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Research Article

Fast Food vs Healthy Food Intake and Overweight/Obesity Prevalence among Adolescents in the State of Qatar

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Abstract

Background: As a result of economic transitions fast food consumption has been common in both developed and developing countries. Both developed and developing countries Fast food consumption has become common and prevalent due to economic transitions. Adolescents are the highest and more frequent age group consumed fast food; fast food consumption is positively associated with total energy intake and obesity in adolescents.

Objective: This study aimed to assess adolescent's fast foods versus fruits and vegetables intake relative to gender, overweight and obesity.

Methods: A cross-sectional survey was conducted on 625 boys and 600 girls, aged 15-8 years. The adolescents completed a validated questionnaire to assess the intake of adolescent's fast foods versus fruits and vegetables. Weight and height were measured. Numbers who were, overweight, and obese were calculated for each age and sex using the International Obesity Task Force (IOTF) standard.

Results: The overall prevalence of overweight and obesity were (18.5% and 19.1%) respectively. Waist circumference was significantly higher in males (77.82 ±17.3) than in females (73.06 ± 10.2) (P<0.0001). There was no statistical difference in central obesity between males and females as measured by waist height ratio (p=0.40).A significant difference between males and females adolescents was reported regarding age (<0.001), body mass index (P < 0.0001), fast food intake (P<0.035), energy drinks (P<0.000) and fruits intake (P<0.002). The study showed that the frequency of fast food intake (≥4 times/wk.) 25.5% was more prevalent than of fruits and vegetables intakes (19.1% & 19.3%) respectively. Moreover, the results revealed that the frequency fast food, fruits and vegetables intake was significantly correlated with BMI (P=0.03, 0.01, 0.001).

Conclusions: The frequency of fast foods consumption was significantly more among male than female adolescents in Qatar and related to overweight and obesity in both genders.

Keywords: Fast foods, Gender, Body weight status, Adolescents, Body Mass Index, Waist Height Ratio

Introduction

Adolescence is a sensitive period throughout the life span. Multiple changes including rapid growth, body shape [1] social, physiological, psychological, and economic aspects [2], are occurred during adolescence. Establishment of personality and lifestyle patterns, including attitudes and behaviors regarding eating [3,4]. Adolescents eating behaviors are easily affected by several factors such as parents and peers habits; social relations and school environments [5,4]. Availability of fast food in schools is another factor that increases its consumption by adolescence [6].Advertising and marketing by media encourage fast food intake as well [7]. convenience, taste, delivery services, and large portion size of fast food are important factors that have a direct impact on purchasing decision and consumption among adolescence As reported by [8,9]. Economic transitions which have taken place during recent decades leads to widespread opening of fast food restaurants in both developed and developing countries, such as Qatar. Adolescents high intake of fast food have been documented in both developed [10,11] and developing [12] countries. The proportions of fast food consumption were varied at different countries. Several definitions for fast foods have been used in literature. It was defined as "food that can be prepared quickly and easily and is sold in restaurants and snack bars as a

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quick meal or to be taken out'' [13] fast foods defined as as ''the food purchased through self-service or carryout eating places without waiter services While [14]. However [15], have been defined fast foods as a ''general term used for a limited menu of foods that lend themselves to production-line techniques; suppliers tend to specialize in products such as burgers, pizzas, chicken, or sandwiches [7] reported that fast food contain high energy, fat, salt and sugars and low in micronutrients and fiber. High intake of fast food amongst adolescents have been well documented worldwide by many researchers [12,10,11,16] through an international cross-sectional study reported that the proportions of adolescents that consumed fast food at different countries were: 66% in the United States, 68% in Canada, 60% in New Zealand, 79% in South Africa, 57% in India, 34% in Syrian Arab Republic, 40% in Sultanate of Oman and 29.2% and 23.1% of Jordanian adolescent males and females, respectively [El-Qudah, 2014]. While, 50.5 % and 49.5% of adolescent males and females, were found to consume fast food more than three times per week in Qatar, respectively [17,18]. Reported that obesity is positively associated with fast food consumption and negatively with the intake of vegetables, fruits, and milk in adolescents. Therefore, to address the gap in research literature, regarding the adolescent's food consumption, the current study was aimed to investigate the consumption of fast food (low nutrition value) versus fruits, vegetables (high nutrition value) and to compare the independent associations of fast food consumption with high nutrition value food intake with overweight/obesity prevalence of adolescents in the state of Qatar.

Methods

Study design

This study aims to investigate the adolescent's fast foods intake versus fruits and vegetables with body weight status and central obesity in the state of Qatar. The design of this study was a cross-sectional survey. Ethical approval by Medical Research Center (MRC) at Hamad Medical Corporation - Qatar was obtained. The study was approved by the Ministry of Education in Qatar, as well as the selected schools. All participants consented before participation this study was conducted in Doha, the capital of Qatar and AL-Khor city – north of Qatar. The secondary schools were selected randomly. Classes were then selected by a simple random technique for each level (levels 10, 11, and 12). Both males and females governmental and private schools were included in the study. Based on the inclusion criteria participants should be aged 15-18 years old and has no any physical handicaps, on the other hand any student have any type of physical handicaps or his/her age < 15 years or >18 years was excluded. A multistage stratified random sampling technique was used to recruit the school students aged 15–18 years. The total sample selected was 1225 (625) males and (600 females).

