

Relationship between Diet Quality and Obesity in Tikrit Secondary Schools Students

Athraa Essa Ahmed¹; Shaimaa Essa Ahmed²

¹Family and Community Medicine Department, College of Medicine, Tikrit University;² Basic Science, College of Dentistry, Tikrit University, Iraq

Abstract

This study to estimation the relation between diet quality and adiposity measures among secondary school students in Tikrit City. **Patients and methods:** cross-sectional descriptive epidemiological study was carried out to estimate the relation between diet quality and it's association with anthropometric changes among 153 students (80 girls and 73 boys) in secondary school students in Tikrit city and also its association with demographic differences selected by means of a simple random sample. **Results:** In this study, a total of 153 secondary school students were surveyed. The majority were females (52,29%) and most of them (41.25%) were between 16-18 years old. Most of them (55.56%) had a BMI range from 18.5-25 and their waist-to-height ratio (< 0.5) were (67.32%). (32.03%) of students had a family history of obesity while (67.97%) had a negative family history. **Conclusions:** Most of the students have a normal BMI (55.56%) , so the frequency of overweight was more common in female gender (60%), while in male (50.68%). And (32.03%) of students had a positive family history of obesity while (67.97%) had negative family history, From students who have a positive family history, (32.66%) had an overweight BMI (25-30) and (44.9%) waist-to-height ratio which considered as indication of central obesity.

Keywords: diet quality ; adiposity measures ; secondary school students ; Tikrit city

Introduction

In adolescence and childhood , it was suggested that food should have a lasting impact on the child's development in various aspects of life also on Chronic disease as the obesity ⁽¹⁾ .Good nutrition with healthy diet during childhood and adolescence is essential for growth, development, health and well-being⁽²⁾ . Unhealthy diet is considered as a behavioral risk factor for hypertension and other cardiovascular disease⁽³⁾ .

Obesity increased in the societies due to poor eating habits like increase consumption of sweetened beverages, energy-dense foods and change in the eating behaviour to Consumption of refined grains; fats added ; sugars added ; snacks ; Drinks; eat away from home ⁽⁴⁾ .

Obesity is often defined as a state of abnormal or excessive fat accumulation in adipose tissue, to the extent that health may be impaired⁽⁵⁾, and obesity is measured in various ways such as body mass index (BMI); percentage of body fat measurements; Waist-to-hip ratio; waist circumference; and skinfold ⁽⁵⁾ .

High rate of overweight and obesity in many countries has been described as a global pandemic⁽⁶⁻⁸⁾ .

In the previous, the obesity is a problem in only high income countries , but now obesity and overweight become increased in both low- and middle-income countries, especially in urban region ⁽⁹⁾ .

In 2016, more than 1.9 billion adults, 18 years and more than , were overweight from 650 million were obese⁽¹⁰⁾ , also in in 2016 more than 41 million children with age less than 5 years suffering from overweight or obese ⁽¹¹⁾ , Also in 2016 , more than 340 million children and adolescents with aged range from 5-19 were suffering from overweight or obese ⁽¹¹⁾ . So prevalence of overweight and obesity among children and adolescents in age range 5-19 years were increased from 4% in 1975 to 18% in 2016, overweight in boy (19%) more than girls (18%)⁽¹¹⁾ . Nearly 1 in 5 children and adolescents are overweight or obese⁽¹¹⁾.

Diet quality also associated with mental health problems such as depression ⁽¹²⁾ , Eat perfect food is associated with an increase in life expectancy, a

significant reduction in the risk of chronic disease throughout life, and improved gene expression⁽¹³⁾.

In one study found good diet quality associated with 12-28% reduced risk of all causes, cardiovascular disease and cancer mortality in men and women ⁽¹⁴⁾.

Good diet quality should associate with good water as Good hydration is vital for good health and well-being⁽¹⁴⁾, and physical activity as it reduces the risk of chronic disease and obesity⁽¹⁴⁾.

Physical inactivity was associated with higher risk of diabetic (type-2), regardless of BMI ; Gender ; age and ethnicity ⁽¹⁵⁾. Individuals with mild, moderate or active physical activity were at lower risk of CVD deaths , regardless of their metabolic risk factors ⁽¹⁶⁾, therefore the aim of current study to estimate how diet quality of meals can affect anthropometric measures ; identify amount of water intake and its association with anthropometric measures ; identify students with a family history of obesity and its association with anthropometric measures; determine daily activities of students, including the frequency and duration; and measure frequency of obesity among secondary school students in Tikrit city.

