Impact of Fast Foods and Snacks upon Adolescents' BMI at Secondary Schools in Baghdad City

اثر الوجبات السريعة والخفيفة على مقياس كتلة جسم المراهقين في المدارس الثانوية في مدينة بغداد

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المستخلص:

الهدف: تهدف هذه الدراسة   للتعرف وجبات المراهقين السريعة والخفيفة   ، و ايجاد العلاقة ما بين   وجبات المراهقين السريعة والخفيفة   والمعلومات الديموغرافية كالعمر ، مقياس كتلة الجسم.

المنهجية: دراسة وصفية اجريت في جانبي الكرخ والرصافة لمعرفة اثر الوجبات الخفيفة والسريعة على مقياس كتلة الجسم في المدارس الثانوية في مدينة بغداد للفترة من 20 من شهر نيسان لعام 2013 الى نهاية تشرين الاول لعام 2014 . اختيرت عينة عشوائية (غير محتملة) ،(غرضية) من 1254 الطلاب والطالبات المراهقين من المدارس الثانوية لجانبي الكرخ والرصافة لمدينة بغداد . حددت مصداقية الاسئلة الاستبيانية بواسطة مجموعة من الخبراء من ذوي العلاقة بحقل الدراسة ، اما الثبات فمن خلال دراسة استطلاعية . جمعت معلومات الدراسةمن خلال استمارة ارقبيانية مكونة من(14) فقرة اسئلة ذات متعدد. حللت المعلومات باستخدام التحليل الاحصائي الوصفي (التكررات والنسبة المئوية) ،والتحليل الاحصائي الاستنتاجي (مربع – كاي).

النتائج: اثبتت نتائج الدراسة ان ثلث ونصف العينة يتناولون يوميا المشروبات الغازية وبعض الاحيان يتناولون الكيك والبسكويت ،نستلة او الكاكاو ، مثلجات، حلويات، رقائق البطاطا، عصائر الفواكه المصنعة، الحليب ومشتقاته، المكسرات و شرب الشاي او القهوه . واثبتت النتائج ان اكثر من ثلث العينة (38.4%) بعض الاحيان يتناولون الماكولات السريعة في المنزل و (38.1%) نادرا ما يتناولون الماكولات السريعة خارج المنزل . اكل الوجبات الخفيفة ذات علاقة معنوية عالية ذات دلالة احصائية مع الجنس بينما تناولهم للوجبات السريعة داخل وخارج المنزل ليس لها علاقة، ولكن مقياس كتلة الجسم ذات علاقة معنوية عالية ذات دلالة احصائية مع تناول الوجبات الخفيفة والسريعة داخل المنزل بينما تناول الوجبة السريعة خارج المنزل ليس لها علاقة اح   صائية مع مقياس كتلة الجسم.

التوصيات : اوصت الدراسة بالتاكيد على تفعيل برنامج   الغذاء الصحي للوجبات السريعة والحفيفة   من قبل وزارة الصحة مع برامج الخدمات الصحية المدرسية الاخــرى. وشمول المدرسين في وزارة التربية في برامج التغذية الصحية واشراك وتدريب مدرسيها في هذا البرنامج.

Abstract

Objective: The study aimed to identify the adolescents' fast foods and snacks, and find out the relationship between fast food, snacks and adolescents' demographic data (gender and Body Mass Index). **Methodology**: A descriptive study was conducted on impact of fast foods and snacks upon adolescents' Body Mass Index in secondary schools at Baghdad city, starting from 20th of April 2013 to the end of October 2014. Non- probability (purposive) sample of 1254 adolescents were chosen from secondary schools of both sides of Al-Karkh and Al-Russafa sectors. Data was collected through a specially constructed questionnaire format include (12) items multiple choice questions. The validity of the questionnaire was determined through a panel of experts related to the field of the study, and the reliability through a pilot study. The data were analyzed through the application of descriptive statistical analysis frequency, & percentages, and inferential statistical analysis, chi-square, are used.

Results: The study results revealed that more than one third and half of the sample daily take soft drink, sometimes eating cake and other crackers, chocolate or cocoa, ice cream, sweets, chips, artificial fruit juice, milk and dairy products, beans nuts, and drink tea or coffee respectively. The study sample have more than one third **(37.4%)** sometimes eat fast food in their home, and **(38.1%)** seldom eat fast food   from out. Eat the snacks food highly significant association with adolescents' gender but eat the fast foods not significant association with their gender. There is highly significant association between eat the snacks and fast foods in home with their Body Mass Index but eat the fast foods out home not significant association with their Body Mass Index.

Recommendation: The study recommended that Ministry Of Health should activate the healthy eating snacks and fast foods program within school health service programs, and Ministry of Education should be involved their teachers in the healthy eating programs & training them on the healthy eating strategies.

Key wards: Fast Foods, Snacks and Body Mass Index.

