RESULTS

The results of the study will be presented as follows:

I. Socio demographic characteristics.

II. Anthropometric measurements.

III. Sociodemographic factors associated with overweight and obesity.

IV. Daily physical activity patterns.

V. Dietary habits.

I-Sociodemographic characteristics:

Table (1): Distribution of the studied group according to sex:

Sex: The studied group	No	%
Males	245	49
Females	255	51
Total	500	100

Table (1) reveals that Male students represent 49% while female students are 51%.

Table (2): Distribution of the studied group according to the Residence:

The studied group : Residence:	No	%
Urban	250	50
Rural	250	50
Total	500	100

Table (2) shows that Urban students equal to rural ones (50% for both).

Table (3): Distribution of the studied group according to the Family Pattern:

The studied group: Family Pattern:	No	%
One parent	45	9
Both parent	455	91
Total	500	100

Table (3) shows that the most of the students' family have both parents (91%).

Table (4): Distribution of the studied group according to their social class:

The studied group: Social standard:	No	%
High	344	68.8
Middle	132	26.4
Low	24	4.8
Total	500	100

Table (4) shows that the Students who belong to high social class represent 68.8% of the sample, while those who belong to middle social class are estimated to be 26.4 % and only few percent (4.8%) belong to low social class.(there is no private school in kafer-saqer district).

Table (5): Percentage distribution of the studied group according to their weight:

The groups	No.	%
Normal weight	200	40.0
Over weight	171	34.2
Obese	122	24.4
underweight	7	1.4
Total	500	100

This table illustrates that among the studied group the prevalence of normal weight is 40 % while that of abnormal weight is 60% distributes as 37.2% overweight, 24.4% obese and 1.4% underweight.
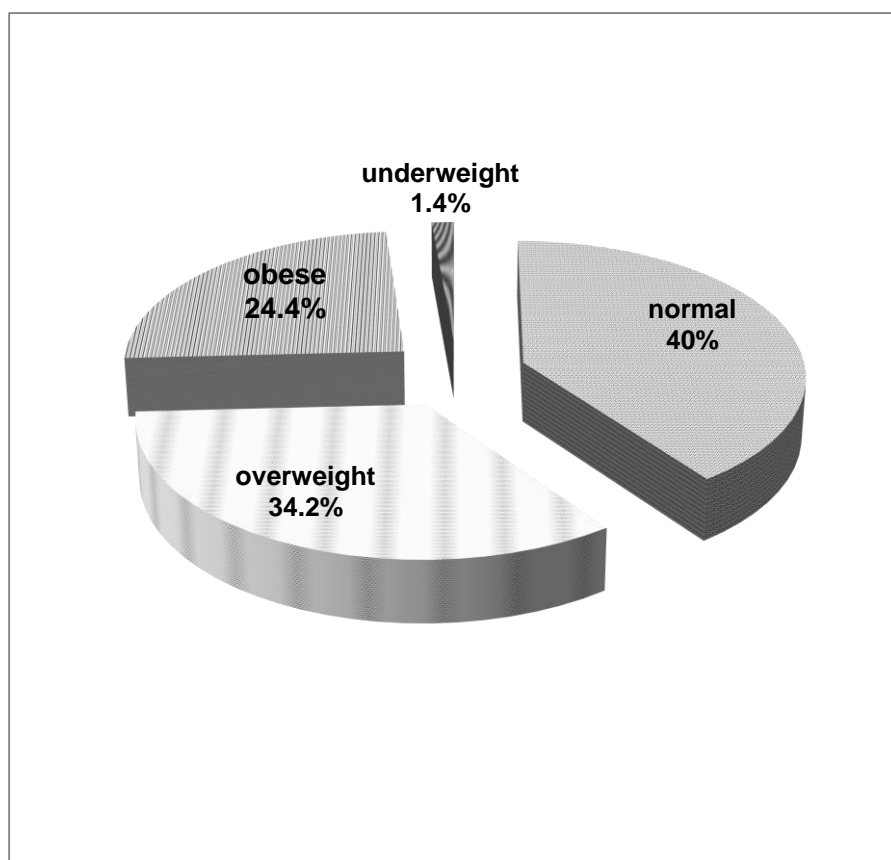
Figure (1): Percentage distribution of the studied group according to their weight.

II. Anthropometric measurements.

Table (6): the percentage distribution of the studied group according to their weight and height:

		BMI classification			F	p
		Normal weight (n=211)	Overweight (n=187)	Obese (n=102)		
Weight (Kg)	Range	18- 49	19- 55	23- 77	57.171	<0.05
	Mean	28.52	35.80	39.68		
	±S.D	8.32	9.83	11.05		
Height (m)	Range	1.02- 1.57	1.07- 1.55	1.10- 1.53	1.172	>0.05
	Mean	1.2931	1.3137	1.3071		
	±S.D	0.1370	0.1296	0.1294		

Table (6) shows that the mean weight of the different groups are 28.52±8.32 kg with the normal weight, 35.80±9.83 kg for the overweight and 39.68±11.05 kg for the obese and it is statistically highly significant (F **(degree of freedom)** = 57.171, p = 0.001). On the other hand, the mean height of the different groups are1.29±0.13m with the normal weight, 1.31±0.13 m for the overweight subjects and 1.31±0.13 m for the obese subjects and it is statistically insignificant (F = 1.172 , p =0.311).

Table (7): Weight (kg) percentiles for female students according to the age in the studied group.

Percentiles Ages	3rd percentile	50th percentile	97th percentile
7 years	19	25	40
8 years	20	31	48
9 years	20	30	56
10 years	23	37	65
11 years	26	38	57
12 years	30	46.5	77

This table illustrated that the 3rd percentile of weight for 7 years old female students was 19 kg, the 50th percentile was 25 kg and the 97th was 40 kg. The 3rd percentile of weight for 8 years old female students was 20 kg, the 50th percentile was 31 kg and the 97th was 48 kg. The 3rd percentile of weight for 9 years old female students was 20 kg, the 50th percentile was 30 kg and the 97th was 56 kg. The 3rd percentile of weight for 10 years old female students was 23 kg, the 50th percentile was 37 kg and the 97th was 65 kg. The 3rd percentile of weight for 11 years old female students was 26 kg, the 50th percentile was 38 kg and the 97th was 57 kg. The 3rd percentile of weight for 12 years old female students was 30 kg, the 50th percentile was 46.5 kg and the 97th was 77 kg.
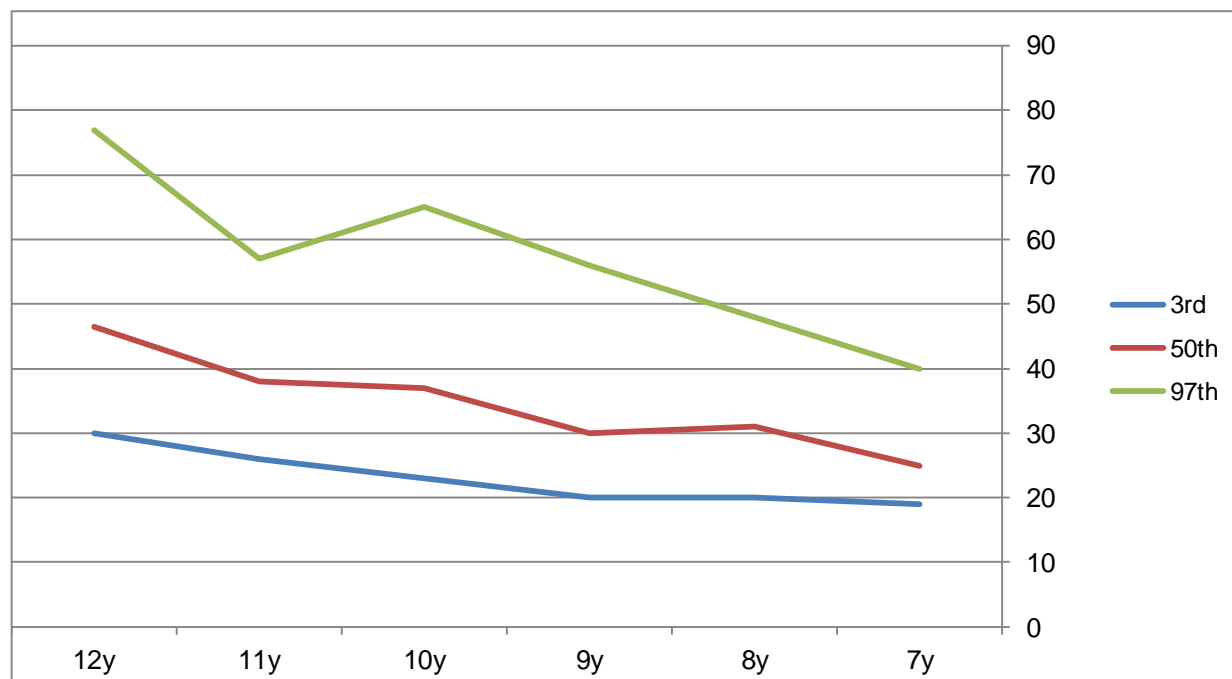
Weight (kg) percentiles for female students

