Original Article

Knowledge, Attitude, and Practice of Rafsanjan University of Medical Sciences Students Concerning Fast Food

Mahmood Mahbobi Rad[1] , Abbas Pour Pasandi[2] , Narges Khajani[3] , Reza Sadeghi[2*]

[1]Department of Health Education and Health Promotion, School of Public Health, Rafsanjan University of Medical Sciences, Rafsanjan, Iran
[2]Department of Public Health, Sirjan School of Medical Sciences, Sirjan, Iran
[3]Neurology Research Center, Kerman University of Medical Sciences, Kerman, Iran

Abstract
Background: Lifestyle changes and, consequently, changes in dietary habits have led people, especially young people, to consume more processed and fast food. This study evaluated the knowledge, attitude, and practice of fast-food consumption among medical sciences students in Rafsanjan, Iran.
Methods: In this cross-sectional study, data were collected using a researcher-designed self-reported questionnaire, which was distributed among 350 medical sciences students in Rafsanjan, Iran, selected by stratified random sampling from 2019 to 2020. The validity and reliability of this questionnaire were confirmed before commencement. SPSS 20 was used for data analysis.
Results: The results showed that university students had above-moderate knowledge (39.7 ± 0.55) and positive attitudes (60.52 ± 0.43) about fast food consumption. The mean number of times students consumed fast food in the past month was 12.41 ± 0.46. There was a statistically significant and positive correlation between attitude and practice. Also, knowledge had a significant inverse correlation with attitude and practice. The level of women's knowledge was significantly higher ($P=0.001$) than men's knowledge, and the knowledge score of dental and medical students was significantly higher ($P=0.04$) than that of students from other schools. The men's attitude score was significantly higher ($P=0.04$) than the women's.
Conclusion: Appropriate interventions should be implemented to improve students' knowledge, attitude, and practice concerning fast food consumption. Food labeling, teaching healthy cooking and preparation, time management, improving university meal programs, and opening affordable, healthy on-campus restaurants are recommended.
Keywords: Knowledge, Attitude, Practice, Fast food, University students

Introduction

Urbanization and the associated lifestyle changes have led to changes in eating habits. Individuals consume unhealthy food with high calories, fats, salt, or sugar, and many consume insufficient fruits and vegetables (1).

There are apparent differences in dietary habits, nutrition, and health outcomes in different regions (2). These differences are influenced by socioeconomic status, food access, and the environment (3). In urban areas, supermarkets and fast-food chains have steadily grown, which has increased access to more diverse fast food. However, this has also increased the likelihood of consuming processed and fast food and having a poor diet (4).

The consumption of this high-calorie and fatty food causes an imbalance between energy intake and consumption and increases the chances of obesity, diabetes, cardiovascular disease, and cancer (4,5). Carbonated beverages and high-calorie condiments, such

as sauces, increase the harmful side effects even more (6). Children and adolescents who eat fast food have a higher intake of saturated fat, sodium, carbohydrates, and added sugars and a lower intake of fiber, vitamins A and C, milk, fruits, and vegetables, which means they receive more fat and fewer nutrients (7), and this unhealthy nutrition can decrease physiological function and increase the risk of chronic disease (8), and even affecting immune and cognitive functions (9).

University students are a select group considered the future workforce of any country, and they are in a critical period in adopting health behaviors (10,11). From the perspective of health educators, the age range of 19 to 24 years is the last critical opportunity for nutrition education (12), and for this reason, prevention and promotion programs should be focused on youth and adolescents (13). In 1997, among young Americans, fast food accounted for only 17 percent of the food consumed by individuals in restaurants, reaching 30% in 2006 (14).

