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Determiners of fast-food consumption in Iranian university students: Application of prototype/willingness model

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Abstract:

BACKGROUND: Today, marked by advanced scientific approach, urbanism, and changing life style, there is an ever-growing rate of fast-food consumption, which has significantly affected public health. Hence, the present research aimed to predict factors involved in fast-food consumption in light of the prototype/willingness model among the students of Rafsanjan University of Medical Sciences.

MATERIALS AND METHODS: In the present descriptive/analytical research conducted in 2018–2019, 350 students in Rafsanjan University of Medical Sciences were selected through proportionate stratified random sampling. The required data were collected using a self-administrated questionnaire in light of the constructs within the prototype/willingness model and fast-food consumption behavior. The data were analyzed in SPSS version 16.0 using descriptive and inferential statistics including mean scores, standard deviation, correlation coefficient, and linear regression.

RESULTS: Behavioral intention of fast-food consumption showed to be positively correlated with positive willingness, positive prototype, positive subjective norms, and positive attitude toward fast-food consumption. Furthermore, the correlation between positive behavioral intention of consuming fast food and positive subjective norms and positive attitude toward fast-food consumption was statistically significant ($P < 0.05$). The underlying constructs of prototype/willingness model altogether managed to explain 13% of the total variance of fast-food consumption behavior. Behavioral intention showed to be the strongest predictor of the behavior ($\beta = 1.613$).

CONCLUSION: It is suggested that the preventive measures aimed to reduce fast-food consumption among the youth focus more on strengthening negative attitudes and subjective norms concerning fast-food consumption.

Keywords:

Determinants, fast foods, prototype model, students

Introduction

As reported by researchers in the World Health Organization, today, advanced science and urbanism and change of lifestyle has been accompanied by a prevalence of fast-food consumption, which has significantly affected public health, especially in developing countries.^[1] In fact,

fast food is a kind of food material that can be prepared fast and is offered for sale in certain centers and stores to public.^[2] As commented by nutritionists, as fast foods are rich in calorie and fatty acids, they can cause obesity and can, thus, damage health.^[3] Moreover, if one continues to consume more and more fast food, as these foods have high levels of calorie and fatty acids, they

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lose the balance between the calorie received and the calorie used. This would increase the chances of obesity and the risk of cardiovascular diseases and diabetes.^[4] In Iran, according to the National Statistics Center report in 2015, 47.6% of the population above 18 years of age consumed fast food.^[5]

University students in any country comprise a major population of a significant and determining scientific role and potential for prospective executive management. Thus, their health is of an incomparable importance, yet their inexperienced age can impede making appropriate decisions about healthy behaviors. They are, thus, more likely to show risky behaviors.^[6-8] Therefore, it is expected that health promotion plans take into account the youth and other similar high-risk populations including adolescents.^[9] In various studies, the use of health education models has been effective in preventing high-risk behaviors.^[10-12] Theories and models are considered as useful and facilitative means of health education and promotion. They can tell us why some people resist healthy behaviors and how we can help them show such behaviors.^[13] Health education is a process that tries to modify poor lifestyles by combining different views and helps people and societies to decide upon health-related issues; meanwhile, it constitutes a significant role in preventing behaviors.^[14]

Concerning high-risk behaviors shown by the youth, behavioral models are based on two hypotheses about individual decision-making. The proponents of the first hypothesis believe that making decisions on performing any particular behavior requires certain stages of analysis. All humans, before behaving in a certain way, think about its consequences and only then begin to show it. However, according to the second hypothesis, individual's decision-making ability on any particular behavior is mentally rooted. The two factors, subjective images and willingness, would lead one to make a certain decision under certain circumstances to behave or not behave in a certain way. This is also known as social reactions.^[15]

The above-mentioned hypotheses led to the development of a model named as the prototype/willingness model which has quite a lot in common with the theory of rational action. The two constructs, attitude and social norms, which belong to the rational action model are also included in prototype/willingness model. As the proponents of prototype/willingness model maintain, a number of factors affect behavioral willingness. These include attitude, social norms, and initial belief. According to this model, when an individual develops a positive attitude toward a behavior, s/he comes to perceive that

significant factors lead him/her to show that behavior. Thus, they develop a higher tendency to show that behavior.^[15]