Figure (2): Weight (kg) percentiles for female students according to the age in the studied group.

Table (8): Weight (kg) percentiles for male students according to the age in the studied group.

Percentiles / Ages	3rd percentile	50th percentile	97th percentile
7 years	15.5	23	42.6
8 years	21	27	40
9 years	23	31.5	70
10 years	22	30	53
11 years	23	35	54
12 years	29	47	66

This table illustrated that the 3rd percentile of weight for 7 years old male students was 15.5 kg, the 50th percentile was 23 kg and the 97th was 42.6 kg. The 3rd percentile of weight for 8 years old male students was 21 kg , the 50th percentile was 27 kg and the 97th was 40 kg .The 3rd percentile of weight for 9 years old male students was 23 kg, the 50th percentile was 31.5 kg and the 97th was 70 kg . The 3rd percentile of weight for 10 years old male students was 22 kg, the 50th percentile was 30 kg and the 97th was 53 kg. The 3rd percentile of weight for 11 years old male students was 23 kg, the 50th percentile was 35 kg and the 97th was 54 kg. The 3rd percentile of weight for 12 years old male students was 29 kg, the 50th percentile was 47 kg and the 97th was 66 kg.
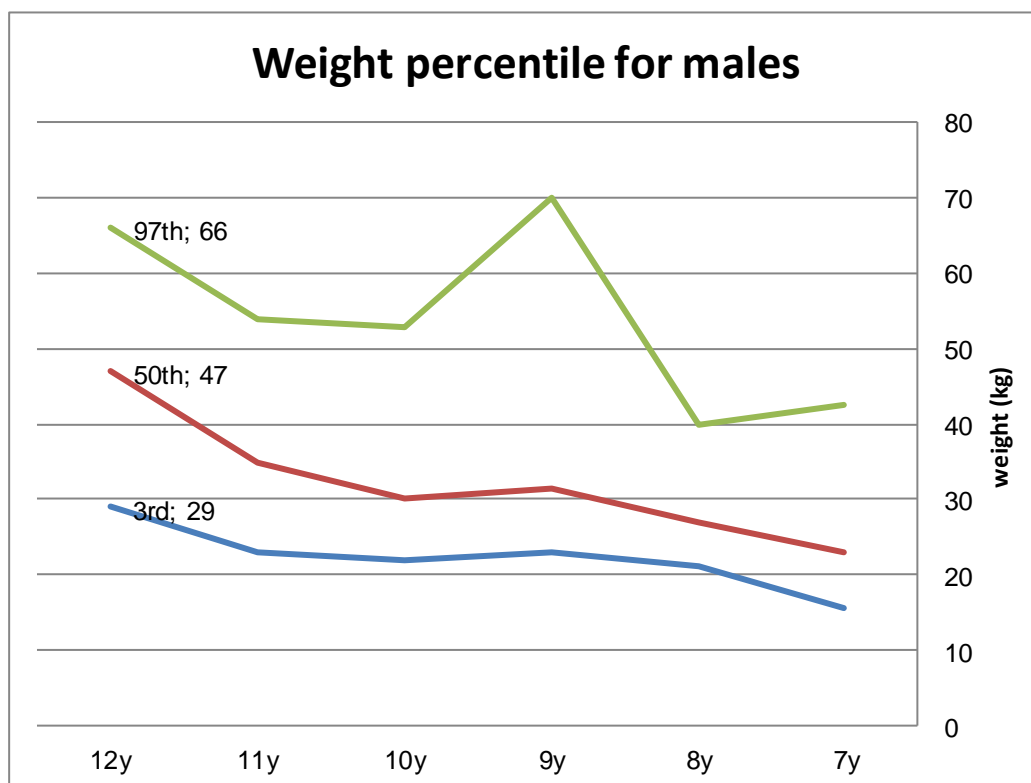
Figure (3): Weight (kg) percentiles for male students according to the age in the studied group.

Table (9): Height (m) percentiles for female students according to the age in the studied group.

Percentiles Ages	3rd percentile	50th percentile	97th percentile
7 years	1.02	1.09	1.4
8 years	1.1	1.2	1.3
9 years	1.05	1.2	1.4
10 years	1.1	1.3	1.4
11 years	1.2	1.33	1.5
12 years	1.3	1.4	1.55

This table illustrated that the 3rd percentile of height for 7 years old female students was 1.02 (m), the 50th percentile was 1.09 (m) and the 97th was 1.4 (m). The 3rd percentile of height for 8 years old female students was 1.1 (m), the 50th percentile was 1.2 (m) and the 97th was 1.3 (m). The 3rd percentile of height for 9 years old female students was 1.05 (m), the 50th percentile was 1.2 (m) and the 97th was 1.4 (m). The 3rd percentile of height for 10 years old female students was 1.1 (m), the 50th percentile was 1.3 (m) and the 97th was 1.4 (m). The 3rd percentile of height for 11 years old female students was 1.2 (m), the 50th percentile was 1.33 (m) and the 97th was 1.5 (m). The 3rd percentile of height for 12 years old female students was 1.3 (m), the 50th percentile was 1.4 (m) and the 97th was 1.55 (m) Figure (7a and 7b) revealed these results.
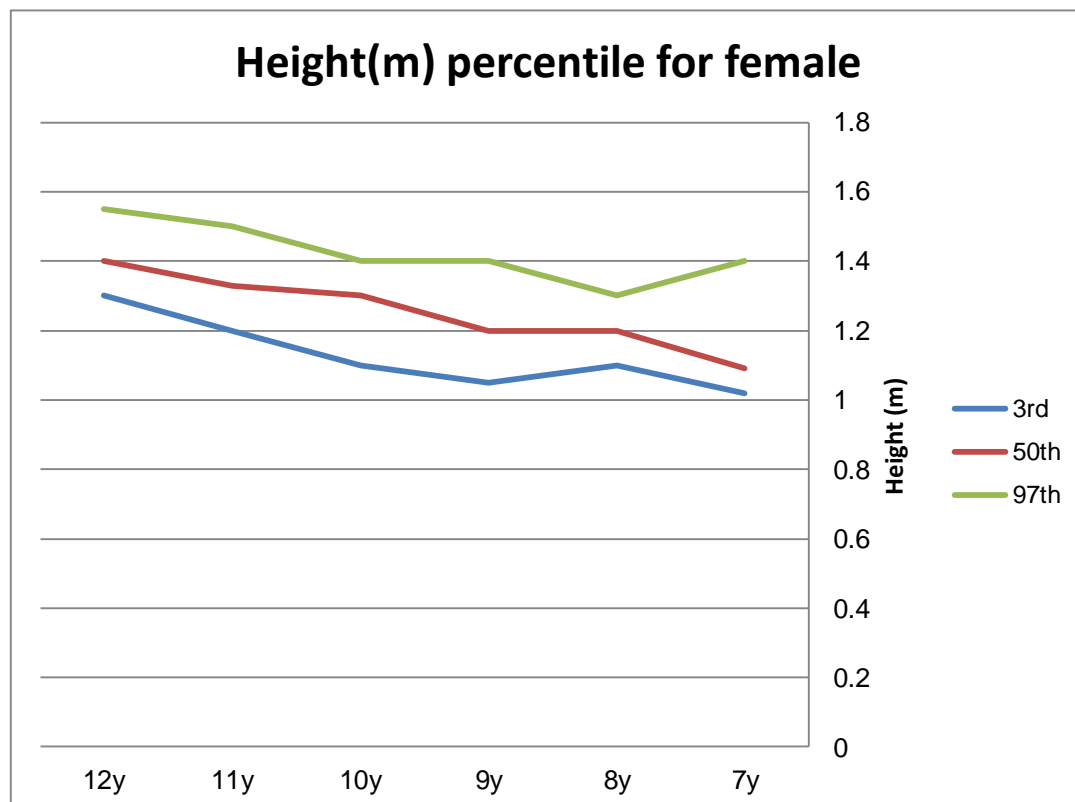
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Figure (4): Height (m) percentiles for female students according to the age in the studied group