*Corresponding Author: Reza Sadeghi, Email: reza.sadeghi351@yahoo.com

In 2017, one in four Americans claimed to eat fast food daily (8), and Americans spent more than $ 210 billion on fast food in 2017 and 2018 (15). According to studies, most fast food consumers are adolescents and young adults, and nearly one-third of these young people consume fast food daily (16). In Iran, according to the report of the National Statistics Center of Iran in 2015, 47.6% of people over 18 years and older in the urban population consumed fast food. Of these, 18.7% consumed fast food once, and 2.6% more than five times a month (17). In 2016, fast food consumption in Iranian adolescents was 20% (18). According to the World Health Organization, fast food consumption is increasing in many societies. This has a significant impact on the health of people and is significantly associated with overweight and obesity in developing countries (19).

Sajjad et al showed that although Pakistani college students knew the adverse health effects of fast food, they were still consuming it under the influence of friends and its increasing popularity (20). Findings of a systematic review showed that taste, brand reputation, accessibility, location, price, ambiance, hygiene practice, variety, promotional offers, and timely service significantly increase the consumption of fast food among college students (21).

So far, studies on fast food consumption have yet to be conducted in Rafsanjan city. It is essential to recognize the determinants of fast-food consumption to implement preventive and promotional policies and nutrition programs. Meanwhile, students are a young group more likely to eat this type of food and should be given special attention. The current study aims to survey the knowledge, attitude, and practice of students of Rafsanjan University of Medical Sciences towards fast food consumption.

Methods

This cross-sectional study attempts to evaluate the knowledge, attitudes, and practices of fast food consumption among University of Medical Sciences students in Rafsanjan, Iran, in 2019–2020.

A stratified sampling method was used considering the different schools of this university, including medical, dentistry, public health, midwifery and nursing, and allied health, as the strata. Then, students were randomly selected by drawing their assigned numbers from a bowl. The inclusion criteria were being a university student, not having any medical restrictions for consuming fast food, such as illnesses or food allergies, and willingness to participate in the study. Eventually, 350 students participated in the study and completed the researcher-designed self-report questionnaire.

A pilot was conducted using this researcher-made questionnaire. After calculating the mean and standard deviation of the behavior construct (12.55 ± 9.5), considering d = 1%, the sample size had to be at least 346 people.

Before answering the questionnaire, the participants were given the necessary information regarding the study and its objectives and informed written consent was obtained. Moreover, they were assured that their information would remain confidential.

The researchers developed the questionnaire used in this investigation, and its content validity and reliability were assessed. Initially, a systematic review was conducted to construct the questionnaire to identify the items suitable for assessing students' knowledge, attitudes, and practices toward fast food consumption. Then, the content validity of the questionnaire was assessed based on the opinions of 10 health professionals. Content validity ratio (CVR) and content validity index (CVI) were calculated for the questions. Considering the values from the Lawshe table, CVR and CVI values above 0.62 and 0.79, respectively, were considered adequate, and if these values were not met, the questions (items) were reviewed and corrected. In order to determine the reliability of the questionnaire, a pilot study was conducted on 30 students who were not included in the final sampling, and Cronbach's alpha coefficient, which was 0.8 (22), was calculated.

The designed questionnaire consisted of four parts. The first part included questions related to demographic characteristics, including age, gender, marital status, school, place of residence, occupation of parents, parent's education, and family income status. The second part included questions related to knowledge about fast food. In this part, a 27-item scale was used, and the options for answering the questions were "true," "false," and "don't know." The range of the knowledge score was from 0 to 54. In the third part of the questionnaire, questions related to attitudes toward fast food consumption were included. Attitude was measured using 20 statements on a 5-point scale ranging from strongly agree to strongly disagree. The range of attitude score was from 20 to 100. A higher score in this part meant that the person was more inclined to eat fast food. Finally, the fourth part of the questionnaire included questions about the practice or consumption of fast food in the last month. In 10 questions, students were asked to determine the average number of times they consumed fast food, including sandwiches, burgers, pizza, fries, canned food, dumplings, chicken nuggets, fried fish or chicken, snacks, samosas, and hot dogs in the past month.