Introduction

Adolescence is the developmental stage between the onset of puberty and maturity, is important both biologically and socially. It is during this time that an adolescent's body physically matures and the capacity for independent and abstract thought develops. Many adolescents have greater freedom to make choices which will affect their health and social well-being. One area of increased opportunity for independence is in food selection. [1] Food provides both the energy and the materials needed to build and maintain all body cells. Nutrition is the process of taking in and using food nutrients for growth, repair and maintenance of the body. Fast food intake is still increasing specially among younger generation. [2][3] Fast food intake has been associated with poor dietary intake and weight gain among young population. Fast food restaurants are becoming widespread worldwide, both in developed and even developing countries. [4-7] Fast food contains higher levels of calorie and fat compared to the home-prepared meals. [8] An important time for assessing and evaluating fast food intake and detecting the associated factors is from adolescents to younger adulthood, a high risk time for being overweight and obesity. [9,10] Determining the factors influence on dietary intakes among adolescents, such as food preferences, family eating patterns, and social norms, could be a guide for conducting interventions aimed to adopt healthy eating behaviors. The majority of people adults and children snack on a regular if not daily basis. [11-14] Adolescents snack frequently, and the snacks chosen are often high in fat, salt, sugar, and calories such as potato chips, cookies, and candy bars often provide a significant source of calories with few nutrients for this age group.[15] According to several studies, the prevalence of snacking among adolescents ranges from 60-98 percent. Obesity as an abnormal accumulation of fat in the adipose tissue throughout the body. It is the most common nutritional disorder in infants, children and adults in affluent societies. Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have an adverse effect on health. [16][17] It is defined by Body Mass Index (BMI) and further evaluated in terms of fat distribution via the waist-hip ratio and total cardiovascular risk factors. [18] Obesity increases the likelihood of various diseases, particularly heart disease, type 2 diabetes, breathing difficulties during sleep, certain types of cancer and osteoarthritis. Obesity is most commonly caused by a combination of excessive dietary calories, lack of physical activity and genetic susceptibility, although a few cases are caused primarily by genes, endocrine disorders, medications or psychiatric illness. [19] Healthy eat fast foods and snacks are vital for teens' health and well-being. The nutritional needs of teens vary accordingly, but generally increased due to the rapid growth and changes in body during puberty.[5]

Methodology Adescriptive study was conducted on impact of fast foods and snacks upon adolescents' Body Mass Index in secondary schools at Baghdad city, starting from 20th of April 2013 to the end of October 2014. Non- probability (purposive) sample of 1254 adolescents were chosen randomly from secondary schools of both sides of Al-Karkh and Al-Russafa sectors. Data was collected through a specially constructed questionnaire format include (14) items multiple choice questions. The validity of the questionnaire was determined through a panel of experts related to the field of the study, and the reliability through a pilot study. The data were analyzed through the application of descriptive statistical analysis frequency, & percentages, and inferential statistical analysis, chi-square, are used.

The Results

Table 1. Distribution of the Study Sample by their General Information

Variables	Gender								
Gender	Male		Female						
	*No.	%	*No.		%				
	611	48.7	*643*		*51.3*				
Total	1254 (100%)								
Body Mass Index	Body Mass Index								
	Under Weight		Normal		Over Weight		Obese		Morbidity Obese
	<50th Percentile		50th -84th Percentile		85th -94th Percentile		=>95th Percentile		
	*No.	%	*No.	%	*No.	%	*No.	%	*No.	%
	349	*27.8*	*348*	*27.8*	293	23.4	241	19.2	23	1.8

*No. = number, % = percentage

This table shows that more than half **(51.3%)** of adolescents is female, nearly one third at **(27.8%)** of them under and normal weight of the students' BMI.

Table 2. Distribution of the Study Sample by their Fast Food Eating Habits

Adolescents' Fast Food Eating Habits	Always		Sometimes		Seldom		No	
	*No.	%	*No.	%	*No.	%	*No.	%
Fast Food in Home	348	27.8	*469*	*37.4*	382	30.5	55	4.4
Fast Food from out	164	13.1	287	22.9	*478*	*38.1*	325	25.9
Total	1254(100%)							

*No. = number, % = percentage

This table shows more than one third **(37.4%)** sometimes eating fast food in their home, and **(38.1%)** seldom eating   fast food   from out .

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Table 3. Distribution of the Study Sample by their Eating Habits of Snacks after Meals

Snacks After Meals	More than One Per Day		Daily		Sometimes		Seldom		No	
	*No.	%	*No.	%	*No.	%	*No.	%	*No.	%
Cake and other Crackers	152	12.1	215	17.2	*638*	*50.9*	194	15.5	54	4.3
Chocolate or Cocoa	40	3.2	70	5.6	*523*	*41.7*	426	34.0	194	15.5
Ice Cream	16	1.3	42	3.4	*424*	*33.8*	546	43.6	225	18.0
Sweets (Sweetener)	193	15.4	438	35.0	*506*	*40.4*	89	7.1	27	2.2
Soft Drink like Cola….etc.	279	22.3	*519*	*41.4*	355	28.3	87	6.9	13	1.0
Chips	9	0.7	41	3.3	*297*	*23.7*	598	47.7	308	24.6
Artificial Fruit Juice	26	2.1	102	8.1	*530*	*42.3*	402	32.1	193	15.4
Milk and Dairy Products	45	3.6	200	16.0	*506*	*40.4*	222	17.7	280	22.3
Beans and Nuts	66	5.3	199	15.9	*552*	*44.1*	310	24.7	126	10.1
Tea or Coffee	174	13.9	248	19.8	*360*	*28.7*	192	15.3	279	22.3

*No. = number, % = percentage

This table shows that almost more than one third of the sample **(41.4%)** daily take soft drink, more than one third and half of the sample **(50.9%, 41.7%, 33.8%, 40.4%, 23.7%, 42.3%, 40.4%, 44.1%, and 28.7%)** sometimes eating cake and other crackers, chocolate or cocoa, ice cream, sweets, chips, artificial fruit juice, milk and dairy products, beans nuts, and drink tea or coffee respectively.

