Predictors of Fast Food Consumption Based on Prototype/Willingness Model among Students of Yazd University of Medical Sciences

Seyed Saeed Mazloomy Mahmoodabad; PhD1,2, Zahra Mohammad Yousefivardanjani; MSc2, Hossein Fallahzadeh; PhD3,4 & Asma Farrokhian; MSc2

1 Social Determinants of Health Research Center, School of Public Health, Shahid Sadoughi Yazd University of Medical Sciences, Yazd, Iran.
2 Department of Health Education and Promotion, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.
3 Department of Biostatistics and Epidemiology, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.
4 Research Center of Prevention and Epidemiology of Non-Communicable Disease, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

ARTICLE INFO

ABSTRACT

Background: Consumption of fast food, as a consequence of the modern industrial society, has increased in recent years among teenagers and young people. The purpose of this study was to investigate the effect of fast food consumption on female students in Yazd University of Medical Sciences based on the Prototype/Willingness Model. Methods: In this descriptive-analytic study, 245 female dormitory students were selected from Yazd University of Medical Sciences by stratified sampling from six dorms. Data were collected using a valid, reliable, and self-reporting questionnaire including demographic information and constructs of Prototype/Willingness Model. To analyze the data, correlation, regression, and ANOVA were applied using SPSS 18. Results: Participants' maximum scores of intention with regard to non-consumption of fast foods, subjective norms, attitude, willingness, and prototype were 57, 53, 51, 67.5, and 66.2 percent, respectively. Intention to non-consumption of fast foods had a positive significant correlation with subjective norms, attitude, willingness, and prototype of fast food consumption. The combination of attitude and subjective norms accounted for 0.17 percent of the variance in intention. Moreover, attitude was the most significant predictor of intention (β = 0.38). Conclusion: According to the predictability of attitudes towards behavioral intention about fast food consumption, the individuals' negative attitudes should be enhanced towards fast food consumption in designing education programs for youth.

Keywords: Fast food; Students; Prototype/Willingness model.

Introduction

Over the last 30 years, fast food (already-prepared food) consumption has developed dramatically in the United States and Europe (Yarmohammadi et al., 2011). These changes are

This paper should be cited as: Mazloomy Mahmoodabad SS, Mohammad Yousefivanjanjani Z, Fallahzadeh H, Farrokhian A. Predictors of Fast Food Consumption Based on Prototype/Willingness Model among Students of Yazd University of Medical Sciences. Journal of Nutrition and Food Security (JNFS), 2019; 4 (2): 76-82.
the result of people's lifestyle changes. Currently, with the development of science and industry, people's lifestyles changed, indigenous food habits decreased, and prevalence of fast food consumption developed in most societies, including Iran (Dadipoor et al., 2014, Fazelpour et al., 2011).

Fast food and trans fatty acids are so fattening due to their high amounts of calories (Dadipoor et al., 2014). According to the World Health Organization (WHO), in a healthy diet, less than 30 percent of energy should be fed from fats and unsaturated fats are preferred over the saturated fats. Industrial trans-fats processed food, fast food, fried food, and Pizza are part of an unhealthy diet (Fats, 2010, Hooper et al., 2012, World Health Organization, 2003). Consumption of high-fat foods (including fast food) is often associated with obesity, increased cholesterol, cardiovascular disease, type 2 diabetes, and some cancers (Bowman et al., 2004, Key et al., 2004).

The prevalence of fast food is due to the fact that they changed the traditional family structure; fast foods are delicious, low-cost, and available (Driskell et al., 2006, French et al., 2000). In fact, today's standard for food consumption is taste and fast foods are more desirable and delicious for people considering their additives and salt, which provide a good flavor (Fazelpour et al., 2011). Therefore, fast foods are very popular among teenagers and young people. Furthermore, research showed that about a third of these people have daily consumption of fast foods (Bowman et al., 2004, Fazelpour et al., 2011). In the study by Paeratakul, 37 percent of teenagers and 42 percent of children consumed fast foods (Paeratakul et al., 2003). A study by Fazelpour et al. in Yazd indicated that 90.8 percent of participants used fast foods at least once a day. Moreover, consumption of already-made foods in students, self-employed, and unemployed individuals was higher than other groups (Fazelpour et al., 2011).

