Original Article

The Association between Socio-Demographic Characteristics and Fast Food Consumption with in High School Students in Isfahan, Iran

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Abstract

Introduction: Fast food consumption has greatly increased with in adolescents in recent years, which is linked with weight gain, poor dietary indexes and insulin resistance. Hence, the purpose of this study was to examine the association between demographic characteristics and fast food consumption with in high school students.

Materials & Methods: In this descriptive-analytic study, a sample of 521 high school students aged 15-18 years were examined in Isfahan city, who were selected via multistage sampling method. The study data were collected using a questionnaire completed by the students. The present study probed to assess such items as frequency of fast food consumption, demographic characteristics, hours of television viewing, as well as high school students' knowledge and attitude. The collected data were analyzed using descriptive and inferential statistics.

Result: Frequent intake of fast food (≥1 time/week) was reported 15.5% within females and 15.3% within males. A significant relationship was detected between parents' high level of education and high income of the family with the fast food consumption. The predominate reasons for fast food consumption were stated as "enjoying tastes", "eating at any place"," inexpensive and economic".

Conclusion: The findings revealed that fast food consumption increased in families with high income and high education level, though these families needed to be educated on the harmful effects of fast food and how to choose the healthy foods. Therefore, some interventions may be regarded beneficial in order to reduce the exposure to the fast food and promote knowledge, attitude, and behavior change in regard with reducing consumption of fast food.

Key words: Demographic characteristics; Fast food consumption; High school students

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Introduction

In recent 30 years, fast food consumption has been increasingly growing in the U.S. and European countries [1]. The consumption of fast food, being common among adolescents, is most likely a part of their lifestyle[2]. Adolescence is regarded as an important transition period as food consumption pattern gets more permanent and teen overweight tracks into adulthood[3,4].Fast foods are one of adolescents' popular foods and around one-third of adolescents consume fast foods on a daily basis [5, 6]. This indicates that today's adolescents consume more fast foods in larger sizes and shares compared with the previous generation [7]. Paeratakul et al. reported that 37% of adolescents and 42% of children ate fast food every day [6].Astudyindicatedthat students aged 11-18 years were consuming 1.9 servings of fast food per week in Isfahan, Iran [8].The most prevalent foods purchased by children and teenager (11 to 18 years) at fast food restaurants entailed cheeseburgers, French fries, and pizzas[9].

In fact, fast foods are made fast and are normally prepared out of home. Calorie and fat percentage of fast foods are higher than those of home-made foods [10, 11]. Studies have demonstrated that children and adolescents who eat fast foods receive more calorie, saturated fat, sodium, carbohydrate and added sugars yet less dietary fiber, vitamins A and C, milk, fruits and vegetables as compared to others [6, 12, 13].

Consuming high-fat foods is usually related to obesity, hypercholesterolemia, cardiovascular diseases, type 2 diabetes and some types of cancers [5, 14]. Different investigations have revealed that considerable prevalence and increase of fast foods are due to their convenience, good taste, and low cost as well as changes in the traditional structure of families, [15, 16].Driskell et al. proposed limited time and taste as two important reasons given by subjects regarding fast food consumption[15]. Akbay et al. investigated consumer characteristics influencing fast food consumption and showed that household income had a significantly positive effect on consumers' fast food consumption [17].Powell reported that, teens of higher educated parents may limit fast food consumption even as fast food prices fall, since they may be more likely to be informed of the health risks of excessive fast food consumption[18]. In the other studies, age and gender were the two demographic variables found to be independently associated with frequency of fast-food intake. As a matter of fact increased age lead to a reduction in the frequency of eating at fast-food restaurants. Additionally, the frequency of fast-food intake was observed to be higher in men than in women[19, 20].The eating habits of adolescents have meaningfully changed over the past decades[21, 22]. On the other hand, physical activity levels have decreased and such sedentary behaviors as television viewing have increased[23].

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Moreover, in different studies, the increased demand for consuming fast foods and high-fat foods had a direct relationship with being sedentary as well as watching TV [24, 25]. Blass et al. revealed an increase in college students' intake of energy dense during television viewing[26].Considering the mentioned points, the attempt for changing adolescents' nutritional behaviors such as decrease in the consumption of fast foods can certainly assist in decreasing prevalence of obesity and other chronic conditions[7]. Hence, the present study aimed[1] to examine the association between consumption of fast food in high school students and their demographic characteristics [2]to evaluate male and female high school students' knowledge and attitude of fast food consumption.