Furthermore, it is argued in this model that the public possess certain primary and general beliefs highly involved in high-risk behaviors and tremendously affect their attitudes. In this model, social subjective images, if there is a willingness and the conditions are met, can lead one to high-risk behaviors. This model is made up of attitude, subjective norms, behavioral willingness, prototype, and behavioral intention.^[15] A body of related research has reported a high consumption of fast food among university students and the educated population.^[16-21] results of Mazloomi Mahmoodabad *et al.* entitled Predictors of Fast Food Consumption Based on Prototype/Willingness Model showed that intention to consumption of fast foods had a negative significant association with subjective norms, attitude, willingness, and prototype of fast food consumption.^[22]

Considering the significance of recognizing the underlying factors of fast-food consumption behavior in developing preventive plans and considering the wide application of prototype/willingness model in high-risk behaviors, the present research aimed to explore the determining factors of fast-food consumption among students of Rafsanjan University of Medical Sciences. Thus, the present research was conducted in light of the prototype/willingness model.

Materials and Methods

The present descriptive/analytical research was conducted in 2018–2019 with all students of Rafsanjan (in the south east of Iran) University of Medical Sciences. The sample selection method was proportionate stratified random sampling. Each faculty was taken as one stratum. Guided by a pilot study using a questionnaire developed by the present researcher, the mean and standard deviation of the behavior construct was estimated as 12.55 ± 9.5 ($d = 1$), and the sample size was estimated in a formula to be 346, which was finally set at 350. The sampling method was stratified so that each faculty was considered as one stratum. Then, according to the number and gender of the students, the students were randomly selected from the list of students and the students were informed that on a special day, to complete the questionnaire, be present in the education department. It took between 10 and 15 min to complete the questionnaires. Due to the fact that instead of people who did not want to study, the next person was randomly replaced, 100% of the samples participated in the study. The inclusion criteria were being a university student and having no limits for consuming fast food.

The exclusion criterion was the reluctance to enter the study. The questionnaire was developed by the present researchers in light of the constituent constructs of prototype/willingness model and was validated for content by health specialists. The mean score content validity ratio and content validity index for the model structures of prototype/willingness model, respectively, were 0.90 and 0.88, respectively. Moreover, the reliability of the questionnaire was estimated in a pilot test of thirty university students, and Cronbach's alpha was found to be 0.8 which is highly acceptable. The questionnaire consists of three sections, one exploring demographic information such as age, sex, marital status, faculty of affiliation, residential area, parents' occupation, parents' education, family income, state of fast-food consumption in family and friends, and state of fast-food consumption by the student before entering the university. The second part included items inquiring the constructs of prototype/willingness model, and the third part of the questionnaire assessed the amount of consuming different fast foods in the past month (the target behavior). The items about the constructs of prototype/willingness model including attitude (20 questions, range: 20–100), subjective norms (6 questions, range: 6–30), risk prototype (18 questions, range: 18–90), behavioral willingness (4 questions, range: 4–12), and behavioral intention (5 questions, range: 5–25) were to be rated on a Likert scale. Concerning attitude, "strongly disagree" received 1; "disagree" received 2; "undecided" was rated 3; "agree" was rated 4; and "strongly agree" as 5. For the constructs of subjective norms, risk perception, and behavioral intention, the scale ranged from "not at all" to be rated as 1, "a little" as 2, "to some extent" as 3, "to a great extent" as 4, and "to a very great extent" as 5. Four scenarios were constructed for behavioral willingness to be responded by the students. As an instance, if the respondent was described in a party where fast food was served, s/he was to decide how to react. The choices were: (1) I wouldn't eat fast food at all, (2) I would eat a little fast food beside another main meal, and (3) I would only go for fast food. To assess the behavior, students were asked to reveal how many times they had had a sandwich, hamburger, and other types of burger, pizza, French fries, canned food, doughnut, chicken nugget, KFC, snack types, samosa, or hotdog on an average within the past month. Finally, having collected all the completed questionnaires and having transferred the data to SPSS version 16. Descriptive and inferential statistics were used to analyze the data. These included mean, standard deviation, correlation coefficient, and linear regression. The significance level was considered 0.05.

Ethical considerations

The informed consent of all participants and compliance with research ethics were approved by the Ethics

Committee of Shahid Sadoughi University of Medical Sciences in Yazd (registration code #IR.SSU.SPH.REC.1398.012).

