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# Predictive factors of consumption of fast food in Yazd city high school girls based on the theory of planned behavior

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**ABSTRACT**

Low physical activity and poor diet among teenagers is increasing. These unhealthy behaviors are related to increases in overweight in adolescence with type II diabetes, hypertension, and heart disease. Frequent consumption of fast food with high energy consumption is associated with low intake of saturated fat, sodium, and low intake of nutrients. The aim of this study was to determine the predictive factors of consumption of fast food in female high school students of Yazd city based on the theory of planned behavior. This was a descriptive and analytic study that was done on 186 female students in Yazd city of Iran in 2014. The variables under study were demographic variables behavior of fast food consumption and structures of theory of planned behavior, including attitudes, subjective norms, perceived behavioral control and also variables of intention and. Data collected was analyzed using SPSS 16 using descriptive and analytical statistics. Fast food consumption of students was influenced by children's parents. Results of the present study showed that structures of attitudes, subjective norms and perceived behavioral control predicted 20.1% of variance intention All variables of theory predicted 15.8% of the variance of behavior of eating of fast food. The findings of this study show that the theory of planned behavior is useful for predicting the intention of fast food consumption.

## Introduction

Sedentary lifestyles, high-fat, carbohydrate-rich diets, along with low intake of fruits and vegetables, is increasing among adolescents. These unhealthy behaviors are a potential cause of obesity, which is related to type II diabetes, hypertension, and heart disease [1]. Teenagers are the most frequent consumers of fast food [2]. Lee found that the prevalence of eating of fast-food one or two times per month was 38.5% in primary school students and 40.5% in secondary school students, which was more than in adults 40–50 years old [3] .Fazel Pour et al study in Yazd, showed 90.8% of people eat at least one instant meal each week, and only 9.2% did not use these foods [4].

Adolescence is a time of rapid physical and mental growth and energy needs are high. People in this age group should try to follow the proper and suitable diet. Concerns about fast food consumption is due to the high levels of energy, fat and sodium content in them. Research has shown that regular consumption of fast food, high levels of energy, saturated fat and sodium, is associated with low intake of vitamins A and C, milk, fruits and vegetables [5,6]. Mostafavi et al (2005) showed the prevalence of obesity and overweight in adolescents in Shiraz city was 2.9%, 11.3% respectively. This study reports that a significant number of adolescents in Shiraz urban population were overweight [7]. Some studies have reported that teens enjoy/prefer that frequent

consumption of fast food is because its flavor, the desirability of eating outside the home and the liking for salty foods [8, 9]. The results of a study showed that the consumption of fast food in people with positive attitude toward it is higher [4]. In another study, people who believed that the eating of fast food is convenient and hated about the culinary food, consumption of fast food was more than in others [10].Developed guidelines for the selection or improper use of fast food nutrition and nutritional education benefits, requires an understanding of the factors that caused it. Most studies have focused on the behaviors and nutrition knowledge [8,9,11- 14]. There are only a few studies that are done on factors influencing fast food consumption based on theories and models [2,15-17]. In our society, the studies that are done on the factors associated with fast food consumption based on the theory of planned behavior(TPB) are limited[18, 19]. Due to increasing fast food consumption among adolescents, as well as the fact that consumption of these foods can lead to health problems, it seems necessary to use a model and theory as a framework for identifying the factors that are involved in fast food consumption and design training programs to improve nutritional status. In the TPB, the intention of the person is determined by attitudes toward the behavior, subjective norms, perceived behavioral control and the power of control beliefs [20].

## Materials and Methods

This descriptive and analytic study was done on 186 female students of Yazd city of Iran at 2014. The samples were selected by random multi-stage sampling. Two high schools out of 4 were randomly selected. One class from each grade in high school and total of 6 classes were selected randomly in the two high schools to achieve the desired sample size. Those who were unwilling to participate were excluded.

Data were collected by a questionnaire with closed and open questions.To design the questionnaire, at the beginning the 30 female students were asked to report the advantages and disadvantages of fast food and factors that impede or facilitate the using of the fast foods. Based on the information obtained from students and data of previous studies [2, 15,18] the questionnaire was ready. For face and content validity, we consulted6 specialists and experts in health education and nutrition, and 5 high school students. Due to their comments, the questionnaire items were changed. To determine the reliability of the questionnaire, 31 female students, who were not in the original population, completed the questionnaires.The stability of the internal structures of the theory of planned behavior was determined using Cronbach's alpha coefficients, ranging between 0.60–0.82, respectively. The questionnaire included questions regarding grade, degree, weight, height, location, family, job, and education of parents of student, physical activity, and sports. Questions based on the theory of planned behavior and intention and behavior of fast food consumption. The answers are rated on a Likert of 1–5 scale (completely agree and totally disagree), (ever to very much), (totally agree to totally reject), (very bad to very good), respectively. Items discussed the theory of planned behavior constructs contained 22 items assessing attitudes (range 22–110). 12 items for measuring subjective norm (range 12–60) and perceived behavioral control with 22 items (range 22–110). Two questions measured the intention the consumption of fast food, and one question asked about the frequency of fast food consumption (behavior). There was also a question about the type of fast food that was the favorite for students. It was in the latter part of the questions that most students go to a fast food restaurant with whom.

