



A REVIEW: FAST FOOD CONSUMPTION PATTERN AMONG ADOLESCENTS OF TABRIZ CITY, 2016

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ABSTRACT

Background and Objective: The prevalence of fast food consumption in adolescents has increased worldwide. Consumption of these foods can cause obesity and cardiovascular disease. This study aimed to evaluate the pattern of fast food consumption in adolescents of Tabriz, Iran.

Materials and methods: This cross-sectional study was conducted in 2016-2017 among 1086 students, aged 13-17 years, selected by cluster sampling from five districts of Tabriz. Data were collected by demographic information and semi-quantitative Food Frequency Questionnaires. Content and face validity of the general questionnaire was proved by the faculty members of Tabriz University of Medical Sciences. Data were analyzed using descriptive and inferential statistics through SPSS V.13 software.

Results: Results showed that fast food consumption pattern in adolescents was low consumption (Less than once a week), with the value of 69.3%. Fast food consumption in male students was almost twice than that in female students. There is a significant difference between fast food consumption patterns and maternal education level, mother's job, weight, BMI and students' awareness.

Conclusion: Results showed that fast food consumption pattern among adolescents of Tabriz is mainly low and this result can be due to the role of mass media in providing information for people about consequences of fast foods and fake productions, efforts of the Ministry of Education to promote the culture of healthy nutrition and the culture of Azerbaijani people.

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Introduction

The prevalence of non-communicable diseases such as obesity, cardiovascular diseases, and type 2 diabetes in the last years has considerably increased. Some of its reasons include a change in the dietary habits and physical activity levels of individuals in society [1]. Change in the dietary habits has been associated with the progress of science and technology in many communities [2]. Food habits such as their regular consumption of meals, excessive snacking, eating away from home (especially at fast-food restaurants), dieting, and meal skipping among teens are seen more frequently than other age groups. The factors contribute these habits include decreasing influences of family, increasing influence of peers, media

advertising, working outside the home, and increasing responsibilities that leave less time for teens in eating meals with their families [3]. Fast foods refer to foods that are prepared quickly and sold in canteens, school stores, and fast food restaurants. Therefore, they are not homemade foods. Various sandwiches, Hamburger, cheeseburger, fried shrimps and fish and chicken, hot dogs, meat or chicken steak, potato fries and all kinds of pizza are common fast foods [2, 3]. Eating these foods causes a lack of a variety of vitamins, mineral salts, and fibers; Because they contain an amount of calorie, fat, sugar, and salt that is higher than the standard level, they increase the risk of cardiovascular disease [4, 5]. During the past 30 years, eating fast foods in the diet of the people of the world has increased [6].

Fast foods are teens popular foods and one-third of them daily uses of these foods. This issue shows that today's adolescents eat more fast foods compared to before [7]. The number of fast-food restaurants is more than before [6]. Environment and atmosphere of these restaurants are attractive for children and adolescents who have no desired environment for eating [8]. The most of the adolescents use high-fat diets and carbonated beverages that contain a high calorie. Moreover, their diet contains a less amount of fruit and vegetable which causes obesity. Therefore, trying to change the nutritional behavior of people including children and adolescents will be helpful in reducing obesity and other diseases [9].

A study in American report that is relationship between receiving fast foods and the rate of learning in children. The Ohio University researchers have concluded that eating fast food too much causes academic failure in skills such as reading, mathematics, and sciences. In this research, the students who ate fast food too much obtained scores 20 percent less than those who had not used fast food [10].

The studies conducted in Iran include Bakhtiari in Tehran which showed the consumption of fast food in students and different strata of people has been increased and they found a significant relationship between increased consumption of fast food and the amount of anxiety in students of Tehran [11].

Yarmohamadi et al; examined predictors of fast food consumption among high school students based on the theory of planned behavior and concluded that sandwich and snack are popular foods among the students and high fast food consumption takes up BMI and weight [9].

According to study's Taheri et al., the prevalence of overweight in students aged 11-15 was 5.2% (6.5% females and 3.9% males) and obesity was 2.1% (1.5% in females, and 2.8% in males) [12].

It seems if fast foods is prepared in a way that has a lower energy density and a greater amount of fiber can be more effective at reducing obesity [13].

Independence teens are more food choices outside the home. Being affected by peers and friends (especially close friends) increases as well. On the other hand, their trust to the ability of parents and adults reduces. It should be noted that this age range is a period with the potential to correct nutritional deficiencies and to compensate developmental deficiencies at the previous stages of life. Therefore, this period can be used as an appropriate opportunity to solve previous nutritional deficiencies and forming nutritional habits [14].