Results

The age of the participants ranged between 18 and 24 years (mean = 20.49 ± 1.54). From the total number of respondents, 221 were female (63.1%) and 129 were male (36.9%). The majority of students (90.3%) were single and 9.7% were married. Most of the students resided in dormitory (59.4%) and enjoyed a satisfactory income (46.3%). Nearly 77.1% of the participants reported that their family consumed fast food and 94.1% reported that their friends consumed fast food too. Almost 86.6% of the student participants admitted that they had also consumed fast food before entering the university. All the relevant demographic information is summarized in Table 1.

Concerning the most prevalently consumed type of fast food, different sandwich types were significant, as reported in Table 2.

As the results revealed, considering the scores for the constituent constructs of prototype/willingness model, positive willingness received the maximum percentage mean score of 69.41, which was the highest score [Table 3].

As shown by the correlation coefficient analysis, behavioral intention to consume fast food showed to be positively correlated with positive willingness, positive prototype, positive subjective norms, and positive attitude to fast-food consumption. Moreover, the correlation between positive behavioral intention and positive subjective norms and positive attitude toward fast-food consumption showed to be statistically significant ($P < 0.05$) [Table 4].

The results of linear regression analysis showed that the constituent constructs of prototype/willingness model managed to predict 13% of the total variance of fast-food consumption behavior. Furthermore, behavioral intention showed to be the most important construct of the model in predicting the target behavior ($\beta = 1.613$) [Table 5].

Discussion

The present research aimed to explore the determining factors of fast-food consumption among the students of Rafsanjan University of Medical Sciences in light of prototype/willingness model. The results revealed that 77.1% and 94.1% of the participants, respectively, reported that their family and friends consumed fast

Table 1: Research participants' demographic information

Variable	n (%)
Sex	
Female	221 (63.1)
Male	129 (36.9)
Marital status	
Single	316 (90.3)
Married	34 (9.7)
Faculty of affiliation	
Medicine	100 (28.6)
Dentistry	50 (14.3)
Health care	50 (14.3)
Nursing/midwifery	75 (21.4)
Paramedicine	75 (21.4)
Accommodation	
Dormitory	208 (59.4)
Rented house	39 (11.1)
Own house	103 (29.4)
Income	
Low	36 (10.3)
Average	152 (43.4)
High	162 (46.3)
Father's occupation	
Employed	114 (32.6)
Freelance	127 (36.3)
Unemployed	7 (2)
Retired	102 (29.1)
Mother's occupation	
Employed	97 (27.7)
Homemaker	253 (72.3)
Father's education	
Uneducated	20 (5.7)
Elementary school	22 (6.3)
Junior high school	36 (10.3)
High school	93 (26.6)
University	179 (51.1)
Mother's education	
Uneducated	18 (5.1)
Elementary school	52 (14.9)
Junior high school	28 (8)
High school	98 (28)
University	154 (44)

Table 2: Distribution of the type of fast food consumed by the research participants

Type of fast food	Mean±SD
Sandwich types	2.22±2.56
Burgers	1.23±1.78
Pizza types	1.49±1.68
French fries	1.84±2.57
Canned food	1.81±2.43
Doughnut	0.59±1.27
Chicken nuggets	0.35±0.99
KFC	1.09±1.78
Snacks and samosas	0.93±1.60
Hotdog	0.76±1.61

SD=Standard deviation

food. In their research on students in Gorgan, Mirkarimi *et al.*^[23] found that fast-food consumption prevailed among 48.4% of the participants and among distant relatives of 43.2% of the participants. In another study in Korea, Seo *et al.*^[18] found that 61.6% and 31.6% of the participants stated friends and family, respectively, as the most influential individuals in consuming fast foods. This is much more than the present findings and shows that the youths including adolescents too are influenced, in their decisions on showing or not showing a risky behavior by friends. Besides, the family is the first place where a youth's or adolescent's personality is formed and unhealthy nutritional behaviors emerge. When such unhealthy behaviors are deeply established in the family, they automatically affect the youth's or adolescent's nutritional behaviors and impede healthy behaviors. Thus, in developing educational interventions to moderate positive subjective norms of fast-food consumption, the focus should be primarily on friends and then on family. Nearly 86.6% of the university students acknowledged that before entering the university, they had consumed fast food too, which agrees with the hypothesis by Gerrard *et al.* This hypothesis is in contrast with the rational action theory in which previous behavior has no effect on behavioral intention. In the prototype/willingness model, prior behavior is taken into account. In this model, prior behavior is a prelude to the positive attitude toward stimulating subjective norms and behavioral willingness.^[24]

The most prevalent type of fast food among university students was reported to be sandwiches. Similarly, Yarmohammadi *et al.*^[25] found sandwiches to be the most prevalent fast food among school students. However, in another study among university students in Turkey, Yardimci *et al.*^[26] found pizza as the most favorite fast food, which is different from the present finding. This divergence can probably be due to the existing cultural differences between countries. Moreover, as sandwich is the cost-effective fast food in Iran and most university students are not rich, they commonly prefer sandwiches. It, thus, appears that educational interventions should encourage fast-food salesmen to provide different types of sandwiches made of healthy ingredients to prevent the subsequent threatening side effects as far as possible.

