



Prevalence of the Obesity among Intermediary School Students in Al Leith Saudi Arabia, 2018.

Alashary Adam Eisa Hamdoon¹, Naif Saleh Jaddua Almutairi¹, Abdulhadi Hussain Hasen Alfahmi¹, Fahad Abdalla Ahmed Albarakti¹, Ali Salim Ibrahim Alfaqih¹, Mohammed Atiyah Mohammed Al Rahmani¹, Tariq Abdullah Ahmed Zafar¹, Ahmad Salim Binmahfoz¹, Modawy Elnour Modawy¹,
Omer Ibrahim Abdallah¹,

1- Department of public health, College of health sciences at Al Leith, Umm Al-Qura University, Kingdom of Saudi Arabia.

Corresponding Author: Alashary A. E. Hamdoon

Abstract:

This is school based cross sectional descriptive study was conducted among intermediary school students to assess the obesity and associated factors. All intermediary schools in the study area were selected; the study covered all students. Information on socio-demographic, feeding pattern, hours of television watching and computer, video games and physical activity was collected by questionnaire. Each student was weighed and height was measured using a portable stadiometer. Body mass index was calculated by dividing weight in kg by square height in meters. The data was expressed as counts and percentage using SPSS also figures were found. There were 114 students from the age 14 years (52.8 %) followed by 71 (32.9%) from the age 15 years and 31 (14.3%) from the age 13. The study showed that the Prevalence of obese students was (19%), overweight was (16%) while about (53%) of students were normal, (10%) moderate and (2.3%) have severe malnutrition. The BMI is significantly higher among families of students have 5000 – 10000 SR monthly income. Most of the students (81.9%) take fast food. Half of the students (49.5%) take short meal before the basic meal. About 118 (54.6%) students eat three meals per day and 133 (61.6%) were take basic meal in allotted time. Majority of students (72.7%) play foot ball, (10.2%) walk, (6.9%) use bicycle, (3.7%) run, (3.2%) swimming, (2.3%) use billiard and (0.9) play tennis. This study found a relatively high prevalence of obesity and overweight among intermediary school students aged 13 – 15 years in Al Leith city.

Key Words: *Body mass index, Obesity, Overweight, Students. Al Leith city*

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I. INTRODUCTION

Obesity is a disease of multiple and complex causes leading to accumulation of large amounts of body fat due to an imbalance between energy intake and output (Talat and El Shahat, 2015). Obesity and overweight have become a global epidemic, and it is still increasing in both industrialized and developing countries (Goyal et al., 2010). The new WHO report indicated that 1.6 billion adults were overweight and more than 400 million adults were obese, and at least 20 million children under 5 years were overweight (Allison et al., 2015). Globally, the rates of obesity in children have more than doubles while rates in adolescents have tripled. Overweight and obesity in youth, significantly increase the risk of becoming overweight during adulthood (Qadir et al., 2014). The rate of obesity has tripled in developing countries over the past 20 years as they rapidly become more urbanized, with increased consumption of high calorie foods and adoption of a more sedentary lifestyle (Ning et al., 2015). Estimates for the global prevalence of overweight and obesity among children and adolescents were made in 2004 and it was concluded that 10% of school-age children (age range: 5-17) were overweight, of which about a quarter (2-3% of school-age children) were obese. The estimate suggested some 150-160 million school-age children worldwide were overweight, of which some 35-40 million were obese (Teshome et al., 2013). Available studies in Eastern Mediterranean countries indicate that obesity has reached an alarming level among both children and adults (Talat and El Shahat, 2015).

