

# The Study of Unhealthy Eating Habits among Secondary Schools Students in Babel Governorate

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Date Submitted: 01.11.2012

Date Accepted: 10.04.2013

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## Abstract

**Background:** Healthy eating is 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. A poor diet may cause health problems later in life such as obesity, heart disease, or diabetes.

**Aims:** To assess the attitude and practice of students in Babel governorate secondary schools about factors affecting their nutritional status and the relation of some of these factors with demographic characteristics.

**Methods:** A cross-sectional survey by using self-administered questionnaire about the attitude and practices (including feeling hungry in presence of food at home, eating breakfast daily, consumption of different food items according to number of servings daily of fruits, fresh vegetables, milk and dairy products, sweetener and soda drinks, fruit juice, fast food and high fat diets) to be filled in 15-20 minutes distributed to a sample of 2848 students from randomly selected secondary schools in Babel governorate, during the period from 1<sup>st</sup> January to the last of February 2011.

**Results:** The study showed that 3% of the sampled students always feel hungry and 54.2% always not skipping breakfast. Female skipping breakfast more than male and the difference was statistically significantly but the skipping rate difference was not significant between urban and rural areas. The consumption of food items including fruits about 31.1% in three serving and more daily, about 21% eating vegetables in more than three serving daily, more than 28% drinking sweetener soft drink or soda more than three times daily, 77.8% eating high fats diet three times and less daily and about 25.9% were not consuming milk and dairy products daily.

**Conclusions:** There were unhealthy eating habits including less than normal number of servings for most of food items (fruits, vegetables, dairy products and fruit juices) and high usage of sweetener soft drink and unhealthy snack food.

**Keywords:** Cross-sectional study, secondary schools, Babel, Adolescence, unhealthy eating habits

## INTRODUCTION

Adolescence (from Latin: adolescere meaning "to grow up" is a transitional stage of physical sex and mental human development generally occurring between puberty and legal adulthood (age of majority), but largely characterized as beginning and ending with the teenage stage.<sup>[1]</sup> According to Erik Erikson's stages of human development, for example, a young adult is generally a person between the ages of 20 and 40, whereas an adolescent is a person between the ages of 13 and 19 years.<sup>[2]</sup>

Nutritional needs during adolescence are increased because of the increased growth rate and changes in body composition associated with puberty.<sup>[3]</sup> For that reason sound nutrition can play a role in the prevention of several chronic diseases, including obesity, coronary heart disease, certain types of cancer, stroke, and type 2 diabetes.<sup>[4]</sup> Nutrition was a priority area for the "Healthy People 2010" and remains an important objective for the "Healthy People 2020".<sup>[5]</sup> To help prevent diet-related chronic diseases, researchers have proposed that healthy eating behaviors should be established in childhood and maintained during adolescence.<sup>[6]</sup> Puberty is also a time of significant weight gain; 50% of adult body weight is gained during adolescence. In boys, peak weight velocity occurs at about the same time as peak height velocity and averages 9 kg/year. In girls, peak weight gain lags behind peak height velocity by  $\approx 6$  months and reaches 8.3 Kg/years at  $\approx 12.5$  years of age.<sup>[7]</sup>

The study was conducted aiming to assess the attitude and practice of students in Babel governorate secondary schools about factors affecting their nutritional status and the relation of some of these factors with demographic characteristics.

## PATIENTS AND METHODS

**Setting:** Babel governorate secondary schools during the period from 1<sup>st</sup> January to the last of February 2011.

**Design:** A cross sectional study carried out among students in eight secondary schools choosing randomly in Babel governorate. The study population includes all students (First Class to Fifth Class) attending these secondary schools. The total numbers of the students were 2848. Self-administered questionnaire distributed to the students to fill in 15-20 minutes. The questionnaire included factors associated with eating habits especially the consumed number of servings per day (for fruits, fresh green vegetable, high fats diet and milk and dietary

products daily) number of days eating fast food per week, skipping breakfast, and the possible reasons prevent teens from eating breakfast daily and the association with demographic factors (age, sex and residency). The self-administered questionnaire was coded for each student. The absent students, those not completing papers and/or leaving some questions without answers were neglected.

**Sampling:** The sample size for the study was calculated using EPI-Info version-6 statistical software with the assumption that the proportion of adolescent communicating on nutritional status issues to be 50%, 95% CI, 5% marginal error, and 5% non-response rate, a total of 2848 students was required for the study.