As shown by the correlation analysis, behavioral intention of fast-food consumption was positively correlated with positive willingness, positive prototype, positive subjective norms, and positive attitude toward fast-food consumption. Besides, the correlation between positive behavioral intention of fast-food consumption and positive subjective norms and positive attitude toward fast-food consumption was statistically

significant. Overall, the majority of constructs within the model were significantly and positively correlated. Thus, the hypotheses within prototype/willingness model are accepted. It implies that a more positive attitude, subjective norms, willingness, and prototype of fast-food consumers would be accompanied by a higher behavioral intention of fast-food consumption. The result of our study is in line with the findings of Mazloomi Mahmoodabad *et al.* that reported Intention to non-consumption of fast foods had a positive significant correlation with subjective norms, attitude, willingness, and prototype of fast food consumption [22] That shows more positive attitude and subjective norms of fast-food consumption is accompanied by more intention of consuming fast foods and showing more of the behavior.

In the present research, the constituent constructs of prototype/willingness model managed to predict 13% of variance in fast-food consumption behavior. Behavioral intention showed to be the most significant construct in predicting the target behavior. In their study of students in South Korea, Seo *et al.* used the theory of planned behavior and found that the constructs of the model accounted for 60% of variance in fast-food consumption. This is quite different from the present research findings. However, similar to the present research, behavioral intention showed to be the strongest predictor and was more related to subjective norms, which agrees with the present findings.^[18] Overall, as university students

comprise a significant population of society and are more influenced by friends due to their specific age, educational plans should aim to develop negative subjective norms of fast-food consumption so that there can be less intention of consuming fast foods and consequently less fast-food consumption. One limitation of the present research was that the questionnaires inquiring fast-food consumption behavior were self-administrated in type.

Conclusion

The present results revealed that prototype/willingness model can predict fast-food consumption behavior relatively well.

Overall, according to the findings of this study, in order to reduce the consumption of fast foods among students negative subjective norms and negative attitudes toward fast foods need to be adjusted. It is notable that the participating students were affiliated with the universities of medical sciences and their lifestyle could automatically affect the behavior of others in the society. However, changes in life-style have extended the scope of this health-care issue and its adverse effects, which needs to be considered in educational plans via mass media developed by the authorities.

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Table 3: Mean, standard deviation, and maximum percentage mean scores of the constructs of prototype/willingness model for the research participants

Variable	Mean±SD	Maximum percentage mean	Range of score
Positive attitude	60.52±13.43	60.52	20-100
Positive subjective norm	15.29±4.28	50.96	6-30
Positive prototype	52±12.36	57.77	18-90
Positive willingness	8.33±2.03	69.41	4-12
Positive behavioral intention	17.33±16.80	69.32	5-25

SD=Standard deviation

Table 4: Estimation of correlation coefficient between the constructs of prototype/willingness model concerning fast-food consumption among the research participants

Construct	Positive behavioral intention	Positive willingness	Positive prototype	Positive subjective norms	Positive attitude
Positive behavioral intention	1				
Positive willingness	r=0.097 P=0.070	1			
Positive prototype	r=0.088 P=0.10	r=0.243 P=0*	1		
Positive subjective norms	r=0.118 P=0.028*	r=0.266 P=0*	r=0.217 P=0*	1	
Positive attitude	r=0.113 P=0.035*	r=0.331 P=0*	r=0.228 P=0*	r=0.385 P=0*	1

*Significant at 0.05 level

Table 5: Linear regression analysis of the constituent constructs of prototype/willingness model in predicting fast-food consumption behavior of the research participants

Independent variable	β	P	R ²	Dependent variable
Positive subjective norm	0.157	0.06	0.134	Fast-food consumption behavior
Positive attitude	0.188	0.01		
Positive prototype	0.786	0.43		
Positive willingness	1.606	0.109		
Positive behavioral intention	1.613	0.108		

Conflicts of interest

There are no conflicts of interest.

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