Table (10): Height (m) percentiles for male students according to the age in the studied group.

Percentiles Ages	3rd percentile	50th percentile	97th percentile
7 years	1.03	1.13	1.26
8 years	1.01	1.17	1.27
9 years	1.05	1.22	1.39
10 years	1.08	1.25	1.46
11 years	1.08	1.34	1.55
12 years	1.27	1.41	1.6

This table illustrated that the 3rd percentile of Height for 7 years old male students was 1.03 (m), the 50th percentile was 1.13 (m) and the 97th was 1.26 (m). The 3rd percentile of Height for 8 years old male students was 1.01 (m), the 50th percentile was 1.17 (m) and the 97th was 1.27 (m). The 3rd percentile of Height for 9 years old male students was 1.05 (m), the 50th percentile was 1.22 (m) and the 97th was 1.39 (m). The 3rd percentile of Height for 10 years old male students was 1.08 (m), the 50th percentile was 1.25 (m) and the 97th was 1.46 (m). The 3rd percentile of Height for 11 years old male students was 1.08 (m), the 50th percentile was 1.34 (m) and the 97th was 1.55 (m). The 3rd percentile of Height for 12 years old male students was 1.27 (m), the 50th percentile was 1.41 (m) and the 97th was 1.6 (m).
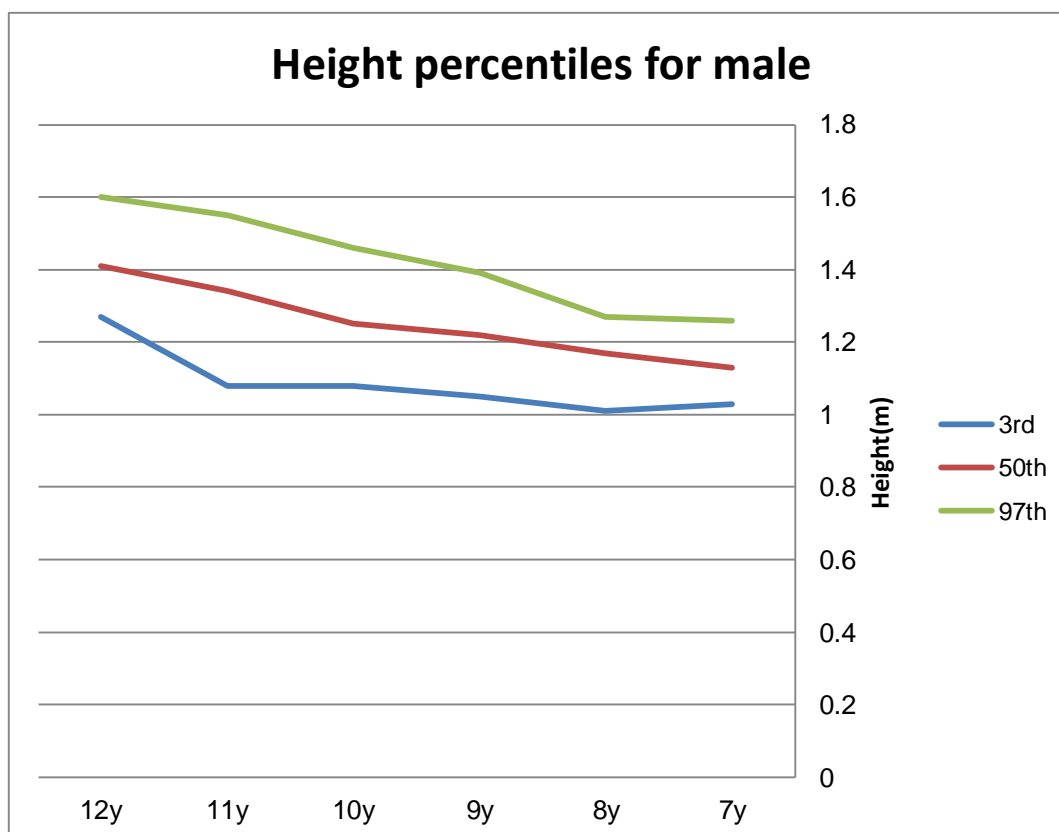
Figure (5): Height percentiles for male students according to the age in the studied group.

Table (11): BMI (kg/m^2) percentiles for female students according to the age in the studied group.

Percentiles Ages	3rd percentile	50th percentile	97th percentile
7 years	11.2	19.7	33.6
8 years	14.03	20.3	30.7
9 years	14.04	21.004	29.4
10 years	15.5	21.02	48.3
11 years	16.6	19.9	26.25
12 years	15.6	22.95	32.04