Schools are one of the most important formal and organized institutions which can develop children's mental health in society by providing a healthy environment. Therefore, it is necessary to pay special attention to the nutrition of students. The school nurse can have an active role in training appropriate nutrition habits to kids and adolescents along with teachers; they can provide their interested plans. Accordingly, the nurse can perform his important task that is improving the health of child and family by providing nutritional recommendations for children and adolescents in order to provide maximum growth and development and the formation of positive eating behaviors [8]. Since fast food consumption prevalence, weight disorders, life style changes, and the lack of comprehensive studies in this regard in the city of Tabriz and the lack of the research evidence for referring to it, this study was designed to evaluate fast food consumption pattern among adolescents of Tabriz, Iran.

Materials and methods

This study was conducted in 2016-2017 on 1100 male and female students 13-17 years who were selected through a multi-stage cluster sampling from five districts of Tabriz city. The sample size was determined to be 1025 people, according to the study conducted by Amani in Ardabil, [4], and the accuracy of 3% and 5% of type I error, according to the statistics on the number of schools and students taken from the Education Department. The exclusion criteria was considered kidney, heart, gland, diabetes diseases, and people under the regime of special treatment, finally, 1086 people remained in the study. After a full explanation of the study objectives and protocols, written informed consent was obtained from parents and students. Participants were explained that their personal information will remain confidential. Questionnaires were demographic characteristic and a Food Frequency Questionnaire. Weight and height were measured by trained researchers. Weight was measured with minimal clothing, with 0.1 kg accuracy and standing height was recorded without shoes, with 0.1 cm accuracy. Body mass index (BMI) $\geq 95^{\text{th}}$ percentile was considered as obesity. FFQ included 12 food items (types of burgers, pizza, hot dogs, sausages, salami...) were considered. FFQ validity and reliability has already been done [15].

The face and content validity of the questionnaire again were examined by 20 members of the faculty of nursing and nutrition at Tabriz University of medical sciences, necessary modifications were applied, and reliability of FFQ in 20 students was obtained 0.9 with Cronbach's alpha coefficient which is a high reliability. In examining the FFQ, we considered received prepared foods in ordinal scale lowly consumed (less than once a week), moderately consumed (once to twice per week), and

highly consumed (more than twice per week). The pattern of this classification is based on the method of a study conducted by Pereira et al., [16].

For each student, the body mass index (BMI) was calculated as the ratio of weight in kilograms to the square of height in square meter. Data were analyzed using descriptive and inferential statistics through SPSS V.13 software.

Results

In this study 570 female students (52.5%) and 516 male students (47.5%) at first and second grade high schools was analyzed. Most of the studied people belonged to District 3 and the second grade 862 people (79.9%). For each of the student, the fast food consumption pattern was examined and each of them was placed in one of the categories of lowly consumed, moderately consumed, and highly consumed (Table 1).

Table 1. The absolute frequency distribution and a percentage of fast food consumption pattern among adolescent students in Tabriz (n=1086)

fast food consumption pattern	N	%
lowly consumed (less than once per week)	737	69/3
Moderately consumed (once or twice per week)	233	21/9
Highly consumed (more than twice per week)	93	8/7

Table 2. Demographic (qualitative) characteristics and fast food consumption pattern among adolescents in Tabriz

Variable	fast food consumption pattern			Statistical indices
	Lowly consumed	Moderately consumed	Highly consumed	
District	N (%)	N (%)	N (%)	
1	134(69/1)	43(22/2)	17(8/8)	X ² =3/77 DF=8 P=0/87
2	113(67/7)	42(25/1)	12(7/2)	
3	218(70/8)	65(21/1)	25(8/1)	
4	148(71/2)	39(18/8)	21(10/1)	
5	124(66/7)	44(23/7)	18(9/7)	
Gender				
Female	399(70/1)	132(23/2)	38(6/7)	X ² =7/02 DF=2 P=0/03
Male	338(68/4)	101(20/4)	55(11/1)	
Academic level				
First grade high school	159(73/3)	39(18)	19(8/8)	X ² =2/05 DF=2 P=0/35
Second-grade high school	578(68/8)	188(22/4)	74(8/8)	
occupational status of the mother				
Working out of home	89(71/8)	26(21)	9(7/3)	X ² =10/77 DF=4 P=0/02
Working at home (chef and tailor)	20(60/6)	5(15/2)	8(24/2)	
Housewife	628(69/3)	202(22/3)	76(8/4)	
occupational status of the father				
Employed	234(70/1)	79(23/7)	21(6/3)	X ² =11/07 DF=6 P=0/08
Self-employed	393(68)	132(22/8)	53(9/2)	
Unemployed	31(81/6)	2(5/3)	5(13/2)	
Retired	77(70/6)	20(18/3)	12(11/0)	
Mother education				
Illiterate	43(81/1)	7(13/2)	3(5/7)	X ² =12/20 DF=6
Under high school	260(69/3)	83(22/1)	32(8/5)	