In Saudi Arabia, the prevalence of overweight and obesity among school-age children have reached 23% and 9.3%, respectively (Al Shehri *et al.*, 2013). In Saudi Arabia, a study on 48,000 children (6-18 years old) in 1991 found that the prevalence of overweight among Saudi boys was 17.6% and obesity 11.3%. Another study done in 1996 on Saudi male student showed that the prevalence of overweight and obesity was 11.7% and 15.8% respectively. A recent study concluded that obesity prevalence among Saudi school boys (6-12 years old) increased from 3.4% in 1988 to 24.5% in 2005 (Binrshheed, 2013). In Bahrain studies showed a marked increase in obesity noted more among adolescents, ranging from 15% to 45%. In United Arab Emirates (UAE), A national study was done to assess the prevalence of obesity among school children, revealed that UAE children are at increased risk for overweight and obesity. Obesity was 2.3 folds higher among UAE boys and girls at 14 years compared to international standards and reached to 3.6 and 1.9 folds higher among UAE boys and girls respectively at the age of 18 years (Hussain *et al.*, 2015).

During the last three decades, Saudi Arabia has witnessed enormous lifestyle changes. Consequently, physical inactivity and sedentary living with associated rise in obesity are increasingly becoming prevalent in the society (Ali *et al.*, 2016), the susceptible individuals were often exposed to consume more quantities of high energy foods and exhibiting less physical activity. These led to the overweight and obesity epidemics around the world (Sen *et al.*, 2013 ; Tawil *et al.*, 2007). Studies have shown that food containing saturated fat results in greater weight gain compared to food containing unsaturated fatty acids (Soriquer *et al.*, 2003; Piers *et al.*, 2003) Overweight and obesity are associated with infertility, psychological disorders such as depression hypertension, respiratory disease, several orthopedic disorders, diabetes mellitus and elevated serum lipid concentrations (Gortmaker *et al.*, 1990; Goyal *et al.*, 2010 ; Badawi *et al.*, 2013). Globally, 44% of diabetes, 23% of ischemic heart disease and 7 – 41% of certain cancers are attributable to overweight and/or obesity (Askal *et al.*, 2015). Time of watching TV and game with computer and other electronic devices, sleeping time defined as effective factors in obesity among infants and adolescents (Arluk *et al.*, 2003; Fattahzadeh-Ardalani *et al.*, 2017).

II. MATERIALS AND METHODS

School based cross sectional descriptive study was conducted among intermediary school students to assess the obesity and associated factors, Sociodemographic characteristics, Family history of obesity, dietary habits and physical activity. All Intermediary schools in the Al-leith study area were selected these were: 1- Walei Al-ahd School, 2- Alfaisal School, 3- Saeed Bin-alas School. Also all students were selected and covered in this study (Total coverage). Information on socio-demographic, feeding pattern number of meals, fast food consumption, Hours of television watching and computer/video games, eating while television watching and physical activity were obtained by questionnaire.

Anthropometric measurements: Students were weighed standing on the scale with their shoes off. The scales were checked before each measurement for zero adjustment and standardized according to WHO recommendations (Lohman *et al.*, 1991). Height was measured using a portable stadiometer, which consisted of an anthropometer with a simple triangular headboard. Body mass index: it was calculated by dividing weight in kg by square height in meters. The standard of (FANTA) food and nutrition technical assistance, (CDC, 2009) and WHO, 2007 was in this study. Data were entered and statistically analyzed by SPSS (Statistical Package for Social Sciences version 16).

III. RESULTS

A total of 2016 students were involved in this study. Majority of the students 114 (52.8%) were in age 14 years old followed by 71 (32.9) in 15 years old and 31 (14.4%) in 13 years old. The study showed that the proportion of obese students was (19%), overweight was (16%) while about (53%) of students were normal, (10%) moderate and (2.3%) have severe malnutrition in based on BMI for age classification.

The average monthly income of the students families were 5000 – 10000 SR (47.7%), less than 500 SR (25.5%), 11000 – 15000 SR (16.7%) and more than 15000 SR (10.2%). Very large proportion 75 (34.7%), of students eat fruits and vegetables daily. While about 82 (38%) of the students drink gasiform and juices twice times per day. Half of the students (49.5%) take short meal before the basic meal; most of the students 118 (54.6%) eat three meals per day and about 133 (61.6%) were take basic meal in allotted time. About 177 (81.9%) of students eat fast food of them 151 (69.9%) eat fast food once time per day. About 106 (49.1%) of students consumed milk once time per day, 177 (81.9%) take 1 – 2 cups of tea per day, while 201 (93.1%) drink 1 – 2 cups of coffee per day. The types of activity pattern and exercise of students were (72.7%) play foot ball, (10.2%) walk, (6.9%) use bicycle, (3.7%) run, (3.2%) swimming, (2.3%) use billiard and (0.9) play tennis.