Materials and Methods

In this study, 521high school students (non-probability sample)enrolled from three regions of Isfahan, Iran. A randomized stratified sampling was adopted to select the participants and a systematic randomsampling was also utilized to select the schools. Six schools (three male and threefemale schools) were selected from each region. The schools were stratified into male and female high schoolsin proportionate to the sample size. Two public schools and one non-public school were considered for each gender. Then, classes were selected for each grade by a simple randomsampling design. In this way, one class was randomly selected for each grade (first year, second year and third year) in each high school. The principals were given explanations concerning the objectives of the study. The studyparticipants completed a questionnaire within school hours,who were able to understand the questions and to respond the questionnaire. Students were allowed to discontinue participating if they wished.

Five expertson health behavior, nutrition, and healthy nutritionwith field experience in nutrition reviewed and assessed the questions.The experts' feedback was used to revise the questionnaire mostly concerned with the wording of questions. The final questionnaire was pilot-tested with a subgroup of students prior to the main study. Cronbach's coefficient alpha was used to estimate the internal consistency of the scales.

First section of the questionnaire was socio-demographic data including students' age, grade, parents' education, parents' occupation and annual household income were collected. The second section included the questions related to personal characteristics, amount of watching TV, doing sports, and BMI. The third section consisted of the items regarding average fast food consumption, and knowledge of as well as attitude towards fast food consumption. Fast food consumption was measured by eight questions including a list of common fast foods consumed within past week. The knowledge was measured by eleven items and an alpha coefficient of 0.65 was reported for this variable. The items were scored dichotomously so as each correct

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answer was assigned 1 and "no" and "I do not know" were given 0. Moreover, attitude was assessed by 10 items and an alpha coefficient of 0.66 was obtained for this scale. All questions were scored on a five-point likert scale, from 1 (strongly disagree) to 5 (strongly agree).

In order to analyze the data statistically, SPSS[14] softwarewas applied, andto test the data normality , Kolmogorov-Smirnov test was conducted. Descriptive statistics were used to examine demographic characteristics as well as thestudy variables. Independent t-test and ANOVA were performed to determine the difference in fast food consumption in regard withdemographic variables. Furthermore, correlation analysis was used to examine the association between the study variables. Before administering statistical tests, normal distribution of quantitative variableswas confirmed.

Result

The study population consisted of 277 girls (53.2%) and 244 boys (46.8%), whose age ranged from 15-18 years with the mean of 16.28±0.89.Moreover, 38.8%, 33.2% and 28% of students were studying in the first, second and third grades, respectively, among which 69.5% were studding in governmental high schools and 30.5% in non-governmental ones. 27.4%, 37.8% and 34.7% of all samples were from regions 1, 3 and 4 of Isfahan city, respectively. In general, the mean of family dimension was 4.6% with the minimum and maximum of 2 and 11, respectively. Other Demographic characteristics of the students was observed in table 1.

According to the study results, 51.2% of boys and 48.4% of girls watched TV for 1 to 3 hours per day; 73% of boys and 47% of girls were reported to exercise, among which soccer and volleyball were introduced as the most frequent types of exercise within boys (42.2%) and girls (13.7%), respectively. Furthermore, 61.5% of fathers and 57% of mothers had a high school diploma or a higher degree that. 41.3% of fathers were self-employed and 84.5% of mothers were housewives. Most students (50.7%) reported their family's economic status as average, and the majority of students (35.1%) reported their family income between 150 to 300 USD. The physical status of students was reported overweight (12.5%) and obese (4.2%). The findings of this study revealed that 7.5% never, 22.8% once in several months, 26.3% once in a month, 26.9% twice a month, 12.5% once or twice a week and 2.7% three times or more in a week consumed fast foods. Sandwiches and snacks were the most popular fast foods among both boys and girls. In this study, the Spearmen's correlation coefficient demonstrated a direct relationship between economic status and amount of fast food consumption ($P<0.001$, $r= 0.235$) as well as between father's education with fast food consumption ($P= 0.002$, $r= 0.138$) and knowledge ($P=0.03$, $r=0.096$).Moreover, mother's education had a direct relationship with fast food consumption ($P<0.001$, $r=0.154$) and knowledge about fast food($P= 0.004$, $r=$

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0.127). The amount of watching TV also had a direct relationship with fast food consumption (P= 0.003, r= 0.133). ANOVA test results showed a significant relationship between the regions of Isfahan city and fast food consumption; the students in region 3 were reported to have more fast food consumption. The score of economic status in region 3 was higher than that of other regions (P<0.01). Independent t-test demonstrated that students of the non-governmental high school had high fast food consumption level (P=0.001) than governmental high schools Student.

In this study ,knowledge level was higher in girls than in boys (P= 0.001); however, fast food consumption did not show any significant differences between the two genders (P<0.05).