Weight of participants was measured with minimum coverage and without shoes using a digital scale with a precision of 100 g. Height was measured at the shoulder in normal mode without shoes with a tape. BMI was calculated such that individuals with BMI < 18.5 were thin, BMI 18.5–24.9 were normal weight, BMI=25–29.5 had overweight and BMI≥30 had obesity [21].

The data were analyzed usingSPSS16 using descriptive statistics and correlation, analysis of variance, t-tests, and regression analysis with a significance level of 0.05.

## Results

The study was conducted on 186 high school students. About 59(32.8%) of students were in first grade, 85(47.2%) second grade and 36(20%)

third grades. 22(12.2%) of students were educated in empirical science, 16(8.9%) in mathematics, and 142(78.9%) in general field. Fast food use pattern is showed in Table 1. Our results revealed there was a significant difference between grades of students and their attitude towards consumption of fast food. Students' attitudes of third field to fast food consumption was less than first and second field. The relationship between subjective norm and grade of students was significant. A significant correlation was observed between the attitude and field of study of students. The attitude of fast food consumption of student whose field of study was science was less than students whose field of study was general (Table 2). T-test showed the significant difference between fast food consumption and location of students. The average fast food consumption in rural areas was higher.

**Table 1.** The patterns of fast food consumption in participants

| Variables | Time | Numbers | Percent (%) |
|---|---|---|---|
| The frequency of fast food intake | Every day | 5 | 2.8 |
| | 2-3 times in a week | 37 | 20.6 |
| | One time in a week | 54 | 30.1 |
| | One time in a month | 52 | 29 |
| | Every 2-3 months ,one time | 22 | 12.3 |
| | One time in a year | 6 | 3.4 |
| | Never | 3 | 1.7 |
| With whom would you go to fast food restaurants | Alone | 7 | 4 |
| | With friends | 27 | 15.2 |
| | With family | 143 | 80.8 |
| The first choice in fast food consumption | Pizza | 135 | 78.5 |
| | Hamburger | 13 | 7.5 |
| | Fries | 13 | 7.5 |
| | Sausage | 8 | 4.8 |
| | Salami | 3 | 1.7 |

**Table 2.** Mean and standard deviation of fast food consumption behavior and the constructs of the theory of planned behavior based on the field of education of students

| Grades variables | Science Mean | SD | Mathematics Mean | SD | General Mean | SD | p-value |
|---|---|---|---|---|---|---|---|
| Behavior | 3.4 | 0.9 | 3.26 | 1.27 | 3.46 | 1.25 | NS |
| Intention | 5.20 | 1.67 | 4.8 | 1.37 | 5.37 | 1.56 | NS |
| Attitude | 7.86 | 1.64 | 7.87 | 1.58 | 8.74 | 1.84 | 0.034 |
| Subjective norm | -2.95 | 5.56 | -2.69 | 10.15 | -1.77 | 8.27 | NS |
| Perceived behavior control | 5.75 | 20.74 | 3.75 | 15.5 | 9.01 | 22 | NS |

**Table 3.** Correlation coefficient matrix of structure of theory of planned behavior, intention and behavior of fast food

| Variables | behaviour | Intention | Attitude | Subjective norms |
|---|---|---|---|---|
| behaviour | - | | | |
| Intention | 0.799 | | | |
| Attitude | 0.355 | 0.247 | | |
| Subjective norms | 0.239 | 0.282 | 0.428 | |
| Perceived behaviour control | | -0.442 | -0.428 | -0.370 |

**Table 4.** Predicted intention and behaviour by linear regression

| Dependent variables | Predictive variables | β | T-test | $R^2$ |
|---|---|---|---|---|
| Intention | Attitude | 0.128 | 1.208 | |
| | Subjective norms | 0.207 | 2.203[*] | |
| | Perceived behaviour control | -0.249 | -2.11[***] | 0.201 |
| Behaviour | intention | 0.711 | 13.351[***] | 0.506 |
| Behaviour | attitude | 0.056 | 0.678 | |
| | Subjective norms | 0.211 | 2.2[***] | |
| | Perceived behaviour control | -0.242 | -2.11[**] | 0.158 |

[*] P<0.05,   [**] P<0.01,   [***] P<0.001

Results revealed that there was a significant difference between subjective norms and location of students, such that the subjective norms of students of rural areas was higher than in urban students.

Physical activity and intention of eating fast food were inversely correlated.

There was no significant difference between intention and behavior of fast food consumption and structure of patterns with level of education of their fathers. There was a relationship between intention of students and level of education of their mothers (0.025).