This table illustrated that the 3rd percentile of BMI for 7 years old female students was 11.2 (kg/m^2), the 50th percentile was 19.7(kg/m^2) and the 97th was 33.6(kg/m^2). The 3rd percentile of BMI for 8 years old female students was 14.03(kg/m^2), the 50th percentile was 20.3(kg/m^2) and the 97th was 30.7(kg/m^2). The 3rd percentile of BMI for 9 years old female students was 14.04(kg/m^2), the 50th percentile was 21.004(kg/m^2) and the 97th was 29.4(kg/m^2). The 3rd percentile of BMI for 10 years old female students was 15.5(kg/m^2), the 50th percentile was 21.02(kg/m^2) and the 97th was 48.3(kg/m^2). The 3rd percentile of BMI for 11 years old female students was 16.6(kg/m^2), the 50th percentile was 19.9(kg/m^2) and the 97th was 26.25(kg/m^2). The 3rd percentile of BMI for 12 years old female students was 15.6(kg/m^2), the 50th percentile was 22.95(kg/m^2) and the 97th was 32.04(kg/m^2).
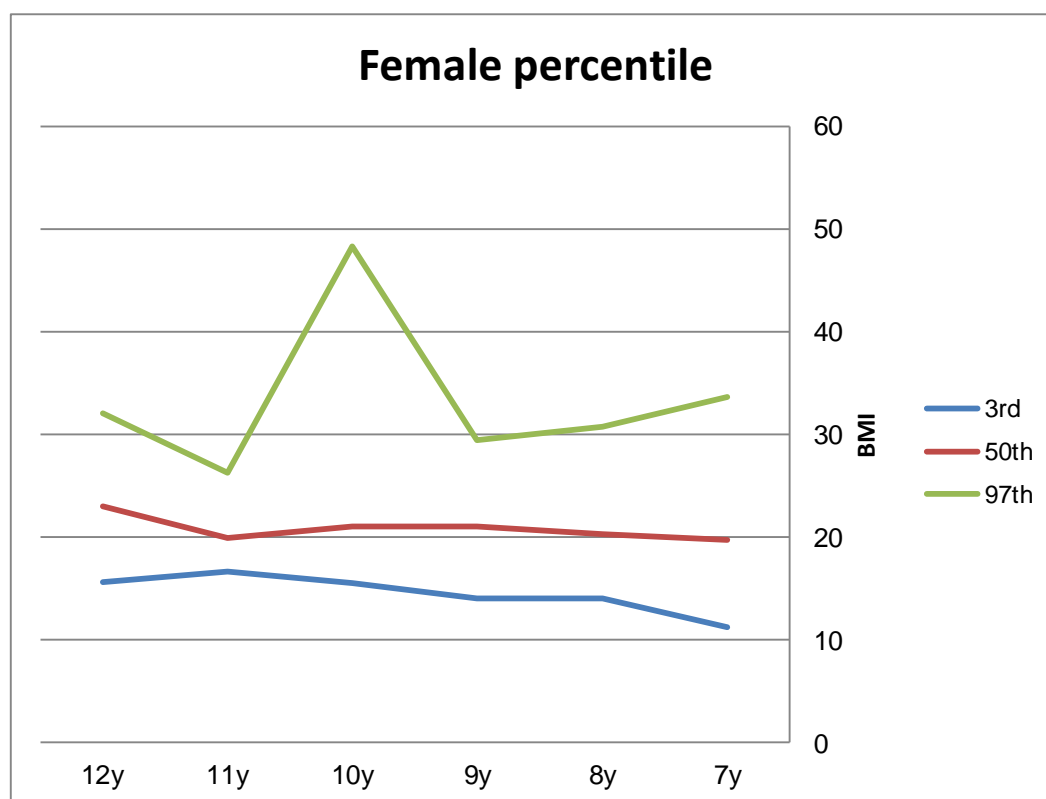
Figure (6): BMI (kg/m^2) percentiles for female students according to the age in the studied group.

Table (12) : BMI (kg/m^2) percentiles for male students according to the age in the studied group.

Percentiles / Ages	3rd percentile	50th percentile	97th percentile
7 years	13.3	17.9	30.56
8 years	15.54	19.48	37.25
9 years	15.73	22.81	36.23
10 years	15.67	19.32	34.72
11 years	15.26	19.21	28.77
12 years	11.32	23.006	36.22

This table illustrated that the 3rd percentile of BMI for 7 years old male students was 13.3(kg/m2), the 50th percentile was 17.9(kg/m2) and the 97th was 30.56(kg/m2). The 3rd percentile of BMI for 8 years old male students was 15.54(kg/m2), the 50th percentile was 19.48(kg/m2) and the 97th was 37.25(kg/m2). The 3rd percentile of BMI for 9 years old male students was 15.73(kg/m2), the 50th percentile was 22.81(kg/m2) and the 97th was 36.23(kg/m2). The 3rd percentile of BMI for 10 years old male students was 15.67(kg/m2), the 50th percentile was 19.32(kg/m2) and the 97th was 34.72(kg/m2). The 3rd percentile of BMI for 11 years old male students was 15.26(kg/m2), the 50th percentile was 19.21(kg/m2) and the 97th was 28.77(kg/m2). The 3rd percentile of BMI for 12 years old male students was 11.32(kg/m2), the 50th percentile was 23.006(kg/m2) and the 97th was 36.22(kg/m2).
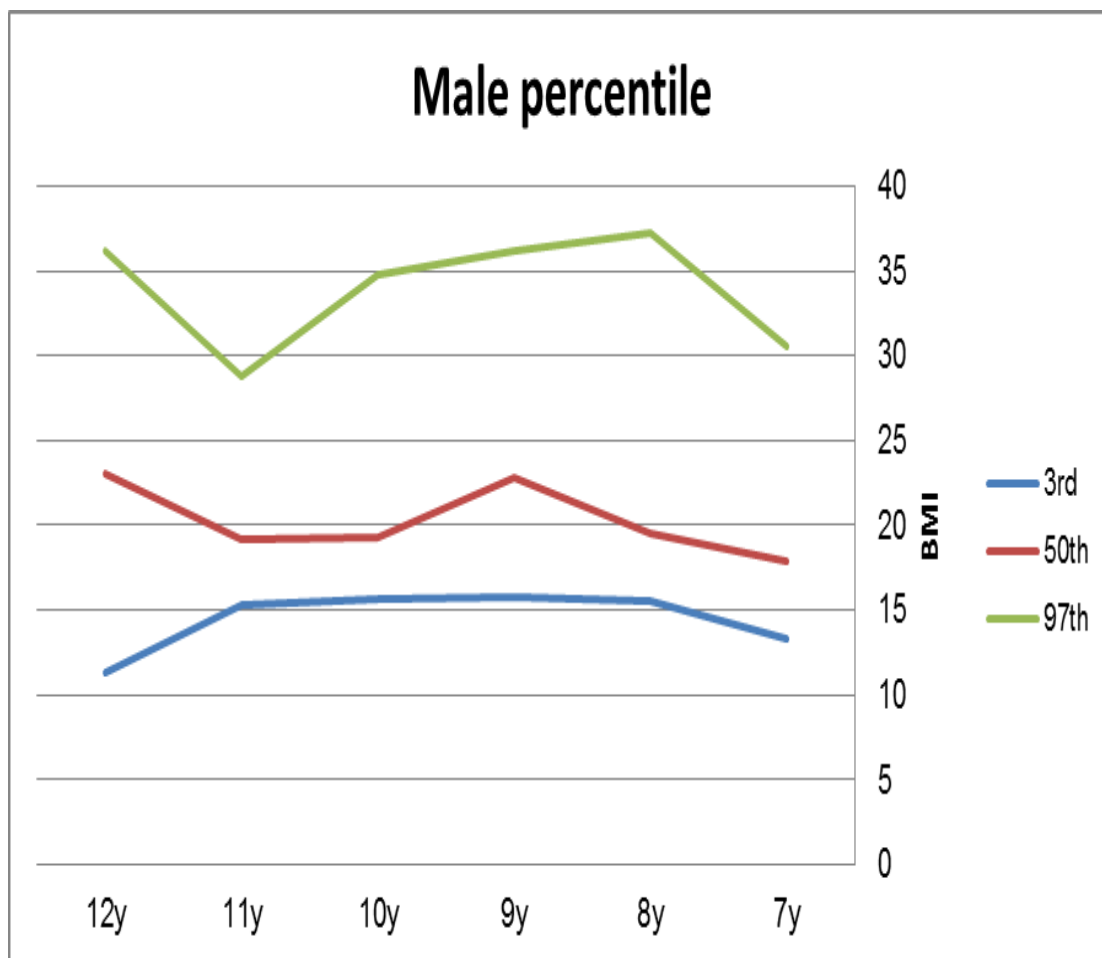
Figure (7): BMI (kg/m^2) percentiles for male students according to the age in the studied group.