Table 1: Distribution of the students Age and their BMI

Age	BMI					N	%
	severe malnutrition	moderate	normal	over weight	obese		
13 year old	0	5	13	7	6	31	14.3
14 year old	3	11	58	20	22	114	52.8
15 year old	2	6	43	7	13	71	32.9
Total	5	22	114	34	41	216	100.0

Figure 1: Distribution of the students Age and their BMI

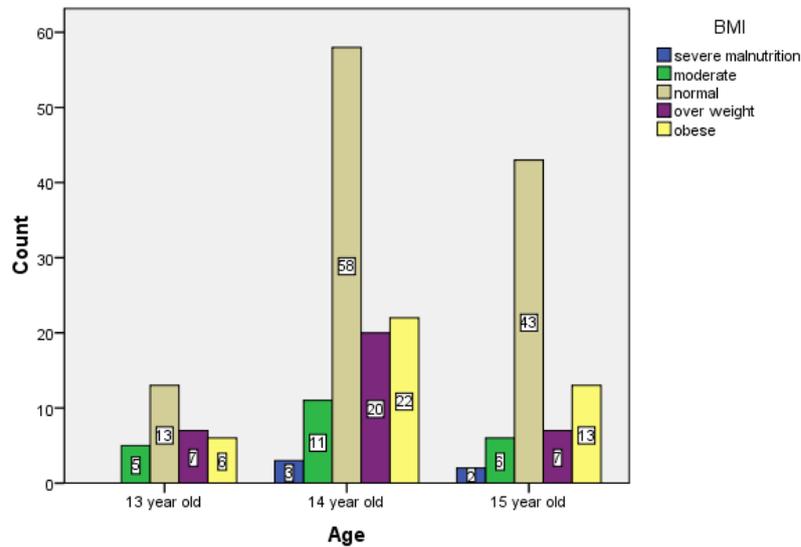


Figure 2: Average of monthly income of the student's families

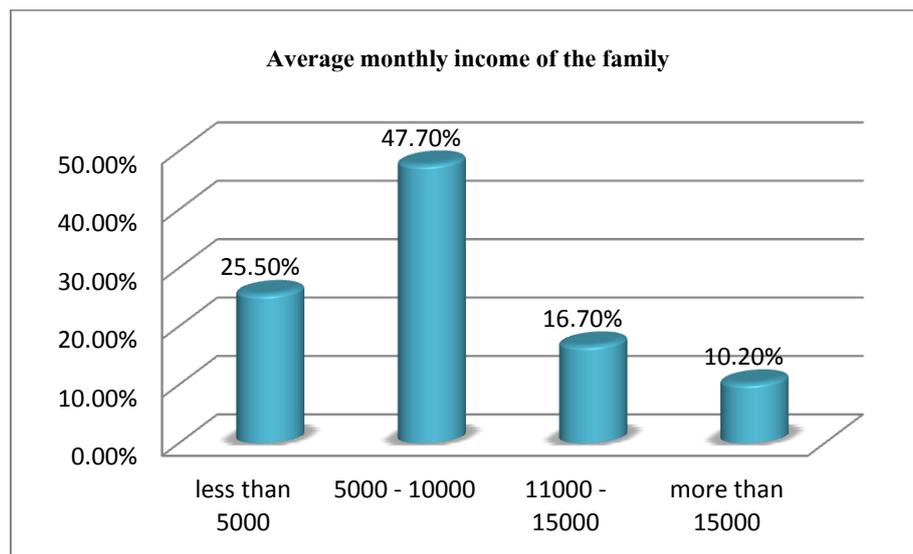


Figure 3: Time of the students for eating fruits, vegetable and their BMI

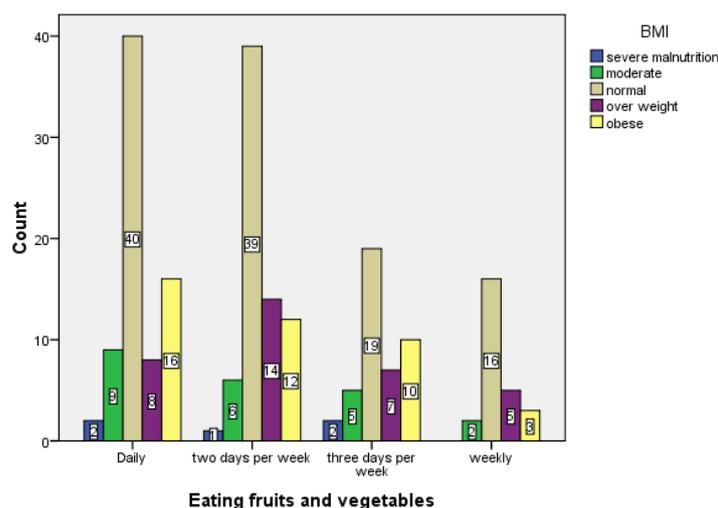
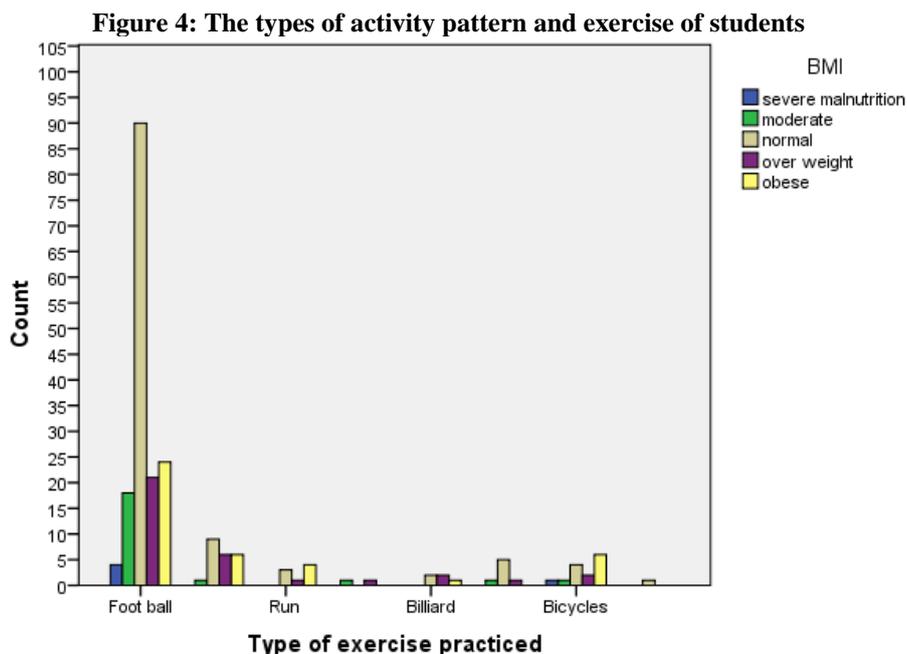


Table 2: Questions on Short Meal, Basic Meal, Fast Food and Number of Meal during the Day

Questions	BMI						N	%
	severe malnutrition	moderate	normal	over weight	obese			
Are you taking a short meal before the main meal	Yes	3	13	62	12	17	107	49.5
	No	2	9	52	22	24	109	50.5
Number of basic meals during the day	two	0	5	31	13	11	60	28
	three	2	11	63	17	25	118	55
	four	1	5	14	4	5	29	13
	more than four	2	1	6	0	0	9	4
Do you eat basic meals in the allotted time	Yes	2	15	70	18	28	133	61.6
	No	3	7	44	16	13	83	38.4
Do you eat food while watching television or electronic games	Yes	4	17	78	23	24	146	67.7
	No	1	5	36	11	17	70	32.4
The number of fast food you eat during the day	one	3	16	70	28	34	151	69.9
	two	2	4	31	6	5	48	22.2
	more than two	0	2	13	0	2	17	7.9