**Data entry and analysis:** Data were entered using EPI-Info version-6 and analyzed using SPSS version-19. Data were summarized using frequency and proportion. Chi-squared test and Odds Ratio with its 95% Confidence Interval (95%CI) were used for assessing significance of associations and risk measurements respectively. P value of equal or less than 0.05 was used as the level of significance.

## RESULTS

A total of 2848 students were involved in the study, their mean age was  $15.38 \pm 1.59$  years, 34.5% of students were 13-15 years in age and 63.5% were 16-18 years. The gender distribution was 40.5% males and 59.5% females with a percentage of 44.3 of students living in urban and the rest in were in rural areas (55.7%), (Table 1).

**Table 1.** The age, gender, and residence distribution of students

		Total students (2848)	
		No.	%
Age groups (Years)	13-15	981	34.5
	16-18	1867	63.5
Gender	Male	1154	40.5
	Female	1694	59.5
Residency	Urban	1263	44.4
	Rural	1585	55.6

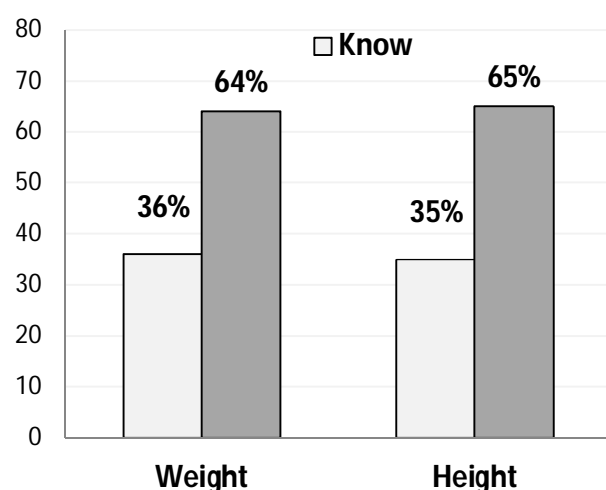
About one third of the students knew their weight (36%) and about the same percentage who knew their height (35%) (Figure 1). Students reported that they always feel hungry in presence of food in their home were 85(3%) and eating breakfast (not skipping) were 1544 (54.2%), (Table 2).

**Table 2.** The distribution of students according to feeling hungry in spite of presence of food in home and eating breakfast daily

	Frequency of feeling hungry and daily consumption% of breakfast(n=2848)				
	Never	Rarely	Sometimes	Most of the time	Always
Feeling hungry	1316 (46.2%)	621(21.8%)	726 (25.5%)	100 (3.5%)	85 (3%)
Eating breakfast	114 (4%)	333 (11.7%)	570 (20%)	282 (9.9%)	1544 (54.2%)

**Table 3.** The distribution of students according to the breakfast skipping possible reasons and stratification according to gender and residency

		Frequency of breakfast skipping possible reasons of students (n=2848)				
		Eat always	No time to eat	Unable to eat at morning	No breakfast at home	Other reasons
Breakfast		1544(54.2%)	418(14.7%)	743(26.1%)	23(0.8%)	120(4.2%)
Gender*	Male	714(61.8%)	170(14.7%)	177(15.3%)	12(1%)	83(7.3%)
	Female	788(46.6%)	272(16.1%)	582(34.4%)	12(0.7%)	38(2.2%)
Residency	Urban	668(52.9%)	183(14.5%)	362(28.6%)	15(1.2%)	35(2.8%)
	Rural	880(55.5%)	225(14.2%)	384(24.2%)	10(0.6%)	86(5.5%)
*Significant using Chi-square test at 0.05 level; Odds ratio= (1.85)						



**Figure 1.** The frequency of students knowing their weight and height.

Stratification of the sampled students eating breakfast according to gender showed that more than half of males (61.8%) and less than half of females (46.6%) were not skipping their breakfast. Residency showed that more

than half of the sampled students (52.9 and 55.5%) in both urban and rural area respectively were not skipping their breakfast. The possible reasons of skipping breakfast was no time to eat (14.7%), unable to eat at morning (26.1%), and no breakfast at home (0.8%). Eating always the breakfast (Not skipping) in female was 46.6% which was less than in male (61.8%). Inability to eat at morning was two folds more in females (34.4%) than in males (15.3%) as a possible reason reported by students to skip the breakfast. Gender difference was statistically significant ( $P < 0.05$ ) with 1.85 odds ratio (Table 3).

