SKUMS.REC.1395.177). In addition, holding a letter of introduction from the university, the authors referred to faculties of the university and briefed their officials on the research objective and procedure. Participation in the study was voluntary. Written informed consent to participate in the study was also obtained from participants.

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