SPSS software version 20 was used for data analysis. The normal distribution of quantitative variables was checked by the Kolmogorov-Smirnov test. Independent t-test and ANOVA were used to identify the differences between different socio-demographic groups. LSD post hoc test was used for multiple comparisons. Because of the normality of the data, the Pearson correlation was used to determine the relation between knowledge, attitude, and practice scores. The significance level was considered less than 0.05.

Results

Three hundred and fifty students (350) participated in this research. The average age of the participants was 20.49 years (SD = 1.54), ranging from 18 to 24 years. Most participants were female (63.1%) and single (90.3%). Most students lived in the dormitory (59.4%) and had a good income (46.3%). Other demographic characteristics are shown in Table 1.

The mean score of students' knowledge was 39.7 ± 0.55 (out of 54), above the mid-point. The level of women's knowledge (40.13 ± 0.81) was significantly higher ($P = 0.001$) than men's knowledge (37.13 ± 0.38). The post hoc tests showed that the knowledge score of the public health school was significantly different from that of the students of the allied medicine school ($P = 0.002$), medical school ($P = 0.005$), and dentistry school ($P = 0.016$). Also,

the knowledge score of the nursing and midwifery school was significantly different from that of the students of the allied medicine school ($P = 0.009$), medical school ($P = 0.006$), and nursing school ($P = 0.021$). However, there was no statistically significant relation between knowledge and other demographic variables ($P > 0.05$) (Table 2).

The findings of our study showed that the mean score of students' positive attitude towards fast food consumption was 60.52 ± 0.43 (out of 100) and was above average. The attitude score in men (63.20 ± 0.89) was significantly higher ($P = 0.04$) than in women (58.95 ± 0.27), which showed that men were more inclined to consume fast food. There was no statistically significant relation between the positive attitude variable and other demographic variables ($P > 0.05$) (Table 2).

The mean number of times students consumed fast food (the practice variable) in the past month was 12.41 ± 0.46. No statistically significant relation existed between this number and the demographic variables (Table 2).

Based on the results of the Pearson correlation test, there was a significant and inverse relation between knowledge and attitude ($r = -0.33$ and $P < 0.001$) and practice ($r = -0.24$ and $P < 0.001$), which showed students with more knowledge were less inclined to think positively about fast food and ate less fast food. Also, a direct and significant relation was observed between attitude and practice ($r = 0.29$ and $P < 0.001$), meaning students who thought more positively about fast food ate more fast food.

Table 1. The frequency of socio-demographic variables among university students

Socio-demographic variables		Number	Percent
Gender	Female	221	63.1
	Male	129	36.9
Marital status	Single	316	90.3
	Married	34	9.7
School	Medicine	100	28.6
	Dentistry	50	14.3
	Public health	50	14.3
	Midwifery and nursing	75	21.4
	Allied medicine	75	21.4
Housing status	Dormitory	208	59.4
	Rental house	39	11.1
	Private house	103	29.4
Income level	Low	36	10.3
	Middle	152	43.4
	High	162	46.3
Father's job	Government employee	114	32.6
	Non-governmental job	127	36.3
	Unemployed	7	2
	Retired	102	29.1
Mother's job	Employee	97	27.7
	Housewife	253	72.3
Father's education	Illiterate	20	5.7
	Elementary school	22	6.3
	Middle school	36	10.3
	High school	93	26.6
	Academic	179	51.1
Mother's education	Illiterate	18	5.1
	Elementary school	52	14.9
	Middle school	28	8
	High school	98	28
	Academic	154	44

Discussion

This study assessed students' knowledge, attitude, and practice concerning fast food consumption at Rafsanjan University of Medical Sciences in Iran. Our results showed that university students had above-mid-point knowledge about fast food consumption, similar to Sanaye et al and Hu et al's results (23,24). In Hu et al's study, conducted on medical students in China, the level of students' knowledge was estimated to be above the midpoint as well (24). Due to the nutrition courses medical students take, their knowledge about the adverse effects of fast food and its side effects is higher than average. However, providing appropriate information to university students about healthy food and how to read food labels is still necessary.