Some of sampled students (2.75%) never consuming fruits and minority (13.6%) consuming high fats diet and fruit juice (13%). Less than one third of students never consume milk and dairy products. The students consuming three serving and less was for fruits in 66.4%, vegetables (79%), sweetener soft drink and/or soda (72%), high fats diet (77.8%), fruit juice (76.1%) and milk and dairy products (70.4%). The frequency of daily consumption of food items more than three serving was less than third, 31.1% for fruits, 21% for vegetables and 3.7% for milk and dairy products (Table 4).

**Table 4.** The distribution of students by frequency of consuming food items.

	Frequency of daily consumption of food items (n=2848)		
	Never	≤ 3 servings	>3 servings
<b>Fruits</b>	77 (2.7%)	1891(66.4%)	886 (31.1%)
<b>Vegetables</b>	-	2250 (79%)	598 (21%)
<b>Sweetener soft drink &amp;/or soda</b>	-	2050 (72%)	798 (28%)
<b>High fats diet</b>	387 (13.6%)	2216 (77.8%)	245 (8.6%)
<b>Fruit juice</b>	370 (13%)	2167 (76.1%)	311 (10.9%)
<b>Milk and dairy products</b>	738 (25.9%)	2005 (70.4%)	105 (3.7%)

Regarding fast food and unhealthy snack food, males were more than females eat fast unhealthy snack food with a frequency of more than 3 servings per day (57.2 vs. 41.8%). About two thirds of females (70.6%) reported never eating fast food and unhealthy snack food while about one third of males (29.4%) reported such practice (Table 5).

**Table 5.** The distribution of students by eating fast food and snack daily according to gender.

	Eating fast food and high calories snacks /week (n=2848)		
	Male	Female	Total
<b>Never</b>	403(29.4%)	968(70.6%)	1371(48%)
<b>≤ 3 days</b>	576(50.1%)	592(49.9%)	1168(41%)
<b>&gt;3 days</b>	177(57.2%)	132(41.8%)	309(11%)
<b>Total</b>	1156	1692	2848

## DISCUSSION

According to the World Health Organization, the most important risk factors of non-communicable diseases in the Arab countries included high blood pressure, high concentrations of cholesterol in the blood, inadequate intake of fruit and vegetables, overweight or obesity, physical inactivity and tobacco use (five of these risks are closely related to improper diet and physical inactivity).<sup>[8]</sup>

Teenage girls may become overly sensitive about their weight. This concern arises because of the rapid weight gain associated with puberty. Sixty-two percent of

adolescent girls report that they are trying to lose weight.<sup>[9]</sup> A small percentage of adolescent girls (1-3%) become so obsessed with their weight that they develop severe eating disorders such as anorexia nervosa or bulimia.<sup>[10]</sup>

In our study, only more than one third of sampled students knew their height (35%) and weight (36.3%), although self-reported data are valuable but it such data may underestimate overweight prevalence with added bias by sex and weight status. Lower sensitivities of self-reported data indicate that one-fourth to one-half of those overweight could be missed. Studies conducted in the United States compared self-reported and directly measured height, weight, and/or body mass index data to classify overweight among adolescents found that self-reported data for classification of overweight ranged from 55% to 76%. Overweight prevalence was -0.4% to -17.7% lower when body mass index was based on self-reported data versus directly measured data.<sup>[11]</sup>

Selecting food is one of the most common and mundane activities consumers pursue several times each day. Eating healthy poses a constraint on people's food choice: rather than selecting what seems most appropriate to satisfy their appetite, they need to select from a subset of foods that are also healthy or skip an opportunity to eat (e.g., choose small packages to limit their food consumption).<sup>[12]</sup> The desire to eat healthy thus competes with the desire to fulfill one's appetite, such that people experience a self-control conflict between eating healthy and eating freely.<sup>[13]</sup>

According to certain unhealthy eating habits including feeling hungry in presence of food at home in our study, less than half of sampled students reported never feel hungry in presence of food at home while 3% always did so. Adolescents may want to follow a new fad diet (popular diet) if they see their friends or famous people following these diets. These diets may not have all the Nutrients need to grow and stay healthy in addition to high rate of hyperactivity, absenteeism, and tardiness among hungry-at-risk children than not-hungry children.<sup>[14]</sup>