Patients and Methods

Cross-sectional study was used to assess the diet quality of secondary school students in Tikrit city and it’s association with anthropometric measures (BMI and waist-to-height ratio). The duration of the whole study was almost four months, the data was collected from the 1st of November to the 1st of January. The data was analyzed and the report was written from 1st of January to the 25th of March. The data was collected by simple random sample and the number of samples are 153 cases

of both genders from secondary school students.

The data was collected by the members of our study group from the following secondary schools (Ibn-almotam ,Al-Khansaa and Al-Mustansrya), A suitable questionnaire was designed in Arabic language and contained (name, age ,class ,gender ,types of foods eaten regularly by students ,water intake ,activity , family history of obesity) to achieve the objectives. The questionnaire directed by interviewer.

The weight is measures for each student participant in the study. It is measures without shoes. The height of students is measures without shoes by using measuring tape of height 2 meters. The individual should stand on a flat surface, the head upward and the head, back and heel are against the wall.

The BMI is calculated as weight (kilograms) / height (meters)squared. The height was taken (to the nearest 0.1centimeter) and weight (to the nearest 0.1kilogram). Waist: height ratio will calculated as waist circumference / height and the measures was taken to the nearest 0.1centimeter. We explained the purpose and aim of the study and only those who agreed to participate in the study included in the study and we also focus on the privacy of the information that taken from the students.

Finding

A total of 153 secondary school students were surveyed. The majority were females (52,29%) and most of them (41.25%) were between 16-18 years old. Most of them (55.56%) had a BMI range from(18.5-25) and their waist-to-height ratios(< 0.5)were (67.32%) so (32.03%) of secondary school students had a family history of obesity while (67.97%) had a negative family history.

Table (1) Distribution of secondary school students according to demographic characteristics of the study sample

Characteristic	Males		Female		Total
	Number	%	Number	%	
Gender	73	47.71	80	52.29	153(100%)
Age(years)					
12-14	19	26.03	16	20	35(22.88)

Cont... Table (1) Distribution of secondary school students according to demographic characteristics of the study sample

>14-16	16	21.92	21	26.25	37(24.18)
>16-18	30	41.1	33	41.25	63(41.18)
>18	8	10.96	10	12.5	18(11.76)
Family history of obesity					
Yes	23	31.51	26	32.5	49(32.03%)
NO	50	68.49	54	67.5	104(67.97%)

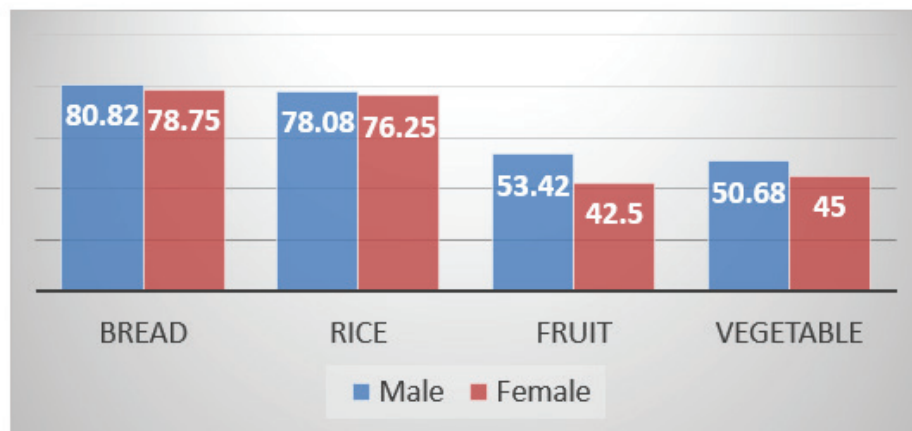


Figure (1): - percent of secondary school students who eat these important sources of carbohydrate in a regular manner weekly.

The figure shows bread as the most common source of carbohydrate in diet among male students 59/73 (80.82%), and also female 63/80 (78.75%).

Also The figure show that second most common source of carbohydrate in diet among male students 57/73 (78.08%) was rice, and also female 58/80 (76.25%).