Similar to this study, several studies found that female students had more knowledge than male students about fast food consumption (24,25). Therefore, educational interventions for increasing awareness should focus more on male students. Also, we noticed that dental and medical students' knowledge levels were higher than in other schools. Similarly, in Alves and Precioso's study in Portugal, there was a relation between the level of knowledge about healthy diets and the field of study, and

Table 2. Mean and standard deviation of knowledge, positive attitude, and practice among the subgroups of university students

Socio-demographic variables		Knowledge mean ± SD	P*	Positive attitude mean ± SD	P*	Practice mean ± SD	P*
Gender	Female	40.13 ± 0.81	0.001	58.95 ± 0.27	0.004	12.17 ± 0.60	0.57
	Male	37.13 ± 0.38		63.20 ± 0.89		12.82 ± 0.24	
Marital status	Single	38.92 ± 0.67	0.44	60.78 ± 0.75	0.25	12.53 ± 0.49	0.50
	Married	39.97 ± 0.43		58.02 ± 0.80		11.26 ± 0.30	
School of Study	Medical	61.12 ± 0.38	0.04	61.28 ± 0.75	0.72	15.84 ± 0.12	0.06
	Dentistry	61.76 ± 0.71		62.72 ± 0.85		12.74 ± 0.89	
	Public health	58.80 ± 0.94		59.33 ± 0.74		12.77 ± 0.60	
	Nursing and midwifery	59.451 ± 0.10		59.62 ± 0.20		10.62 ± 0.12	
	Allied	61.10 ± 0.06		61.71 ± 0.35		11.16 ± 0.05	
Hosing status	Dormitory	39.24 ± 0.85	0.46	61.13 ± 0.13	0.53	12.11 ± 0.05	0.62
	Rental house	39.82 ± 0.75		61.23 ± 0.06		11.64 ± 0.05	
	Private house	38.30 ± 0.76		59.27 ± 0.43		11.79 ± 0.18	
Income level	Low	37.16 ± 0.53	0.26	59.77 ± 0.57	0.16	11.63 ± 0.51	0.13
	Middle	39.45 ± 0.87		59.14 ± 0.46		11.28 ± 0.18	
	High	38.31 ± 0.60		61.97 ± 0.47		6.52 ± 0.43	
Father's job	Government employee	40.12 ± 0.61	0.07	62.64 ± 0.18	0.05	12.69 ± 0.21	0.84
	Non-governmental job	39.28 ± 0.07		60.84 ± 0.29		12.38 ± 0.78	
	Unemployed	33.70 ± 0.48		61.71 ± 0.40		9.40 ± 0.93	
	Retired	39.92 ± 0.65		57.66 ± 0.95		12.37 ± 0.69	
Mother's job	Employee	40.12 ± 0.61	0.09	61.17 ± 0.76	0.57	12.98 ± 0.07	0.52
	Housewife	38.60 ± 0.51		60.26 ± 0.32		12.19 ± 0.23	
Father's education grade	Illiterate	36.30 ± 0.36	0.11	61.15 ± 0.11	0.30	14.80 ± 0.40	0.44
	Elementary school	38.60 ± 0.59		64.17 ± 0.21		9.77 ± 0.57	
	Middle school	39.69 ± 0.51		56.52 ± 0.12		13.74 ± 0.68	
	High school	37.95 ± 0.66		60.97 ± 0.28		13.02 ± 0.69	
	Academic	39.88 ± 0.32		60.58 ± 0.23		11.89 ± 0.88	
Mother's education grade	Illiterate	38.13 ± 0.99	0.37	61.16 ± 0.15	0.84	13.22 ± 0.42	0.37
	Elementary school	38.13 ± 0.99		62.17 ± 0.31		10.07 ± 0.71	
	Middle school	39.33 ± 0.30		58.75 ± 0.78		12.32 ± 0.94	
	High school	39.66 ± 0.37		60.11 ± 0.89		13.73 ± 0.63	
	Academic	38.54 ± 0.01		60.45 ± 0.71		9.22 ± 0.87	

*T-test (for two groups) and ANOVA (for more than two groups).

natural sciences students had higher knowledge (25).