III. Sociodemographic factors associated with overweight and obesity.

Table (13): Distribution of the studied groups according to age and (BMI) classification:

BMI classification Age(year)	Normal weight (n=211)		Overweight (n=187)		Obese (n=102)		Total	
	NO.	%	NO.	%	NO.	%	NO.	%
6-8	72	36	52	30.4	41	33.1	165	34
8-10	65	32.5	62	36.2	40	33.8	167	33.6
10-12	63	31.5	57	33.4	41	33.1	161	32.4
Total	200	40	171	34.2	122	24.4	493*	100.0

*Excluding Underweight (n=7).

$X^2 = 8.079$ **P > 0.05**

Table (13) shows that the distribution of the studied group regarding to age and BMI classification. The prevalence of overweight and obesity is lowest (about 63.5%) in 6-8 years and after 8 year it starts to rise to rich highest in 8-10 years (about 70%) and then becomes (about 66.5) in 10-12 years .the distribution among different age groups is statistically insignificant ($X^2 = 8.079$, P = 0.621)

Table (14): Distribution of the studied group according to sex and (BMI) classification:

sex / BMI classification	Male		Female		Total	
	No.	%	No.	%	No.	%
Normal weight	102	42.4	98	38.7	200	40.6
Overweight	81	33.8	90	35.6	171	34.7
Obese	57	23.8	65	25.7	122	24.7
Total	240	100.0	253	100.0	493*	100.0

*Excluding Underweight (n=7).

$$X^2 = 0.736 \qquad\qquad P > 0.05$$

Table (14) shows that the percentage for distribution of the studied group in male subjects is 42.4 of the normal weight, 33.8 of the overweight and 23.8 of the obese. On the other hand, the percentage for distribution of the studied group in female subjects is 38.7 of the normal weight, 35.6 of the overweight and 25.7 of the obese. Prevalence of overweight and obesity is higher among the girls (61.3%) than among the boys (56.6) and it is not significant**.** ($X^2 = 0.736$, P = 0. .692).

Figure (7): Distribution of the studied group according to sex and (BMI) classification:

Table (15): Distribution of the studied group according to their residence and (BMI) classification:

BMI classification	Rural		Urban		Total	
	No.	%	No.	%	No.	%
Normal weight	95	42.8	105	38.3	200	40.0
Overweight	75	39.2	96	30.2	171	34.2
Obese	78	18.0	44	31.5	122	24.4
Total	248	100.0	245	100.0	493*	100.0

*Excluding Underweight (n=7).

X^2**=12.537**   **P<0.05**

Table (15) shows that the majority of the obese students reside in urban areas and it is statistically highly significant (X^2=12.537, p = 0.002).
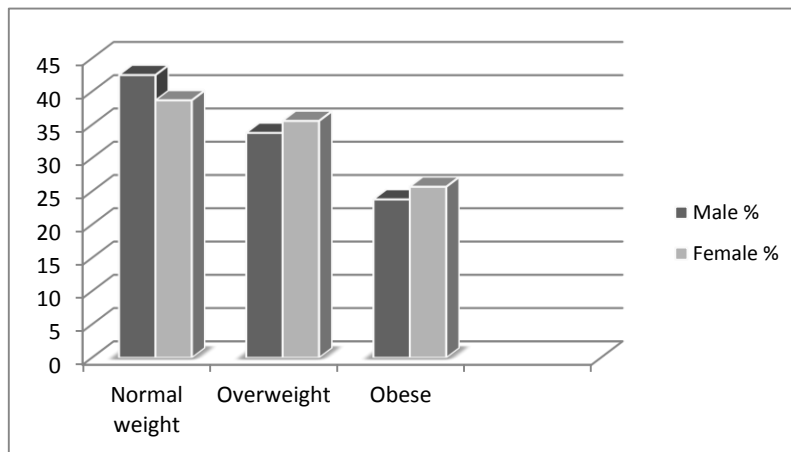
Figure (8): Distribution of the studied group according to their residence

Table (16): Distribution of the studied group according to their Family pattern and (BMI) classification.

Family pattern BMI classification	One parent		Both parent		Total	
	No.	%	No.	%	No.	%
Normal weight	8	18.2	192	42.8	200	40.0
Overweight	20	45.5	151	33.6	171	34.2
Obese	16	36.3	106	23.6	122	24.4
Total	44	100.0	449	100.0	493*	100.0

* Excluding Underweight (n=7).

X^2=10.218   **P<0.05**

table (16) shows that the majority of the students which their families contains only one parent are overweight and obese (45.5% and 36.3% respectively) while the majority of the students which their families contain both parents are normal weight (42.8%) and it is statistically significant (X^2=10.218,p=0.006).
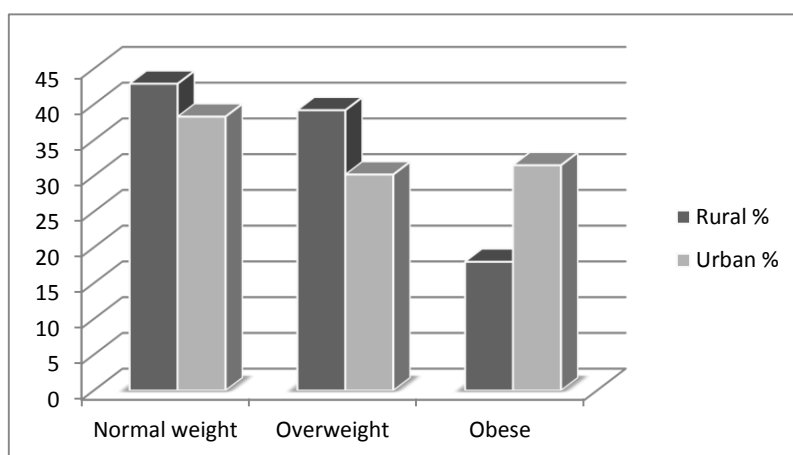
Figure (9): Distribution of the studied group according to their Family pattern.

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Table (17): Distribution of the studied group according to their social class and (BMI) classification:

BMI classification / Social class	normal weight		overweight		obese		Total	
	No.	%	No.	%	No.	%	No.	%
High social class	143	41.7	109	31.8	91	26.5	343	100.0
middle social class	53	41.4	44	34.4	31	24.2	128	100.0
Low social class	4	18.2	18	81.8	0	0	22	100.0
Total	200	40.6	171	34.7	122	24.7	493*	100.0

*Excluding Underweight (n=7).

X^2=23.676 P<0.05

Table (17) shows that the majority of children with normal weight belong to high social class (41.7%) while the majority of children with overweight belong to low social class (81.8%) and it is highly statistically significant (X^2=23.676, P=0.001).
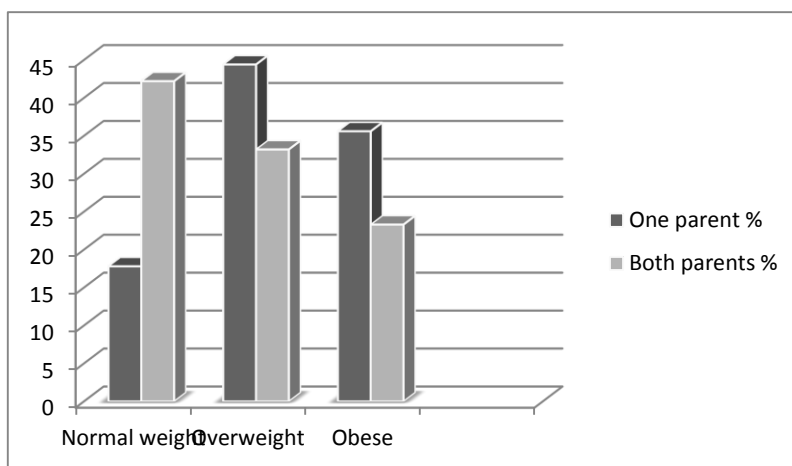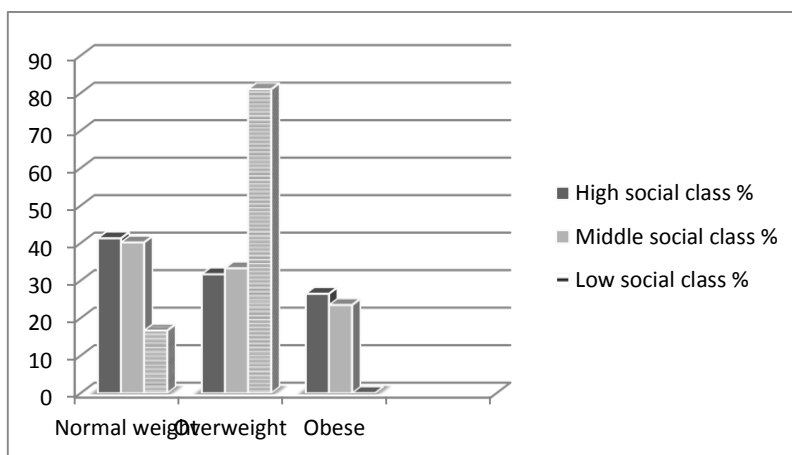
Figure (10): Distribution of the studied group according to their social class:

Table (18): Distribution of the studied group according to Father's education:

The studied groups / Father's education	normal weight		overweight		obese		Total	
	No.	%	No.	%	No.	%	No.	%
illiterate	19	9.5	11	6.4	4	3.3	34	6.9
read &write	34	17.0	26	15.2	11	9.0	71	14.4
primary	9	4.5	6	3.5	4	3.3	19	3.9
preparatory	21	10.5	6	3.5	5	4.1	32	6.5
secondary	38	19.0	42	24.6	31	25.4	111	22.5
university	79	39.5	80	46.8	67	54.9	226	45.8
Total	200	100.0	171	100.0	122	100.0	493*	100.0

*Excluding Underweight (n=7).

X^2= 22.400   **P<0.01**

Table (18) shows that the highest prevalence and risk of overweight and obesity was significantly high among children with secondary educated fathers (24.6% of overweight and 25.4% of obese children) and university educated ones (46.8% of overweight and 54.9% of obese). The lowest rate was among those with illiterate fathers (6.4% of overweight and 3.3 of obese). There is a significant trend of increasing risk of obesity with increasing educational level of fathers (X^2= 22.400, P=0 .013).

Table (19): Distribution of the studied group according to their Father's occupation:

The studied groups / Father's occupation	normal weight		overweight		obese		Total	
	No.	%	No.	%	No.	%	No.	%
not work	4	2	1	0.6	1	0.8	6	1.2
unskilled worker	36	18	11	6.4	5	4.1	52	10.5
skilled worker	54	27	21	12.3	24	19.7	99	20.1
employee/clerical	81	40.5	89	52	71	58.2	241	48.9
professional	25	12.5	49	28.7	21	17.2	95	19.3
Total	200	100.0	171	100.0	122	100.0	493*	100.0

*Excluding Underweight (n=7).

X^2= 48.004   **P<0.05**

Table (19) shows that the highest prevalence of overweight and obesity was among those whose fathers were employee or clerical fathers (52% of overweight and 58.2%of obese children) followed by professional (28.7% of overweight and 17.2 of obese children), and the lowest among those whose fathers were unskilled workers (6.4% of overweight and 4.1 of obese children), the difference in prevalence as regards father's occupation is statistically highly significant (X^2= 48.004, p=0.001).

Table (20): Distribution of the studied group according to their mother's education:

The studied groups mother's education	normal weight		overweight		obese		Total	
	No.	%	No.	%	No.	%	No.	%
illiterate	55	27.5	8	4.7	4	3.3	67	13.6
read &write	16	8	16	9.4	4	3.3	36	7.3
primary	14	7	5	2.9	5	4.1	24	4.9
preparatory	11	5.5	11	6.4	7	5.7	29	5.9
secondary	44	22	42	24.6	31	25.4	117	23.7
university	60	30	89	52	71	58.2	220	44.6
Total	200	40.0	171	34.2	122	24.4	493*	100.0

*Excluding Underweight (n=7).

X^2= 72.504   **P<0.05**

Table (20) shows that the highest prevalence and risk of overweight and obesity is significantly among children with university educated mothers (52% of overweight and 58.2 of obese children); the lowest rates are among those with primary educated mothers (2.9 % of overweight and 4.1% of obese children). A significant trend of increase risk was observed with the increase in educational level of mothers (X^2= 72.504,P=0.001).

Table (21): Distribution of the studied group according to their mother's occupation:

The studied groups / Mother's occupation	normal weight		overweight		obese		Total	
	No.	%	No.	%	No.	%	No.	%
not work	123	61.5	31	18.1	40	32.8	194	39.4
unskilled worker	29	14.5	18	10.5	12	9.8	59	12
skilled worker	21	10.5	34	19.9	31	25.4	86	17.4
employee/clerical	8	4	77	45	14	11.5	99	20.1
professional	19	9.5	11	6.4	25	20.5	55	11.1
Total	200	100.0	171	100.0	122	100.0	493*	100.0

*Excluding Underweight (n=7).

X^2= 154.920   **P<0.05**

Table (21) shows that overweight and obesity are higher among children of employed and professional mothers with significantly higher risk (51.4% of overweight and 32% of obese children), compared to those of not worked mothers (18.1 % of overweight ,32.8% of obese children) and the difference is statistically highly significant (X^2=154.920, P = 0.001).

IV. Daily physical activity patterns.

Table (22): Type of sport activities:

The studied groups / Type of sport activities	None obese		Obese		Total	
	No.	%	No.	%	No.	%
running	96	46.4	118	40.3	214	42.8
football	109	52.7	141	48.1	250	50.0
walking	2	1	34	11.6	36	7.2

X^2= 20.620   **P<0.05**

Table (22) shows that nearly half of the none-obese and obese groups (52.7% and 48.1% respectively) practice football as sport activity. Also it illustrates that only a minority of the none obese and obese group(1% and 11.6% respectively) practice walking as sport activity .the difference between the groups are statistically significant (X^2= 20.620 P=0.001).

Table (23): Distribution of the studied group according to the rate of active play:

The studied groups / Rate of Active play/ week	None obese		Obese		Total	
	No.	%	No.	%	No.	%
Never	15	7.2	33	11.3	48	9.6
less than 7 times	29	14	159	54.3	188	37.6
7 times	151	72.9	100	34.1	251	50.2
more than 7 times	12	5.8	1	0.3	13	2.6

X^2= 104.617   **P<0.05**

Table (23) shows that the majority of none obese have rate of active play 7 times / week (72.9%) while the majority of obese have rate of active play less than 7 times/week (54.3%) and it is statistically significant (X^2= 104.617 ,   P=0.001)

Table (24): Distribution of the studied group according to the rate of active play & social class:

Social standard / Rate of Active play/ week	High social standard		Middle social standard		Low social standard		Total	
	No.	%	No.	%	No.	%	No.	%
Never	36	75.0	12	25.0	0	0.0	48	100.0
less than 7 times	142	75.5	24	12.8	22	11.7	188	100.0
7 times	166	66.1	84	33.5	1	0.4	251	100.0
more than 7 times	0	0.0	12	92.3	1	7.7	13	100.0

X^2= 81.440   **P<0.05**

Table (24) shows that the majority of students have rate of active play /week more than 7 times / week are of middle social standard (92.3%) while the majority of students have less than 7times of active play /week are of high social standard. The difference between them is statistically highly significant (X^2=81.440, P=0.001)

Table (25): Distribution of the studied group according to spending time on watching TV or using Computer:

The studied groups NO. Hour TV or Computer	None obese		Obese		Total	
	No.	%	No.	%	No.	%
1 hr.	27	13	10	3.4	37	7.4
2hrs	142	68.6	144	49.1	286	57.2
3hrs	4	1.9	31	10.6	35	7
4 or more hrs.	34	16.4	108	36.9	142	28.4

X^2= 54.023   P<0.05

table (25) shows that the majority of students spend 2 hours in watching TV or using computer are none obese (68.6%) while the majority of students spend 4 or more hours are obese (36.9%) and it is statistically highly significant (X^2=54.023,   P=0.001).