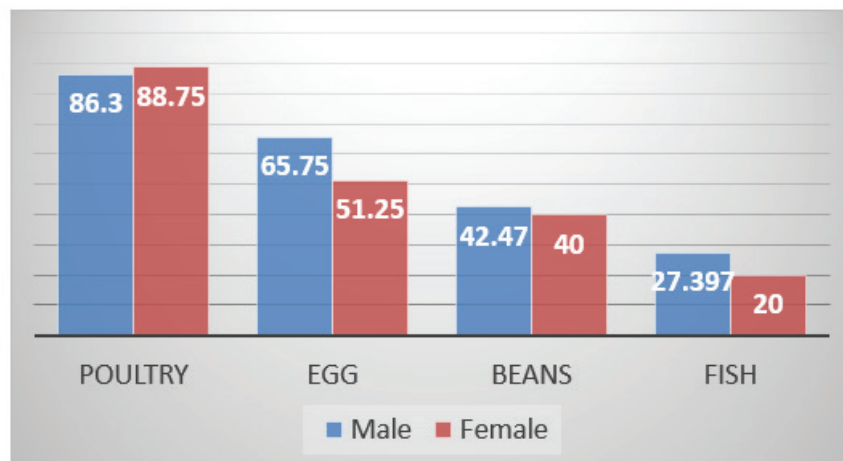


Figure (2): - percent of secondary school students who eat these important sources of protein in regular manner weekly.

The figure shows poultry as the most common source of protein in diet among female students 71/80 (88.75%), and also male 63/73 (86.3%).

Also The figure show that second most common source of protein in diet among male students 48/73 (65.75%) was egg, and also female 41/80 (51.25%).

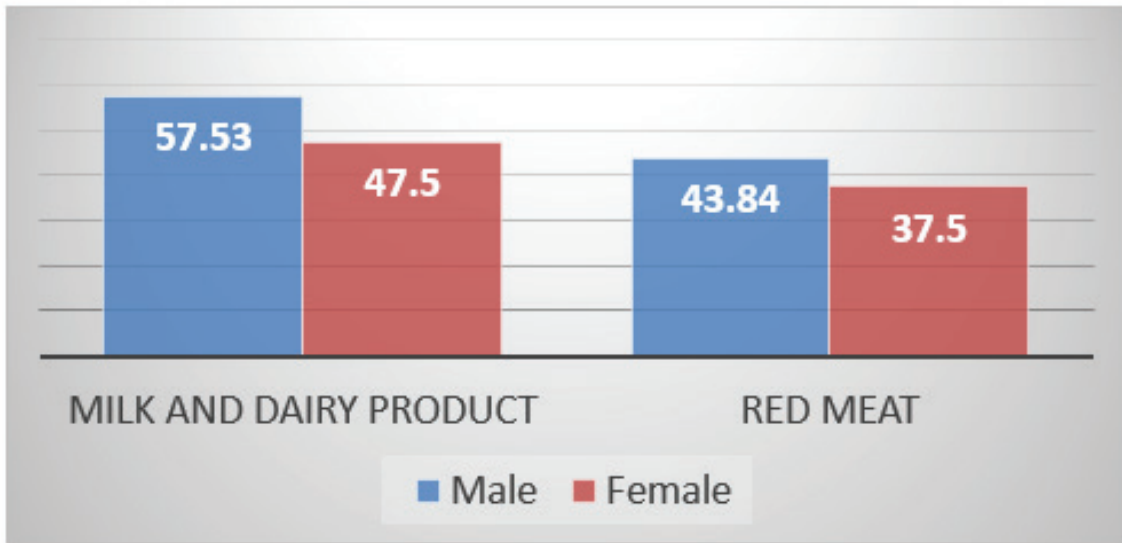
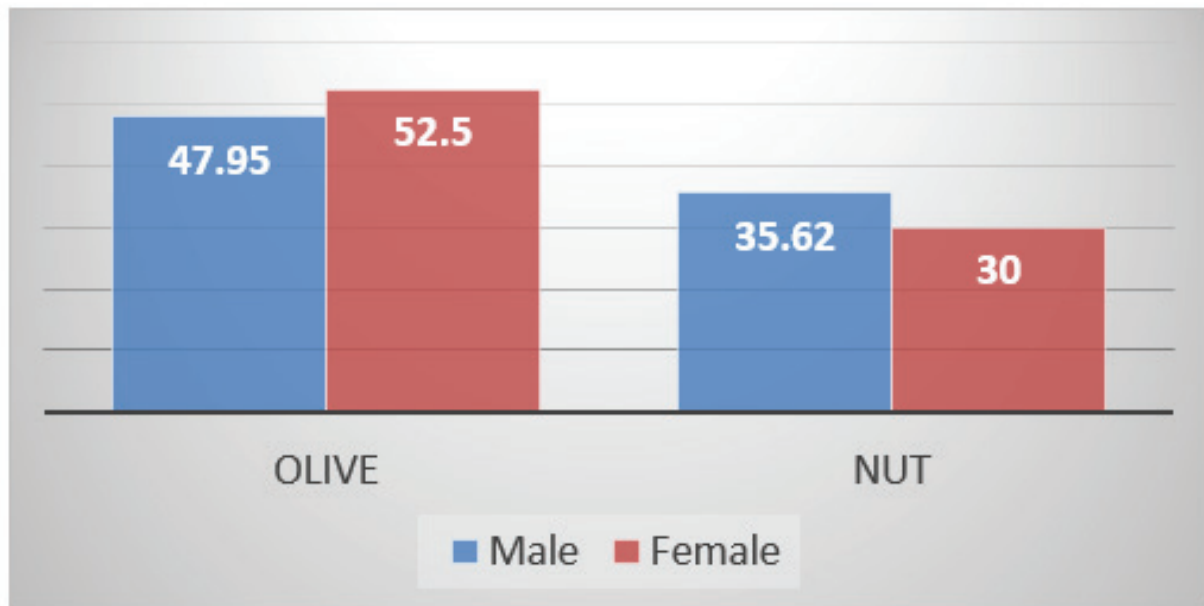