The main goal of health education is to change the behavior of participants since behavioral acceptance including nutritional behavior depends on the individuals' beliefs. Selection of a model for health education is the first step in the planning process of educational programs (Mainbolagh et al., 2012). In addition, some scholars believe that one reason for the failure of educational programs is the lack of attention to cognitive studies and their design, regardless of psychosocial models, which are considered as a specific framework for educational planning (Barati et al., 2015). The incidence of obesity and other complications can be reduced by changing nutritional behaviors, especially by reducing fast food consumption (Brownell, 2005).

In terms of behavior change, models and theories provide guidelines to take measures about health education. These models and theories can answer the questions of program designers, such as why people do not behave desirably? How should the mentioned behavior change? and what factors should be considered in appraisal of programs? (Glanz et al., 1990).

For the high-risk behaviors of young people, two decision-making hypotheses exist. The first hypothesis is that the decision making process includes an analytical and logical process. It states that the individual is treating by considering all parts of the behavior such as the theory of reasoned action (TRA) and the theory of planned behavior (TBP). However, the second hypothesis indicates that the decision-making process has a mental state and originates from the person's mental prototype in a particular situation. According to this model, the individuals' attitude toward a behavior changes positively and they perceive that the meaningful factors are leading them to conduct that behavior. Therefore, their intention increases to conduct that behavior. Furthermore, this model indicates that people have a set of basic beliefs (prototypes), which play a role in conducting high-risk behaviors. Individuals' attitudes to conduct behaviors are directly related to such basic beliefs or prototypes (Gerrard M, 2002). This model includes the constructs of attitude, subjective norms, behavioral willingness, as well as prototype and intents of behavior (Mirzaei Alavijeh et al., 2013).

Several studies have been carried out using a model of perceptions/tendencies in predicting high-risk behaviors such as smoking.
Predictors of fast food consumption

(Morowatisharifabad et al., 2012), drug use (Mizraei Alavijeh et al., 2013), unauthorized speed (Chaleshgar et al., 2013), hookah consumption (Abedini et al., 2014), alcohol consumption (Gerrard et al., 2002), etc. Considering the daily consumption of fast foods by young people, especially students, the role of the prototype/willingness model in predicting the high-risk behaviors, and the fact that no study has ever investigated this issue, the current study was conducted. The aim was to determine the predictors of the intention to non-consumption of fast foods based on the prototype/willingness model among the dormitory female students in Yazd University of Medical Sciences.

Materials and Methods

Participants and study design: This descriptive-analytic study was conducted on 245 dormitory female students of Yazd University of Medical Sciences in the academic year of 2017-2018. The sample size was determined using a previous similar research (Morowatisharifabad et al., 2012) and the formula of \( n = \frac{z^2 \sigma^2}{D^2} \) with 95 percent confidence level, \( S = 8 \), and \( D = 1 \). In order to collect the participants from the university dormitory students, all six dormitories of females in Yazd University of Medical Sciences were selected. Then, according to the approximate equal numbers of students in dormitories, 45 students were randomly selected from each dormitory. Later, The questionnaire was distributed among the eligible individuals (those with no restriction on fast food consumption). Students were asked to complete the questionnaires by self-report.

Measurements: The data collection tool was a researcher-made questionnaire designed based on a model of prototype/willingness, which included two parts of demographic information and the main questions based on the model's constructs. The second part of the questionnaire dealt with intentions intention to non-consumption of fast foods: 4 questions, prototype of a fast food consumer: 7 questions, one’s attitude towards fast food consumption: 4 questions, subjective norms about not consuming fast food: 4 questions, and finally the willingness to consume fast food: 4 scenarios and 12 questions. The answers to the questions of model constructs were determined using the 5-point Likert scale (very high 2+, high 1+, average 0, low -1, and not at all -2), except for the willingness construct.