Table (26): Distribution of the studied group according to Transport tools to school:

The studied groups / Transport tools to school	None obese		Obese		Total	
	No.	%	No.	%	No.	%
Walking	203	98.1	273	93.2	476	95.2
Ridding	4	1.9	20	6.8	24	4.8

X^2= 6.357   P<0.05

Table (26) shows that the majority of none obese group and obese group (98.1%) and (93.2%) respectively go to school by walking. the difference is statistically significant (X^2= 6.357, P=0.012).

Table (27): Distribution of the studied group according to spending holiday in the home:

The studied groups spending holiday in the home	None obese		Obese		Total	
	No.	%	No.	%	No.	%
Yes	11	5.3	157	53.6	168	33.6
No	24	11.6	12	4.1	36	7.2
sometimes	172	83.1	124	42.3	296	59.2

X^2= 127.649   **P<0.05**

Table (27), shows that the majority of obese group spend holiday in the home (53%) while majority of none obese may or not spend holiday the home. The difference is statistically significant (X^2= 127.649 P=0.001).
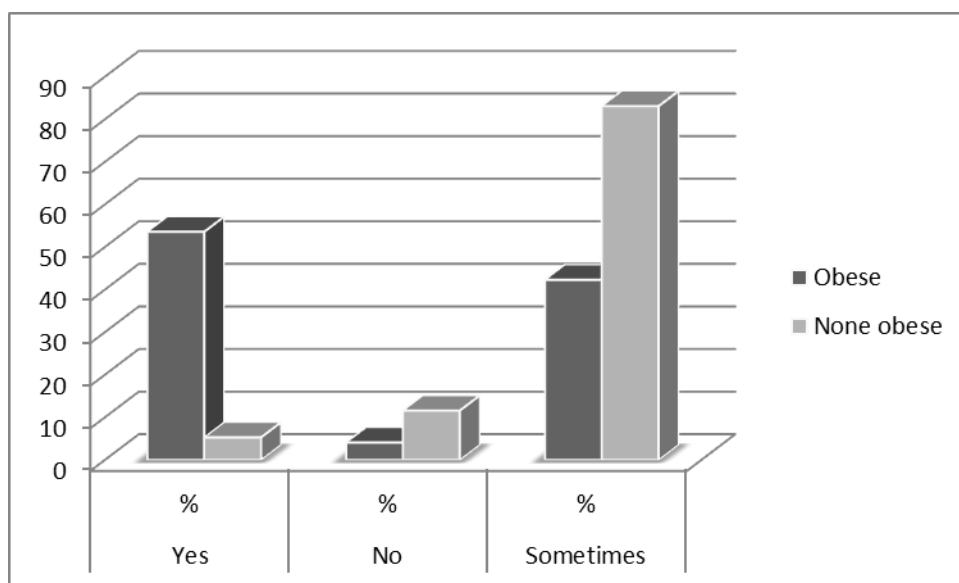
Figure (11): Distribution of the studied group according to spending holiday in the home:

V. Dietary habits.

Table (28) Distribution of the studied group according to their Eating habits:

The studied groups / Eating habits		None obese		Obese		Total		X^2	P value
		No.	%	No.	%	No.	%		
Number of daily main meals	**< 3**	23	11.1	7	2.4	30	6	47.864	**<0.05**
	3+	174	88.9	286	97.6	470	94		
Intake of breakfast at home	**Often**	105	50.7	83	44.1	188	37.6	27.659	**<0.05**
	Occasional	37	17.9	60	20.5	97	19.4		
	never	65	31.4	150	51.2	215	43		
Intake of supper	**Often**	72	34.8	179	61.1	251	50.2	37.045	**<0.05**
	Occasional	111	51.9	103	35.2	214	42.8		
	never	24	11.6	11	3.8	35	7		
Intake of food or drink between main meals	yes	164	79.2	250	85.3	414	82.8	3.166	**>0.05**
	no	43	20.8	43	14.7	86	17.2		
The most favorite food	Chocolate	47	22.7	59	20.1	106	21.2	14.896	**<0.05**
	Potato Chips	58	28	121	41.3	179	35.8		
	Biscuits	57	27.5	72	24.6	129	25.8		
	Juices	34	16.4	26	8.9	60	12		
	Nuts	7	3.4	5	1.7	12	2.4		
	others	4	1.9	10	3.4	14	2.8		

Table (28) shows that The majority of obese and none obese are found to consume 3 or more main meals during day (97.6 % and 88.8% respectively) whereas the majority of children are found to consume less than 3 main meals per day are none obese (11.1%) with a significant difference (X^2= 47.864 , p=0.001).

The majority of children have breakfast regularly are none obese (50.7%) and it is statistically significant (X^2= 27.659, p=0.001).Regular intake of breakfast is significantly associated with lower risk of obesity.

The majority of children regularly have supper is the obese children (50.2%). the difference is statistically significant (X^2= 37.045, p=0.001).regular intake of supper significantly increase risk of obesity.

About the majority (82.8%) of the obese children have foods or drinks between the main meals while (79.2%) of the none-obese not have and it is insignificant (X^2= 3.166, p=0.075).

About most favorite foods Potato Chips , Biscuits and chocolate are most favorite foods to overweight and obese children (35.8% ,25.8% and 21.2% respectively) and Potato Chips , Biscuits and chocolate for the none obese children (28%, 27.5% and 22.7% respectively) (X^2= 14.896,p=0.011).

Table (29) Distribution of the studied group with different social class according to their Eating habits:

The groups / Eating habits		High social standard%	Middle social standard%	Low social standard%	X^2	P value
Number of daily main meals	< 3	7.3	2.2	8.3	12.467	<0 .05
	3+	92.7	97.8	91.7		
Intake of breakfast at home	Often	38.1	35.6	41.7	58.575	<0.05
	Occasional	27.6	0.8	4.2		
	never	34.3	63.6	54.2		
Intake of supper	Often	41.6	63.6	100.0	48.398	<0.05
	Occasional	83.2	16.8	0		
	never	6.7	9.1	0		
Intake of food or drink between main meals	yes	82.6	81.1	95.8	3.157	>0.05
	no	17.4	18.9	4.2		
The most favorite food	Chocolate	23.8	18.2	0	112.560	<0.05
	Potato Chips	38.1	36.4	0		
	Biscuits	20.6	35.6	45.8		
	Juices	14.0	0	50.0		
	Nuts	3.5	0	0		
	others	0	9.8	4.2		

Table (29) shows that the majority of students of all social class have 3 or more 3 main meals per day and it is significant (X^2= 12.467, p=0.014). Regular intake of breakfast at home is 38.1%of high 35.6% of middle and 41.7% of low social standard children while never intake of breakfast was 34.3% of high,63.6% of middle and54.2% of low social standard children (X^2= 58.575,p=0.001).the majority of all social standard are(82.6% of high ,81.1% of middle and 95.8% of low) social standard have drinks and foods between main meals with insignificant difference (X^2= 3.157,p=0.206).

  The most favorite food in high social standard were Chocolate 23.8% Potato Chips38.1% Biscuits   20.6% while in low social standard were Juices50.0%   and   Biscuits 45.8%   and   it   is   significant   (X^2= 112.560,p=0.001).