High school and associate degree	345(66/6)	118(22/8)	55(10/6)	P=0/05
Bachelor and higher	89(76/1)	25(21/4)	3(2/6)	
Father education				
Illiterate	33(82/5)	7(17/5)	0(0)	X ² =15/12 DF=6 P=0/01
Under high school	250(69/3)	70(19/4)	41(11/4)	
High school and associate degree	284(65/7)	112(25/9)	36(8/3)	
Bachelor and higher	170(73/9)	44(19/1)	16(7)	
Family prevents adolescents going fast food restaurants				
Yes	256(75/7)	46(13/6)	36(10/7)	X ² =20/45 DF=2 P=0/00
No	479(66/3)	186(25/8)	57(7/9)	
Number of fast food restaurants in home to school path				
No	130(84/4)	18(11/7)	6(3/9)	X ² =44/97 DF=6 P=0/00
One restaurant	106(67/1)	50(31/6)	2(1/3)	
Two restaurants	93(60)	39(25/2)	23(14/8)	
Three or more than three restaurants	394(67/7)	126(21/6)	62(10/7)	
Performing special exercises				
Yes	410(69/5)	118(20)	62(10/5)	X ² =6/93 DF=2 P=0/03
No	326(69/1)	115(24/4)	31(6/6)	
Monthly income of family				
I have no information	445(69)	153(23/7)	47(7/3)	X ² =5/044 DF=4 P=0/28
No income	3(100)	0(0)	0(0)	
Less than 10000000 Rials	67(72/8)	16(17/4)	9(9/8)	
Between 10000000 and 20000000 Rials	135(71/8)	37(19/7)	16(8/5)	
More than 20000000 Rials	85(63/9)	27(20/3)	21(15/8)	
Pocket money (weekly)				
30000 to 250000 Rials	476(65/5)	235(23/3)	16(2/2)	X=44/23 DF=4 P=0/000
260000 to 470000 Rials	128(56/1)	97(42/5)	3(1/3)	
480000 to 700000 Rials	29(31/5)	61(66/3)	2(2/2)	

As seen in table 2, there is a significant statistical difference between gender, occupational status of mother, parents' education, families barricade of going fast food restaurant, fast food restaurant number in the path home to school, and sports activities and fast food consumption pattern (P<0.05). Fast food consumption pattern in male students (11.1%) was almost twice than that of the female students (6.7%). In addition, fast food consumption pattern was reduced in parents who also had bachelor level of education or higher (father 7% and mother 2.6 %) and the lowly consumed pattern increased in them (father 73.9% and mother 76.1). A significant relationship was found between fast food consumption and occupational status of mother and it was found that the mothers who are living at home (tailor, chef, artwork,...)had a high consumption pattern (24.2%). Moreover, as the number of fast food restaurants from school to home and sports activities increase, the fast food consumption pattern also increases. Families that prevented adolescents from going fast food restaurants experienced a low fast-food consumption pattern (75.7%).

Table 3. Demographic Quantitative data of fast food consumption pattern in adolescents in Tabriz

Variable	fast food consumption			Statistical indices
	Low consumption Mean± SD	Moderate consumption Mean ± SD	High consumption Mean ± SD	
Age (year)	15/36±1/13	15/63±1/07	15/72±1/15	F=8/06 DF=1060 P<0/001
Weight (kg)	61/85±13/97	62/22±14/46	65/96±14/94	F=3/519 DF=1060 P=0/03

Height (cm)	168/78±10/01	169/13±11/54	170/59±17/71	F=1/103 DF=1060 P=0/33
awareness score	4/89±2/71	3/71±2/99	3/02±2/92	F=28/56 DF=1060 P<0/001
BMI	21/59±3/84	21/60±3/62	23/65±12/09	F=6/90 DF=1060 P=0/001

According to table 3, variance analysis test showed a significant difference between the weight, Knowledge score, and BMI of adolescents participating in the study and fast food consumption pattern ($p<0.05$). As the consumption pattern increases to high consumption pattern, BMI and weight also increase. In addition, when participants' awareness increases, lowly consumption pattern increases.