The validity of this questionnaire was determined by a panel of experts including five health education and nutrition experts and its reliability was confirmed according to the preliminary study conducted on 30 dormitory students with a Cronbach's alpha coefficient of 0.7.

Ethical considerations: The researcher referred to the selected student's room in the dormitory and explained the study goals. In this regard, all participants were informed and ensured about the study process and information confidentiality, respectively. In addition, all students indicated their willingness to cooperate in the study.

Data analysis: Data was performed by SPSS 18 and Pearson correlation test was run to determine the correlation between model components and regression to determine the predictability of the model with regard to the intention for not consuming fast food.

Results

The mean age of the participants was 24.7 ± 3.8 years. Of the total number of respondents, 202 (82.8%) were single and 42 (17.2%) were married. Considering the education level, 6 (2.4%) participants were undergraduate students, 147 (60%) were graduate students, 50 (20.4%) were studying to get the Masters' degree, and 10 (4.1%) were at the PhD level (Table 1).

Regarding the participants' mean scores of the prototype/willingness model constructs, the attitude toward fast food consumption (51%) and the willingness (67.5%) constructs gained the highest ranks (Table 2).

According to Pearson correlation test, a positive and significant correlation was found between the constructs of tendencies and intention to non-consumption of fast foods (\( P = 0.001, r = 0.27 \)) (\( P < 0.05 \)) (Table 3).

Regarding the predictability of intention to non-consumption of fast foods, the results of regression
showed that attitude and subjective norms could predict 0.174 percent of the variance for not consuming fast foods. Attitude was the strongest predictor in this regard (Table 4).

### Table 1. Frequency distribution of participants’ demographic data

<table>
<thead>
<tr>
<th>Variables</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under graduated</td>
<td>6</td>
<td>2.4</td>
</tr>
<tr>
<td>Graduated</td>
<td>147</td>
<td>60.0</td>
</tr>
<tr>
<td>Master</td>
<td>50</td>
<td>20.4</td>
</tr>
<tr>
<td>Doctorate(PhD)</td>
<td>10</td>
<td>4.1</td>
</tr>
<tr>
<td>General practitioner</td>
<td>32</td>
<td>13.1</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>202</td>
<td>82.8</td>
</tr>
<tr>
<td>Married</td>
<td>42</td>
<td>17.2</td>
</tr>
</tbody>
</table>

### Table 2. The participants’ mean scores of the prototype/willingness model constructs

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean ± SD</th>
<th>Mean percentage of max</th>
<th>Achievable score range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intent</td>
<td>11.5 ± 7.07</td>
<td>57</td>
<td>4-20</td>
</tr>
<tr>
<td>Prototype</td>
<td>23.1 ± 4.9</td>
<td>66.2</td>
<td>7-35</td>
</tr>
<tr>
<td>Attitude</td>
<td>10.3 ± 3.6</td>
<td>51</td>
<td>4-20</td>
</tr>
<tr>
<td>Subjective norms</td>
<td>10.6 ± 3.6</td>
<td>53</td>
<td>4-20</td>
</tr>
<tr>
<td>Willingness</td>
<td>8.1 ± 1.6</td>
<td>67.5</td>
<td>3-12</td>
</tr>
</tbody>
</table>

### Table 3. Correlation coefficient among structures of prototype/willingness model

<table>
<thead>
<tr>
<th></th>
<th>intention</th>
<th>prototype</th>
<th>attitude</th>
<th>Subjective norms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention</td>
<td>0.13</td>
<td>0.03a</td>
<td>0.37</td>
<td>0.001</td>
</tr>
<tr>
<td>Prototype</td>
<td>0.37</td>
<td>0.09</td>
<td>0.16</td>
<td>0.008</td>
</tr>
<tr>
<td>Attitude</td>
<td>0.16</td>
<td>0.19</td>
<td>0.27</td>
<td>0.001</td>
</tr>
<tr>
<td>Subjective norms</td>
<td>0.19</td>
<td>0.03</td>
<td>0.36</td>
<td>0.001</td>
</tr>
<tr>
<td>Willingness</td>
<td>0.27</td>
<td>0.002</td>
<td>0.23</td>
<td>0.001</td>
</tr>
</tbody>
</table>