Figure (3): - percent of secondary school students who eat these important sources of saturated fat in regular manner weekly.

The figure shows milk and dairy product as the most common source of saturated fat in diet among male students 42/73 (57.53%), and also female 38 (47.5%).

Also The figure shows that the red meat comes behind milk and dairy product as a second source of saturated fat in diet among male students 32/73 (43.84%), and also female 30/80 (37.5%).



Figure(4): percent of secondary school students who eat these important sources of unsaturated fat in regular manner weekly.

The figure shows olive as the most common source of unsaturated fat in diet among female students 42/80 (52.5%), and also male 35/73 (47.95%).

Also The figure shows that the nut comes behind olive as a second source of unsaturated fat in diet among male students 26/73 (35.62%), and also female 24/80 (30%).

Table (2): - body mass index (BMI) score of the secondary school students involved in the study according to the gender.

Age (years)	BMI				Total
	Male		Female		
	Number	Percents	Number	percents	
18.5>	14	19.18	8	10	22(14.38%)
18.5-25	37	50.68	48	60	85(55.56%)
25-30<	15	20.55	16	20	31(20.26%)
<30	7	9.59	8	10	15(9.8%)

This table shows that Most of the secondary school students 85/153(55.56%) had a BMI range from 18.5-25, were 48/80(60%) from female and 37/73(50.68%) from male within this BMI range.

Discussion

The majority of secondary school students with normal BMI (55.56%) and their waist-to-height ratio (<0.5) were (67.32%) and this is matching a result from a research which was done 6 years ago in United states of America that found two thirds of samples had a normal BMI and waist-to-height ratio was 0.49.⁽¹⁷⁾

According to this study, the most common age group was between 16-18 years which was (41.18%), and this agree with research was conducted in United States of America in 2012 which show that the most affected age group were between 12 18 years old (42.3%).⁽¹⁷⁾ According to this study, the most common source of protein was poultry (88.75%) among females and in males (86.3%) and this is agree with another study done in United kingdom in 2012.⁽¹⁶⁾ According to this study, the most common source of carbohydrate was bread (80.82%) among male and among females (78.75%) while in another study done in Norfolk, United Kingdom at 2012 found that fruit and vegetables were more common but this study not mention the percentage⁽¹⁶⁾

In this study the percentage of family history of obesity in students was (32.03%) and this is disagree with another study in Kirkuk city which reveal that (59.2%) of them has a family history of obesity⁽¹⁶⁾.Also

this matches with another study occurred in Kirkuk city before 5 years (61.5%) was the percent of secondary school students with normal BMI⁽¹⁶⁾,this study indicated that female students (60%) more obese than male students (50.68%) and this disagree with a study in Erbil that reveal male students⁽¹⁸⁾.

Conclusion

- Most of the students have a normal BMI (55.56%) .
- The frequency of overweight was more common in female gender (60%), while in male (50.68%).
- The frequency of obesity was more common in female gender (10%), while in male (9.59%).
- Most common age group involved in the study were between 16-18 and account for (41.18%).
- (32.03%) of students had a positive family history of obesity while (67.97%) had negative family history
- From students who have a positive family history, (32.66%) had an overweight BMI (25-30) and (44.9%)waist-to-height ratio which considered as indication of central obesity.

- Regarding carbohydrates, the most common source taken by students is bread (79.74%)
- Regarding protein, the most common source taken by students is poultry (87.58%).

Conflict of Interest : None.

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Ethical Clearance: Taken from student and college.

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