Discussion

This study showed the highest consumption pattern between adolescents in Tabriz city is lowly consumed. As reported by Golzarand et al., fast food consumption in Iranian children is high and this amount makes increasing energy density, cholesterol and saturated fat intake, decrease intake of micronutrients required for body, and increasing the risk of overweight and obesity [17]. The inconsistency between findings of this study with other studies might be due to the type of culture and their awareness of disadvantages of these foods. Our study showed significant relationship between fast food consumption pattern and gender. As reported by Bakhtiari et al., males than females had high consumption of fast food [11]. Larson et al., reported that 23.6% of males and 22.8% of females consume fast foods more than three times a week [18]. The results of these studies are in line with the present study.

The present study showed that the fast food consumption pattern is reduced as the parental education is increased. Yarmohammadi et al., were found a direct correlation between consumption of fast foods and the high education of parents [9]. Also according to the study Fortin & Yazbeck fast food consumption in adolescents is 2-3 times per week and decreases with increasing maternal education [19]; these results are in line with the results of the present study.

A significant relationship was found between the fast food consumption pattern and mother occupation and results showed that mothers working at home have a high fast food consumption pattern. According to the study Amani et al., the highest fast food consumption was obtained among employees, the employed people, university students and students [4]. Dadipour et al., reported fast food consumption was seen highly in young people, the employed, and those who had an academic education, that not being in line with the results our study [20]. The highly use of fast foods by women working at home might be more due to the good taste, cost-effectiveness, the popularity of these foods in our community and in some cases, inevitability and the lack of time to prepare a homemade food. Also, the mother's awareness of complications fast food consumption can effect on consumption pattern. In the present study, a difference significant was found between the amount of the adolescents' pocket money and a variety of fast food consumption patterns. Vaida reported that the pocket money of adolescents is affected by eating fast foods. More than 60 percent of the respondents in the age group of 16 and 18 years spend their entire pocket money on fast foods [21].

In the present study, a significant difference was found between the types of consumption patterns and the number of fast food restaurants on home to school path that with the increasing number of restaurants, the fast food is consumed highly. A study conducted by Forsyth et al., showed that fast food consumption is high among adolescents that there is a greater number of restaurants around their home [22]. Also Li et al., showed there is relationship between the vicinity of fast food restaurants with obesity. Their results showed that the likelihood of obesity in people who are living in the vicinity of the fast food markets is higher by 1.8 times compared to those who are not living in the vicinity of the fast food markets [23].

Our study showed that by increasing the activity of professional sports, fast food consumption increases. As reported by Bauer et al., sports team participation was a strong risk factor for increased fast-food intake among males [18].

The fast food consumption pattern did not show a significant difference according to the family income, but the study conducted by Bauer et al., showed that compared with girls from higher socio-economic status (SES) families, low-SES girls were more likely to report frequent fast-food consumption [18]. The inconsistent results might be due to the low price of fast foods compared to other traditional foods in Iran such that all people in every group and every economic level can use these types of foods.

This study showed BMI and weight increases after increasing the consumption pattern to a high consumption pattern., this finding is in line with the study conducted by Ruhani et al., Their study showed that BMI and waist circumference increases to consume fast foods, but they found no relationship between the consumption of fast foods and hip circumference and height [24].

In line with the study conducted by Koohi et al., no significant relationship was found between fast food consumption patterns and the age of the students [25].

According to the results of this study, as most of the participants were aware of the side effects of fast foods and they have been educated on nutrition in schools and considering the culture of Tabriz, we hope that fast food consumption would be reduced in future so as to improve the people's health.

One limitations this study is the use of FFQ and concerns about filling the questionnaire by the students according to their age. We tried to moderate and control the confounding effects. Furthermore, the different definitions of fast food in various cultures can be considered as another limitation of this study.

Conclusion

According to this study fast foods consumption pattern in Tabriz is mostly "lowly consumed" and its reason can be the kind of the culture of the region, the recent efforts in the field of education to make students aware of healthy nutrition and efforts of the officials to produce healthy raw products. Therefore, an increased awareness on nutrition in the different groups of people in the community can be useful in line with the reduction of fast food consumption index and replacing it with the indigenous and local foods that have a high nutritional value.

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