*a: P-value*

### Table 4. Regression analysis to predict the intention for not consuming fast food in constructs of prototype/willingness model

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>β</th>
<th>p-value</th>
<th>R²</th>
<th>Dependent variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>attitude</td>
<td>0.38</td>
<td>0.001</td>
<td>0.174</td>
<td>Intention of non-use fast food</td>
</tr>
<tr>
<td>Subjective norms</td>
<td>-0.18</td>
<td>0.002</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Discussion**

In this study, 97.1 percent of students used fast food. Fazelpour et al. conducted a study on fast food consumption in Yazd. They mentioned that the weekly fast food consumption in students was 18.8 percent and the highest consumption rate was
attributed to other occupations (Fazelpour et al., 2011). This discrepancy can be due to the variety among the studied participants and students’ residence in dormitory. Studies by Nicklas and Driskell showed that students consumed fast foods more than twice a week (Driskell et al., 2005, Nicklas et al., 2001). In the study of Dadipour et al. in Bandar Abbas, university students used fast foods more than the students of other educational levels. They showed that 39.1 percent of students used fast foods once a week and 20.2 percent used fast foods more than once a week (Dadipour et al., 2014).

Based on the results of Pearson correlation test, the intention to non-consumption of fast foods had a significant correlation with attitudes, tendencies, and prototype towards fast food consumption. The positive correlation between these constructs suggests that higher desire for fast food consumption leads to the individual’s higher intention to consume fast food. In the same line, positive attitudes toward a fast-food consumer, that is using words such as smart and regular to describe a fast-food consumer increase the intention of fast food consumption. In this regard, Morrovatisharifabad et al. reported that the intention for not smoking cigarettes had a correlation with the constructs of tendencies and prototype toward smoking, which is consistent with the results of this study (Morovatisharifabad et al., 2012).

Application of linear regression analysis showed that subjective norms and attitudes could predict the intention of not consuming fast foods. In this study, attitude was a stronger predictor of the intention to non-consumption of fast foods. This result was consistent with the study by Yarmohammadi et al. on fast food consumption among students (Yarmohammadi et al., 2011), the study of Chaleshgar et al. over the speed of unauthorized drivers (Chaleshgar et al., 2013), and the study by Abedini et al. regarding the use of hookah in students (Abedini et al., 2014). In the study of Dunn et al., the subjective norms were the strongest predictors of the intention to non-consumption of fast foods (Dunn et al., 2011).

**Conclusion**

The results of this study showed that the intention to non-consumption of fast foods is predicted by the prototype/willingness model. Based on these results, in order to reduce the fast food consumption in students, as important future-makers of our country, more attention should be paid to their attitudes and subjective norms. Unfortunately, people’s attitudes toward fast food have changed as a result of the changes in lifestyle. This should be taken into consideration by the relevant authorities in educational planning for Iranian families.

One of the limitations of this study was that sampling was conducted among Yazd medical students; therefore, generalizability of the results should be considered with caution. Furthermore, the information was collected using a self-report method that could affect the results of the study. Moreover, lack of assessing the individuals’ attitudes toward traditional foods and comparing consumption of fast foods with traditional foods in the family was another limitation of the present study, which can be considered in future studies.

**Acknowledgments**

This study was part of the research project No. 4545 approved by the Social Factors Research Center in Health Faculty of Yazd University of Medical Sciences. In this way, we appreciate the educational and cultural deputy and students of Shahid Sadoughi University of Yazd. We also appreciate the guidance of distinguished professors and students who participated in this study.

**Authors’ Contributions**

Mazloomi Mahmoodabad SS and Mohammad Yousefivardanjani Z, and Fallahzadeh H contributed in designing the study. Farrokhan A and Mohammadyousefi Vardanjani Z contributed in data collection and wrote the first draft of the manuscript. All authors studied and approved the final version of the manuscript.

**Conflict of interest**

The authors declare no conflict of interests.
References


Predictors of fast food consumption