Data collection

The data were collected by using a pre-tested questionnaire. Validity and reliability of the questionnaire was measured through a pilot study over 50 participants bt two weeks prior the initiation of the study. The average time used to complete the questionnaire was 25- 35 min. It was used as a base to develop the questions to measure the adolescent's response towards fast foods versus fruits and vegetables intake. The reliability of the questionnaire was then tested on a group of students before applying the questionnaire to the whole sample. A multistage statistical random-sampling technique was used to select the participants. In the first stage, a systematic random sampling procedure was used to select the schools. The schools were stratified into males and females secondary schools, with further stratification into public and private schools. At the second stage, classes were selected at each grade (level) using simple random-sampling design. In this way, one third of sections were randomly selected in each of the three levels (10, 11, 12) from each secondary school. Thus, we had a total selection of at least 57 classes (29 males and 28 females). All students in the selected classes, who were free of any physical health problems, were selected to participate in the study. In addition, all the schools and students were consented to involve in this study. The total sample size consisted of 1225 adolescents.

Anthropometric measurements

Body weight and height were measured in the morning by a trained researcher according to written standardized procedures. Body weight was measured to the nearest 0.1 kg using electronic portable scales and height was measured to the nearest 1 cm. Measurements were done with school uniform and without shoes. Body Mass Index (BMI) was calculated as the ratio of weight (Kg) to height (m^2). BMI reference values were used to defined overweight and obesity in adolescent aged 14-17years, based on the classification of the International Obesity Task Force (IOTF) [Cole TJ, et al., 2000] while adults BMI cut – off points for (overweight 25-29.9 kg/m^2 and obesity ≥ 30 kg/m^2) were used for participants aged 18 years. Waist Circumference (WC) was measured using plastic, non-stretchable measuring tape, at the level of the umbilicus to the nearest 0.1cm while student standing and following normal expiration. Waist to height ratio (WHtR) was calculated as the ratio between WC (cm) and height (cm). The adolescents were asked for their intake of fast food (low nutrition value), fruits and vegetables (high nutrition value) as how many times per week the participants consumed. The current study was carried out to investigate the adolescent's intake of fast food versus fruits and vegetables in Qatar with body weight status and central obesity development. Fast foods were including (Burger, Hotdog, fried chicken, Shawarma,...etc.). The answers ranging from (never = 0 intake) to (every day =7 time/week). The intake was classified into two levels of intake: < 4 times/week, and ≥ 4 times /week.

The data were analyzed using the Statistical Package for Social Sciences software (SPSS, Version 15.0). Questionnaires with missing data were excluded. Description statistics are presented as mean and standard deviation. Chi-squared test was used to find the significance between parameters (overweight, obesity, gender, age and frequency of intake). The level of significance was set at $P < 0.05$.

Results

Demographic and anthropometric measurements of participants are shown in Table 1. The mean age was (16.32 ± 0.98 and 16.18 ± 1.00) for male and females respectively.

Mean BMI and WHtR as obesity and central obesity indicators were (25.63 ± 8.29 and 0.46 ± 0.09), (23.00 ± 5.26 and 0.46 ± 0.02) for males and females respectively. Males BMI was

Demographic Variable	Male (n=625) Mean ± SD	Female (n=600) Mean ± SD	P
Age(Years)	16.32 ± 0.98	16.18 ± 1.00	<0.001
Weight (kg)	70.68 ± 22.82	58.35 ± 13.40	<0.0001
Height (cm)	166.31 ± 7.75	158.15 ± 6.22	<0.0001
BMI (Kg/m²)	25.63 ± 8.29	23.00 ± 5.26	<0.0001
WC (cm)	77.82 ± 17.3	73.06 ± 10.22	<0.0001
WHtR	0.46 ± 0.09	0.46 ± 0.02	0.432
Overweight (%)	16.3	12.6	<0.0001
Obesity (%)	25.3	21.0	<0.0001
Overweight or obese (%)	25.6	23.7	<0.0001

Table 1: Demographic and anthropometric characteristics of the study sample

significantly higher than females (P < 0.0001) while, there was no difference in WHtR between genders. The prevalence of obesity and overweight among males (25.3% and 16.3% respectively) was significantly higher than among females (21.0% and 12.6% respectively) p < 0.0001.

The overall prevalence of overweight and obesity were (18.5% and 19.1%) respectively. Waist circumference was significantly higher in males (77.82 ± 17.3) than in females (73.06 ± 10.2) (P<0.0001). There was no statistical difference in central obesity between males and females as measured by waist height ratio (p=0.40) (Table 1).