Table 3 shows the structure of theory of planned behavior were significantly correlated with each other. There was a direct correlation between intention of fast food consumption and attitude and subjective norm and inversely correlated with perceived behavioral control. There was the direct correlation between intention and behavior of fast food consumption.

Table 4 shows that the structures of attitudes, subjective norms, and perceived behavioral control predicted 20.1% of variance in intention...

The linear regression analysis showed that the intention of eating fast food predicted the 50.6% of variance of the behavior of eating fast food.

All variables of theory predicted 15.8% of the variance of behavior of eating fast food.

## Discussion

This study was about fast food consumption, as well as using the theory of planned behavior to predict fast food consumption among female high school students.

Our results showed 20.6% of students consumed the fast food 2–3 times a week and 30.1% of them once a week that the consumption of pizza and burger was higher These results is same as the results of some other studies, in a study in Korea [2] 27.6% of secondary school students 2–3 times a week consumed Fast food and the most popular fast food was burgers, pizza and fried chicken. In another study [22], Fast food consumption of 22.8 percent of teenage girls was more than 3 times a week. In a study in Iran [18], 2.7% of high school students were eating fast food 3 or more times a week and sandwiches and snacks was a favorite of students. Average level of fast food consumption were observed in the samples. It is necessary to design education programs to reduce the consumption of fast food.

Our results showed that students' attitudes of third field to fast food consumption was less than first and second field, which may mean that increasing the level of education leads to an attitude and a willingness to lees consumption of fast food. Therefore, in designing educational interventions should be more emphasis on planning for the younger school students.

Results of present study revealed that the relationship between subjective norm and grade of students was significant. Subjects with higher educational levels were more affected by parents' beliefs and expectations of others, especially in fast food consumption. In a study [17] reported a positive association between age and attitudes of seafood consumption. Results of study of Yar Mohammad et al. [18] showed there was direct relationship between age, attitude, subjective norm and the consumption of fast food.

Our results showed the positive attitude to consumption of fast food in students that job of their father was worker. The consumption of who were living in rural was more than others. These results is not same as the results of other study [18,23]. The data of Bowman et al. [23] showed that

fast food consumption in people with high incomes and those living north of city was more than others, that in results of another study [18] is also evident.

As the results of present study the intention of fast food consumption at students who had more physical activity was more than others. This is a very positive thing about this that when health behaviors is institutionalized at students it will reflect on their health behaviors. This matter should be considered in the training of health behaviors in students. These data is consistent with data of other studies [18,24], as Unger et al [24]stated that the intention of fast food consumption at the teens who did not exercise was more than who had physical activity.

The results of our study revealed that parents, and secondly nutritionists and doctors, have the greatest impact on students in their subjective norms. The data of another study stated the influence of friends and family was more [15]. As the results of some other studies [2,18,25–26], the students were affected by their friends, more than family and doctors. In present study because most students went to the restaurant to eat fast food with their parents, therefore in this regard was expected to be more effective from their parents and must In designing and implementing nutrition education programs the parents of students be aware of the educational content. Because education by the parents of the students will have effective results. Also, nutritionists and doctors be used to design and implement nutrition education programs.

The present study showed that the structures of theory of planned behavior were significantly correlated with each other. There was a direct

## Limitation of study

The cross-sectional nature of the study precludes an assessment of temporality and causality. The use of a questionnaire may have recall and social desirability biases.

## Conclusion

The results of this study showed that theory of planned behavior is an appropriate theory for

correlation between intention of fast food consumption and attitude and subjective norm, which was inversely correlated with perceived behavioral control. There was a direct correlation between intention and behavior of fast food consumption. The results of study of Seo et al. [2] and Yarmohamadi et al. [18] were the same as our study. Results of our research showed that the structures of attitudes, subjective norms and perceived behavioral control predicted 20.1% of the variance of intention.

The linear regression analysis showed that the intention of eating fast food predicted 50.6% of the variance of the behavior of eating fast food.

All variables of theory predicted50.6% of the variance of behavior eating of fast food.
Training programs should consider these factors explaining the consumption of fast food. A study by Seo et al. [2] explained that the constructs of theory of planned behavior predicted 62% of fast food consumption behavior. The study of Yarmohamadi et al. [18] showed that, attitudes, subjective norms, and perceived behavioral control to each other predicted the 6%of behavior. Dunn et al. [15] in their study stated that the intention was the greatest predictors of subjective norms. The study of Yarmohamadi et al. [18] showed that the constructs of theory of planned behavior predicted 25.7% of the variance of intention of fast food consumption, and that the role of attitude in predicting intention was higher than other structures. In the Study by Seo [2], the structures predicted 67.5% of the variance in intention that the perceived behavioral control and subjective norm were meaningful and perceived behavioral control was the strongest predictor.
planning and predicting intention and behavior of fast food consumption. Recommended educational interventions for healthy eating in schools should be based on theory.

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