Our results showed that university students, on average, had above-mid-point positive attitudes about fast food consumption, which is similar to the results of the study by Sanaye et al, conducted in Tehran, Iran, where more than 68.4% of the medical students had positive attitudes towards fast food consumption (23). This shows that in educational programs, it is necessary to strengthen negative attitudes toward fast food consumption. In the present study, male students had more positive attitudes about fast food consumption than female students. This finding agrees with Sanaye et al (23) but is contrary to the study conducted by Didarloo et al, in which the attitude score of women was reported to be higher than that of men (26). Similar studies found no statistically significant

relation between attitude and demographic variables (25,27,28).

In our study, male students consumed more fast food than female students, although the difference was insignificant. This finding is similar to the findings of other studies (24,26,29). For example, in the study by Dave et al, American male adults consumed more fast food than female adults (29). This is probably due to a lack of time and sufficient skills to cook and prepare healthy food among male students and has also been reported in other studies. In our study, medical students reported more fast-food consumption than students from other schools. Didarloo et al found that the rate of fast-food consumption in PhD students was significantly higher than that of other students (26). This issue is probably

related to the busy schedule of higher education students and the lack of sufficient time to prepare food. Training students to prepare simple and healthy meals that take little time, time management training, and opening affordable healthy restaurants on university campuses help promote a healthy diet among university students.

Finally, we found that knowledge had an inverse and significant relation with attitude and practice, and attitude had a direct and significant relation with practice. Therefore, students with more knowledge about fast food and its adverse effects had more negative attitudes towards consuming fast food and eventually consumed less fast food and vice versa. In the study conducted by Alves and Precioso among Portuguese university students (25), a similar relation, consistent with our findings, was reported between knowledge, attitude, and practice.

Study limitations

This study was conducted for the first time on medical students in Rafsanjan. The results of the current study can help plan suitable interventions to improve the diet of university students. However, our study had three main limitations; first, the results of our study were from a single university and cannot be generalized to the whole country. Second, because self-report questionnaires collected the data, recall bias is possible. Third, fast food consumption practices during the past month were asked, but the responses may differ from the student's regular fast food consumption.

Conclusion

The results of this study can help health policymakers and managers take appropriate measures to improve students' knowledge, attitudes, and practices toward fast food consumption. It is necessary to reduce barriers that prevent turning knowledge into appropriate practices and attitudes, increase education related to healthy nutrition, provide training on preparing simple and healthy meals that do not take much time, and open affordable and healthy restaurants on university campuses.

Authors' Contribution
Conceptualization: Mahmood Mahbobi Rad.
Data curation: Mahmood Mahbobi Rad, Abbas Pour Pasandi, Reza Sadeghi.
Formal analysis: Mahmood Mahbobi Rad, Abbas, Narges Khajani.
Funding acquisition: Mahmood Mahbobi Rad, Reza Sadeghi.
Investigation: Mahmood Mahbobi Rad.
Methodology: Mahmood Mahbobi Rad, Reza Sadeghi.
Project administration: Mahmood Mahbobi Rad.
Resources: Mahmood Mahbobi Rad, Reza Sadeghi.
Software: Mahmood Mahbobi Rad, Abbas Pour Pasandi.
Supervision: Narges Khajani.
Validation: Mahmood Mahbobi Rad.

Visualization: Mahmood Mahbobi Rad.
Writing–original draft: Mahmood Mahbobi Rad.
Writing–review & editing: Narges Khajani.

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