Table 4. the Association between Eating Habits of the Study Sample and their Gender

Adolescents' Eating Habits		Gender		Total	$^*X^2$
		Male	Female		
Eating the Snacks	Healthy	82	125	207	X^2=.004
	Unhealthy	*528*	*518*	1046	**Sig.=.005*
Total		610	643	1253	
Fast Food in Home	Healthy	207	230	437	X^2=.482
	Unhealthy	*404*	*413*	817	**Sig.=.520
Total		611	643	1254	
Fast Food out Home	Healthy	*389*	*415*	804	X^2=.747
	Unhealthy	222	228	450	**Sig.=.792
Total		611	643	1254	

$^*\chi^2$ = Chi- square, **sig. = significant, p-value ≤ 0.0

This table shows that adolescents' gender has highly significant association with unhealthy eating habits relating to the snacks, but eating fast food in and out home have no significant association.

Table 5. the Association between Eating Habits of the Study Sample and their BMI

Adolescents' Eating Habits		Body Mass Index					Total	$^*X^2$
		Under Weight	Normal Weight	Over Weight	Obese	Morbidity Obese		
		$<50^{th}$ Percentile	50th -84th Percentile	85th -94th Percentile	$=>95^{th}$ Percentile			
Eating the Snacks	Healthy	63	59	54	25	6	207	X^2=.049 **Sig.= .038*
	Unhealthy	286	288	*239*	*216*	*17*	1046	
Total		349	347	293	241	23	1253	
Fast Food in Home	Healthy	104	139	90	99	5	437	X^2=.004 **Sig.= .003*
	Unhealthy	244	209	*203*	*143*	*18*	817	
Total		348	348	293	242	23	1254	
Fast Food out Home	Healthy	210	242	*185*	*154*	*13*	804	X^2=.120 **Sig.= .117
	Unhealthy	138	106	*108*	*88*	*10*	450	
Total		348	348	*293*	*242*	*23*	1254	

$^*χ^2$ = Chi- square, **sig. = significant, p-value ≤ 0.0

This table shows that adolescents' Body Mass Index have highly significant the association with their eating habits items like eating the snacks and fast food in home, while eating fast food out home have no significant association at p-value ≤ 0.05.

The Discussion

The sample of the study consists of 1254 students from 12 secondary schools chosen randomly for total 1171 schools in Baghdad city.

In the present study as shown in table (1) refers to statistically distribution of the observed frequencies, percentages of all studied sample demographical characteristics variables. Regarding to the gender, the finding indicates that males and females (48.7, and 51.3%) respectively, were approximately equal ratio. This study was nearly the same ratio and agrees with Romanian high schools study sample (43.1%, and 56.9%) for male and female respectively. [20] The result study samples find that more than one forth BMI were almost equal in under and normal weight percentile (27.8%, and 27.8%) respectively, that indicate that they did not have good nutrients for developing their physically and psychologically performance. This result supported with Romanian study because most of the study is indicated about under and normal weight for both genders (16.5% and 73.4%) respectively.

More than third of the study sample shows in table (2) sometimes eat fast food in or out their home therefore, the adolescents and their family are interested in eating fast and unhealthy foods. This result disagrees with Malaysia study which shows that more than two third eating fast food form in and outside of home. [21]

Regarding the study sample in table (3) eating the snacks after meals, almost more than one third and half of them daily and sometimes go to eating candies, sweets, ice cream, and chips and they are interesting in drinking fruit juice, and / or soft drink and tea or coffee after or within their meal; while also nearly one third of the study sample sometimes take

healthy elements like milk and dairy products, and eat beans and nuts. This result supported by Asia study in which almost one half and more than one third of the participants eat variety of snacks.[22]

The table (4) shows that adolescents' gender has highly significant association with unhealthy eating habits relating to the snacks, but eating fast food in and out home have no significant association, and the table (5) shows that adolescents' Body Mass Index have highly significant association with their eating habits items like eating the snacks and fast food in home, while eating fast food out home have no significant association at p-value ≤ 0.05. This result was disagreed with the study by French et al., shows highly significant association fast food and snacks with gender , while overweight and obese have highly significant association with eat fast food and snacks.[10]

Recommendation

The study recommended that Ministry of Health should activate the healthy eating snacks and fast foods program within school health service programs, and Ministry of Education should be involved their teachers in the healthy eating programs & training them on the healthy eating strategies.

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