Students reported low proportion of eating fruits in three serving and more per day (31.1%), this may reflects either the family does not know well the groups of healthy diet or because of economic reasons especially in big families where it is difficult to have available fruits for all members in good and acceptable quality. But for green vegetables, although present in good quality and

their cost were reasonable, only 21% ate three servings and more daily. There is evidence of a positive link between fruit and vegetable consumption and bone mineralization.<sup>[15]</sup> A study reported that mean intake of the vegetables and fruit group falls below the recommended level of 5 servings per day for both boys and girls affects bone mineralization in girls only and hence necessitating the need to understand food intake patterns for optimal bone growth of adolescents.<sup>[16]</sup>

Eating breakfast is important for the health and development of children and adolescents. Breakfast helps children pay attention, perform problem-solving tasks, improves memory,<sup>[17]</sup> have fewer absences and incidents of tardiness,<sup>[18]</sup> get more of important nutrients, vitamins and minerals such as calcium, dietary fiber, folate and protein,<sup>[19]</sup> and less likely to be overweight.<sup>[20]</sup>

Regarding the skipping of breakfast about 15.7% of sampled students never and rarely eaten their breakfast (skipping) and only 54.2% always eaten their breakfast. The reasons reported by sampled students showed that, 14.7% they have no time to eat, 26.1% unable to eat, 1% had no breakfast at home and 4% had other reasons. Gender differences were highly statistically significant and female skipping the breakfast more than male. In Australian survey concerning the extent of skipping breakfast, results indicated that approximately 12% of the sample skipped breakfast. Gender was the only statistically significant socio-demographic variable, with female skipping at over three times the rate of male. The reasons given for skipping breakfast were almost exclusively lack of time and not being hungry in the morning.<sup>[21]</sup>

Regarding consuming dairy products and milk, the sampled students reported that one quarter 25.9% never eat dairy products or drinking milk, less than three quarters 70.4% consuming three serving s and some 3.7% consuming more than three serving per day, this might reflect that family not pay attention to this main groups of healthy food and might be not encouraging their children to consume. Milk and 100% fruit juice represent good sources of water and provide key nutrients such as calcium and vitamin C.<sup>[22]</sup> Other beverages, referred to as sugar drinks or sugar-sweetened beverages (SSBs) also as a source of water but have poor nutritional value. SSBs are the largest source of added sugars in the diet of United States youths, and the increased caloric intake resulting from these beverages is one factor contributing to the prevalence of obesity among adolescents in the United States.<sup>[23]</sup> Increased

consumption of sugar-sweetened beverages, sugars and sweets, and sweetened grains decreased the likelihood of meeting the Dietary Reference Intakes (DRI) for micronutrients calcium, folate, and iron.<sup>[24]</sup> Adolescents may drink a lot of soda and not drink any milk; this might lead to no enough calcium to be taken if he/she does not drink milk or eat other dairy foods. About 72% of sampled students drinking sugar-sweetened beverages (SSBs) and/or soda three servings and less daily while 28% drinking more than three servings per day. A recent meta-analysis study founded that soft drink intake associated with increased energy intake and body weight, and with lower intakes of milk, calcium, and other nutrients.<sup>[25]</sup> Among adolescents specifically, SSB consumption can contribute to weight gain, type 2 diabetes, and metabolic syndrome.<sup>[23]</sup>

Regarding the attitude toward the high fats diet which included hamburgers, French fries, pizza, potato chips, candy and soda, minority of sampled students (13.6%) never eat high fats diet, this might reflect that students could be afraid not to gain weight or they learn from school or family their health or weigh might be affected. More than three quarters of sampled students (77.8%) consuming three servings and less per day while minority of them (8.6%) more than three serving per day. Many adolescents receive a higher proportion of energy from fat and/or added sugar and have a lower intake of a vitamin A, folic acid, fiber, iron, calcium, and zinc than is recommended.<sup>[26]</sup>

In conclusion, secondary school students had a number of unhealthy eating habits including not knowing their weight and height, less than recommended number of servings for most of healthy food items (fruits, vegetables, dairy products and fruit juices) and had high usage of sweetener soft drink and unhealthy snack food.

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