Table 3: Questions on Drink gasiform, juices, milk, tea and coffee

Questions	BMI						N	%
	severe malnutrition	moderate	normal	over weight	obese			
Drink gasiform drinks and juices	once per day	1	6	41	12	18	78	36.1
	twice per day	2	10	45	12	13	82	38
	Three time per day	2	6	28	10	10	56	25.9
Drinking milk	once per day	2	8	57	14	25	106	49.1
	twice per day	2	6	21	12	9	50	23.1
	three time per day	1	8	36	8	7	60	27.8
Drinking tea in the day	1 to 2 cups	5	18	94	27	33	177	81.9
	3 to 4 cups	0	3	12	6	6	27	12.5
	more than 5 cups	0	1	8	1	2	12	5.6
Drinking coffee in the day	1 to 2 cups	5	19	109	31	37	201	93.1
	3 to 4 cups	0	3	3	3	3	12	5.6
	more than 5 cups	0	0	2	0	1	3	1.4



IV. Discussion

The present study demonstrated that obese students were (19%), overweight were (16%) while about (53%) of students were normal, (10%) moderate and (2.3%) have severe malnutrition. While Al Shehri *et al.*, (2013) stated that In Saudi Arabia, the prevalence of overweight and obesity among school-age children have reached 23% and 9.3%, respectively. The results of this study agreement with Binrsheed (2013) who mentioned that the recent study concluded that obesity prevalence among Saudi school boys (6-12 years old) increased from 3.4% in 1988 to 24.5% in 2005. The prevalence of obesity in this study also showed a higher result compared to previous study in Saudi Arabia on 48,000 children (6-18 years old) in (1991) found that the prevalence of overweight among Saudi boys was 17.6% and obesity 11.3%. Another study done in (1996) on Saudi male student showed that the prevalence of overweight and obesity was 11.7% and 15.8% respectively (Binrsheed, 2013). In Bahrain studies showed a marked increase in obesity more among adolescents, ranging from 15% to 45% (Hussain *et al.*, 2015).

in this study, The Average of monthly income of the student's families were found 5000 – 10000 SR (47.7%), less than 500 SR (25.5%), 11000 – 15000 SR (16.7%) and more than 15000 SR (10.2%). The Study has found that BMI is significantly higher among families of students have 5000 – 10000 SR monthly income (middle income). The results of the present study showed that most of the students (81.9%) take fast food of them (69.9%) takes fast food once time per day. These foods contain more fat and considerably less fibre than the recommended levels. Studies have shown that food containing saturated fat results in greater weight gain compared to food containing unsaturated fatty acids (Soriguer *et al.*, 2003; Piers *et al.*, 2003). The rate of obesity has tripled in developing countries over the past 20 years as they rapidly become more urbanized, with increased consumption of high calorie foods and adoption of a more sedentary lifestyle (Ning *et al.*, 2015).

The results of the study reveal that the activity pattern and exercise of students were found (72.7%) play foot ball, (10.2%) walk, (6.9%) use bicycle, (3.7%) run, (3.2%) swimming, (2.3%) use billiard and (0.9) play tennis. the susceptible individuals were often exposed to consume more quantities of high energy foods and exhibiting less physical activity. These led to the overweight and obesity epidemics around the world (Sen *et al.*, 2013 ; Tawil *et al.*, 2007).

V. Conclusion

The study concluded that the prevalence of obese students was (19%), overweight was (16%) while about (53%) of students were normal, (10%) moderate and (2.3%) have severe malnutrition. BMI is significantly higher among families of students have 5000 – 10000 SR monthly income (middle income). Most of the students (81.9%) take fast food. Students preferred to play foot ball (72.7%) as main activity and exercise.

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