Table (30) **Distribution of the studied group according to their Last week different types of meals:**

The studied groups / In Last week Meals		None Obese		Obese		X^2	P value
		NO.	%	NO.	%		
Intake of Carbohydrates meals	**every day**	174	84.1	218	74.4	6.678	**<0.05**
	occasional	33	15.9	75	25.6		
Intake of Protein Meals	**every day**	14	6.8	22	7.5	0.288	**>0.05**
	occasional	182	87.9	258	88.1		
	never	11	5.3	13	4.4		
Intake of Dairy Meals	**every day**	185	89.4	279	95.2	6.213	**<0.05**
	occasional	22	10.6	14	4.8		
Intake of Fat and Sweet Meals	**every day**	9	4.3	133	45.4	102.152	**<0.05**
	occasional	196	94.7	160	54.6		
	never	2	1	0	0		
Intake of Fruit and Vegetable Meals	**every day**	158	76.3	92	31.4	102.569	**<0.05**
	occasional	49	19.6	201	68.6		

Table (30) shows that all children consumed carbohydrate rich foods in the last week while according to regular intake of carbohydrate rich foods 74.4% of the obese children and 84.1% of the none obese children% (X^2=6.678,p=0.010).regular intake of protein meals in last week were 7.5 % the obese children and 6.8% of the none obese while never intake were 4.4% of the obese children and 5.3% of the none obese children and this difference is insignificant (X^2=0.288,p=**0**.866). All children consumed Dairy Meals in the last week while according to regular intake of Dairy Meals 95.2% of obese children and 89.4% of the none obese children (X^2=6.213,p=0.013).

All children consumed Fat and Sweet Meals in the last week while according to regular intake of Fat and Sweet Meals 45.4% of the obese children and 4.3% of the none obese children (X^2=102.152,p=0.001). All children consumed Fruit and Vegetable Meals in the last week while according to regular intake of Fruit and Vegetable Meals 31.4% of the obese children and 76.3 % of the none obese children and it is statistically significant (X^2=102.569,p=0.001).

Table (31): Distribution of the sample according to the frequency of consumption of carbohydrate-rich foods:

| The studied groups | Frequency | None obese | | Obese | | X^2 | p |
CHO-rich foods		NO.	%	NO.	%		
Bread	≥2/d	185	89.4	244	83.3		
	1/d	22	10.6	37	12.6		<0.05
	5-6/wk.	0	0	12	2.4		
Rice and Marconi	≥ 2/d	17	8.2	65	22.2		
	1/d	94	45.4	156	53.2	33.128	<0.05
	≥1/wk.	96	46.3	72	24.6		
Soft Drinks	≥1/d	16	7.7	32	10.9		
	> 1/wk.	58	28.1	72	24.6	8.936	>0.05
	≤ 1/wk.	133	64.3	189	64.5		
Chocolate	≥1/d	13	6.3	46	14.1		
	≥ 1/wk.	111	53.6	163	55.5	45.991	<0.05
	< 1/wk.	82	39.6	73	24.9		
	Rare	1	0.5	11	2.2		
Cakes and Biscuits	≥ 1/d	36	17.4	142	48.4	63.520	<0.05
	≥ 1/wk.	171	82.6	151	51.5		
Jam and Honey	≥ 1/d	30	14.5	65	22.2		
	≥ 1/wk.	162	79.2	207	70.7	21.510	<0.05
	Rare	15	7.2	21	7.2		
Halawa& Tehina	≥ 1/d	54	26	63	21.6		
	≥ 1/wk.	152	73.5	227	77.4	13.915	<0.05
	Rare	1	0.5	3	1		

Table (31) shows that as regard the consumption of complex carbohydrate, the majority of both groups eat bread twice or more per day, the difference is significant. (83.3%of the obese and 89.4% of the none-obese children), (X^2= 9.414, P= 0.009). Eating rice or macaroni is significantly higher for the obese than for the none obese children being 22.2% vs. 8.2% for those who eat rice or macaroni twice or more daily and 53.2% vs. 45.4%for those who eat rice or macaroni once daily (X^2= 33.128, p =0.001). The risk of obesity is significantly higher for those who eat rice or macaroni more than twice per day, and those who eat it once per day.

As for consumption of soft drink, 10.9% of the obese compare to 7.7% of the none obese children drink soft drink one or more daily, the difference is not significant (X^2= 8.963, p =0.112). Chocolate is consumed once or more per week by 55.5% of the obese compare to 53.6% of the none-obese children, the difference is significant (X^2=45.991, P= 0.001).Cakes and biscuits are eaten more than twice per day in 26.6% of obese compare to 2.9% for the none obese children with highly significant (X^2=63.520, P = 0.001).

Jams, honey or molasses are consumed on daily basis by 22.2% of the obese and 14.5% of the none-obese children with significant difference (X^2= 21.510, P= 0.001). Halawa and Tehina are eaten once or more per week by 30% of the obese and 26.1% of the none-obese with significant difference(X^2= 21.510, p =0.001).

Table (32): Distribution of the sample according to the frequency of consumption of fat-rich foods

The studied group fat-rich foods	Frequency	None obese NO.	None obese %	Obese NO.	Obese %	X^2	P value
Ice cream	≥ 1/d	21	10.1	26	9	7.222	>0. 05
	>1/wk.	147	71.1	231	78.8		
	< 1/wk.	39	18.8	36	12.2		
full cream milk products &High Fat cheese	≥2/d	25	12.1	81	27.6	22.572	<0.05
	1/d	93	44.9	99	33.8		
	≥ 1/wk.	89	43	113	30.6		
Butter, Cream& Mayonnaise	≥ 1/d	2	1	45	15.4	114.300	<0.05
	≥ 1/wk.	60	29	179	61.1		
	Rare	145	70	69	23.5		
Deep fried foods	≥1/d	52	25.1	66	22.7	14.847	<0.05
	≥ 1/wk.	144	69.6	160	72.9		
	1-3/mo.	11	5.3	13	4.4		
Pizza	≥ 1/wk.	64	30.9	136	47	44.963	<0.05
	< 1/wk.	66	31.9	89	17.8		
	never	77	37.2	68	23.2		
Processed Meats	≥1/d	21	10.2	39	13.3	6.013	>0.05
	> 1/wk.	29	14	31	10.6		
	≤ 1/wk.	157	75.8	223	76.1		
Chips and fried Snakes	≥ 2/d	23	11.1	56	19.1	23.059	<0.05
	1/d	*16*	*7.7*	*55*	*18.8*		
	≥ 1/wk.	168	81.2	182	62.1		

Table (32) shows that as regards consumption of ice cream, 5.1% of the obese children reported eat ice cream more than once per day compared to 4.3% of the none-obese children and this is not significant (X^2= 7.222, p =0.205). The consumption of full cream milk products twice or more per day is significantly higher for the obese compared to the none obese children being 27.6% and 12.1% respectively with a significant risk (X^2= 22.572, p =0.001). The consumption of spread butter, cream and mayonnaise more than once per week is higher in the obese (18.4%) than in the none-obese children (8.7%) with a significant risk (X^2= 114.300, p =0.001). Deep fried foods are consumed more than once per week by the obese group compare to the none- obese children, being 72.9% and 69.6% respectively with significant difference (X^2= 14.847, p =0.011).

Processed meats is consumed on daily basis by 5.5% of the obese and 3.9% of the none-obese children and it is not significant (X^2= 6.013, p =0.305). Pizza is consumed significantly once or more per week by 5.8% of the none-obese children and 23.9% of the obese (X^2= 44.963, p =0.001).

Commercial fried snacks are consumed on daily basis by 19.1% of the obese compare to 11.1% of the non-obese with associated significant risk of obesity (X^2= 23.059, p =0.001).