Adolescents males intake of fast food, energy drinks and fruits was significantly higher than females (p< 0.035, 0.000, 0.002) respectively, while there was no difference in vegetables and sugary drinks intake between genders (Table 2). Based on age the results showed that there is no difference between gender for all studied food intake except the energy drinks, which showed that males were consumed more energy drinks than females (p=0.041) (Table 3). The study showed that the frequency of fast food intake (≥4 times/wk) 25.5% was more prevalent than of fruits and vegetables intakes (19.1% & 19.3%) respectively. Moreover, the results revealed that the frequency of fast food, fruits and vegetables intake was significantly correlated with BMI (P=0.03, 0.01, 0.001) respectively (Figure 1). On the other hand central obesity as indicated by WHt.R was not related with fast food intake frequency.

Food Type	Male (n) Mean ± SD times/ week	Female(n) Mean ± SD times/ weeks	P
Sugar-sweetened drink	(620) 5.0 ± 2.626	(594) 4.84 ± 2.365	0.196
Fast food	(619) 3.9 ± 2.441	(593) 3.19 ± 1.984	0.035
Energy drinks	(620) 2.42 ± 2.081	(593) 1.81 ± 1.791	0.000
Fruits	(622) 4.85 ± 2.229	(593) 4.45 ± 2.281	0.002
Vegetables	(621) 5.16 ± 2.538	(594) 4.94 ± 2.413	0.117

Table 2: Frequency of weekly consumption of selected food among adolescence.

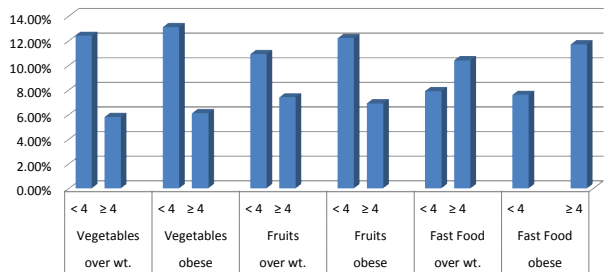

Figure 1: Frequency of Healthy vs Unhealthy Food Intake with BMI

Discussion

The current study showed that male adolescents had higher odds to be obese compared with female peers. This finding is similar to what was reported in many local and regional studies [19,20] who found same findings among white American adolescents but opposite to that in black American adolescents. However, the differences of obesity prevalence among males and females adolescents are generally small and inconsistent as reported by [21].

The study showed that the frequency of fast food intake (≥4 times/wk) was 25.5% more prevalent than of fruits and vegetables intakes (19.1% & 19.3%) respectively. This result is convincing with [22] findings, that Kuwaiti adults were more likely to eat western fast foods more than normal food.

The study found that adolescent's male's intake of fast food, energy drinks and fruits was significantly higher than females, this findings can be explained as males usually have less time than females and believed with energy drinks as a source of energy and it will let them more active. While there was no difference in vegetables and sugary drinks intake between both genders. The explanation of this finding might be both genders like to drink the sugary drinks (soft drinks and different types of juices). Good vegetables intakes may be because it included within traditionally dishes during cooking.

The results of this study revealed that the frequency of fast food, fruits and vegetables intake was positively correlated with BMI (P=0.03, 0.01, 0.001) respectively. This result is consistent with [23,24] who reported that regular consumption of fruit and vegetables reduces the risk of obesity and all-cause mortality, especially cardiovascular disease, and with the national findings associating fast-food consumption with being overweight (BMI ≥25.0 kg/m2) [25]. Moreover, [26] In his study of male primary school students in Al Ehssa, KSA, concluded that frequent consumption of fast foods was recognized as a predictor of obesity and overweight among the included male school children

Food type/age	15(yr) Mean ± SD (n=288)	16(yr) Mean ± SD (n=433)	17(yr) Mean ± SD (n=173)	18(yr) Mean ± SD (n=173)	P
Sugar-sweetened drink	4.84 ± 2.215	4.86 ± 2.42	5.21 ± 2.826	4.730 ± 2.494	0.117
Fast food	3.7 ± 1.926	3.66 ± 1.917	3.76 ± 2.06	3.44 ± 1.938	0.352
Fruits	3.58 ± 1.979	3.52 ± 1.972	3.75 ± 2.131	3.55 ± 2.125	0.460
Vegetables	4.75 ± 2.195	4.77 ± 3.728	4.56 ± 2.223	4.42 ± 2.294	0.466
Energy drinks	2.03 ± 1.929	2.37 ± 1.89	3.15 ± 2.0277	5.35 ± 2.071	0.041

Table 3: Frequency of weekly consumption of selected food among adolescents based on age.

and similar to our findings [27] also found that fast food intake had a significant association with obesity in girls of Dubai-United Arab Emirates.

A strong association between fast-food consumption and obesity prevalence among participants was reported by [28]. He concluded that regular consumers of fast food had chance of being obese that were 60% to 80% higher compared with those for people who ate fast food less than once per week [29,30]. On the other hand central obesity as indicated by WHt.R was not related with fast food intake frequency.

Conclusion

Fast food consumption was higher than high nutritional value food (fruits and vegetables) among adolescents in the state of Qatar. Obesity and overweight were positively correlated to the frequency of consumption. Males consumed fast food more frequently than females.

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