Table1: Demographic characteristics of the students

Variable		Frequency (Percentage)
Father's education	Illiterate	16(3.1)
	Primary (1–9 years)	73(14)
	High school(10–11 years)	102(19.6)
	Diploma(12 years)	215(41.3)
	College/university education	106(20.4)
Mother's education	Illiterate	13(2.5)
	Primary (1–9 years)	94(18)
	High school(10–11 years)	112(21.5)
	Diploma(12 years)	217(41.7)
	College/university education	81(15.5)
Doing sports	Yes	308(59.1)
	No	203(39)
BMI	<5	43(8.3)
	5-85	383(73.7)
	85-95	65(12.5)
	>95	22(4.2)
Amount of watching TV	<1 Hours per day	105(20.2)
	1-3 Hours per day	259(49.7)
	3-5 Hours per day	99(19)
	>5 Hours per day	39(7.5)

Discussion

In the past thirty years, fast food consumption has noticeably increased. Therefore, considering its outcomes and complications [27, 28], this study investigated the association between demographic characteristics and fast food consumption among high school students in Isfahan. Asthe findings of this study revealed, 2.7% of students ate fast food three or more times a week and 12.5%ate once or twice a week.

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This was a lower percentage compared with the findings of other studies [29, 30]. Larson et al. reported that 23.6% of boys and 22.8% of girls ate fast foods more than three times a week [31]. Also, in a study conducted by Seo et al., 27.6% of students in middle schools ate fast foods two or three times a week, among which burger, pizza and fried chicken were stated as the most popular ones [32]. In the present study, sandwiches and snacks were regarded as the popular foods among students.

In the study conducted by Bowman et al., boy adolescents of families with high income and residents of affluent regions consumed more fast foods [5]. These findings corresponded with the present study findings as boy students, those from affluent families, students who had educated parents and the ones who were studying in region 3 ate more fast foods than others. These results indicated that in the societies with high income and educational level, the amount of traditional food consumption decreased, where as fast foods and prepared foods were more consumed. In the study by Caroli and Lagravinese, the purchase demand of salty and high-fat foods was higher among the students who watched TV more frequently, which was in line with the results of the present study [25]. In this study, fast food consumption was higher among those students who watched TV more than 5 hours a day and those who did not exercise. These findings were in line with those of Unger et al. which worked on Spanish and American adolescents [33]. Kafeshani et al. indicated a positive relationship between fast food dietary pattern and age; fast food and animal fat dietary patterns with being boy were detected.While urbanization and TV watching correlated positively with the fast food diet, the fast food dietary patterns were inversely associated with the nutrition knowledge. Furthermore, the study suggested that socio-demographic characteristics and physical activity were related to dietary patterns within Iranian adolescents [34].

Considering that consumption of fast foods and sedentary lifestyle both are regarded as the risk factors for being overweight among adolescents [35], there is an essential requirement in regard with promoting more active lives, observing and maintaining healthy diets, decreasing fast food consumption and watching TV. The absence of a significant relationship between fast food consumption and obesity (in the present study and similar researches) may indicate that the frequency of fast food consumption in Iran, especially in small cities, has not reached harmful levels and cannot hence be taken into consideration as an independent risk factor for overweight and obesity. Therefore, further evaluations of the number of meals, intake of various food items, and received calories would be necessary to determine the relationship between nutrition and BMI[36]DoostMohammadian et al. have reported that the frequency of fast food consumption is positively associated with BMI in adolescent girls in Semnan[37].

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Bahadoran et al.'s study illuminated thatfast food consumption significantly affected the dietary intakes of participants[38].

In this study, the most important attitudes were related to being tasty (84%),convenience of fast foods (74%) and their cost compared with other restaurant disadvantages, it is recommended that these points be taken into account inthe educational programs for adolescents and their peers. Moreover, required interventions demand to be regarded in order to do preventive behavior and adopting healthy nutritional behavior, such as avoiding fast foods and high-fat foods, replacing healthy and delicious foods as well as increasing the consumption of vegetables and fruits.

foods (73%).Moore et al. also mentioned fast preparation (92%), convenience (80%) and tastiness (69%) as the reasons for the frequent consumption of fast foods[29]. Hence, considering the results of this study and that only a half of students (55%) were aware of the fast foods and their

The current study suffers from several limitations as age limit, self-reporting characteristics of the questionnaire, specifically in terms of questions related to fast food consumption and exercising. It is worth mentioning Self-reporting can be biased by recalling. Moreover, different definitions of fast food in different cultures can be considered as another limitation of this study. Thus, future studies are recommended to be conducted on different age groups and various cultures.

Conclusion

An association is established between demographic characteristics and fast food consumption with in high school students. Further studies might examine the effectiveness of various strategies discussed in altering the psychological determinant of fast food intake among Iranian students. Finally, the results of this study will help doing interventions in order to adopt healthy nutritional behaviors in schools, which can have an important long-term role in creating healthy behaviors as well as controlling obesity.

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