

## Assess the Prevalence of Overweight and Obesity among School Adolescents

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**Abstract:** Obesity among children has emerged as one of the most serious public concern in the 21st century. The world health organization describes over weight and obesity is one of today's most important public health problems which are escalating as a global epidemic. The present study was carried out with an objective to assess the prevalence of overweight and obesity among school adolescents aged 13-16 years. Purposive non-probability sampling technique was used to select 213 children from government and private schools. The pre-structured questionnaire was used to assess the socio-demographic variables, dietary factors and life style factors of school adolescents. The anthropometric measurements such as height and weight were checked using measuring tape and weighing scale respectively, and thereafter body mass index was calculated according to WHO standards. The findings revealed that the mean and standard deviation of height, weight and BMI of male and female adolescents was  $156.1 \pm 6.6$ ,  $47.1 \pm 10.9$ ,  $19.2 \pm 3.9$ ; and  $153.1 \pm 4.8$ ,  $46.5 \pm 9.3$ ,  $19.8 \pm 3.5$  respectively. The median of height, weight and BMI of male and female adolescents was 156 cm, 46 kg, 18.1 kg/m<sup>2</sup>; and 153 cm, 45 kg, 19.3 kg/m<sup>2</sup> respectively. The range of height, weight and BMI of male and female adolescents was 64 cm, 55 kg and 20.2 kg/cm<sup>2</sup>; 22 cm, 46 kg and 18.5 kg/cm<sup>2</sup> respectively. The overall prevalence of overweight was higher in female adolescents as compared to male adolescents whereas the overall prevalence of obesity was higher in male adolescents as compared to female adolescents.

**Keywords:** Prevalence, Overweight, Obesity, Children, Adolescents

### I. Introduction

Obesity among children has emerged as one of the most serious public concern in the 21st century. The World Health Organization has described obesity as one of today's most neglected public health problems, affecting every region of the globe. The worldwide prevalence of obesity has more than doubled between 1980 and 2014. World Health Organization commission on childhood obesity found that 41 million under-fives were overweight or obese in 2014. The statistics mean that 6.1 percent of under-fives were overweight or obese in 2014, compared with 4.8 percent in 1990. The number of overweight children in lower middle-income countries like India more than doubled over the same period, from 7.5 million to 15.5 million. In the same period, 39% of adults aged 18 years and over (38% of men and 40% of women) were overweight. India reportedly witnesses 10 million cases of Childhood obesity annually.

According to Zayed et al., (2016) the overall prevalence of short stature, underweight, overweight, and obesity were 4.9 %, 5.7 %, 17.3 %, and 15.7 %, respectively among school children aged 6-17 years in Jordan. Short stature and underweight were most prevalent in the rural South while obesity was highest in the Central region. Females were more likely to be overweight, while males were more likely to be obese. Private schools had higher prevalence of obesity and overweight than public ones. Anuradha et al., (2015) indicated the prevalence of overweight and obesity among twelve to sixteen years school children were 11.2 percent and 4.8 percent of boys and 10.3 percent and 4.8 percent of girls respectively.

### II. Methodology

Non experimental research approach was used with descriptive survey research design. The setting of the present study was the two government school (Shakuntla Devi Senior Secondary School and B. N. Khalsa Senior Secondary School) and one private school (Guru Tegh Bahadur School) of Patiala, Punjab. 213 school children of thirteen to sixteen years were selected by purposive non-probability sampling technique. The criteria for selection of sample subjects were:

- studying in the selected schools of Patiala.
- willing to participate in the study.
- available at the time of data collection.

The tool was developed to collect the information regarding socio-demographic variables, dietary factors and life style factors using paper pencil technique. Anthropometric measurements such as height and weight were taken. Height was measured bare feet using measuring tape and weight was checked using weighing scale while ensuring zero error in the scale. Thereafter BMI has been calculated and classified according to World Health Organization standards. The classification of BMI was presented in table 1.

**Table 1:** Classification of BMI According to WHO Standards

BMI Range	Interpretation
< 15	Starvation
15 - 18.5	Underweight
18 - 25	Normal
25 – 30	Overweight
30 – 40	Obese
> 40	Morbidly obese

Formal administrative approval was obtained from the selected schools of Patiala to conduct the study. Data was collected in a week from 24th May, 2016 to 1st June 2016.

### III. Results

Frequency and percentage distribution were calculated to describe the sample characteristics. The findings were presented in table 2.

**Table 2:** Frequency and Percentage Distribution of Demographic Characteristics of School Adolescents  
N = 213

Sr. No	Demographic characteristics	Male (N = 81)		Female (N = 132)	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
<b>1</b>	<b>Age</b>				
1.1	13 years	19	23.5	27	20.5
1.2	14 years	22	27.1	38	28.7
1.3	15 years	20	24.7	41	31.1
1.4	16 years	20	24.7	26	19.7
<b>2</b>	<b>Gender</b>	81	38.1	132	61.9
<b>3</b>	<b>Age of menarche</b>				
3.1	9 year	-	-	01	00.7
3.2	10 year	-	-	03	02.2
3.3	11 year	-	-	04	03.0
3.4	12 year	-	-	66	50.0
3.5	13 year	-	-	44	33.3
3.6	14 year	-	-	09	06.8
3.7	15 year	-	-	02	01.0
<b>4</b>	<b>Birth order</b>				
4.1	1	44	54.4	52	28.5
4.2	2	15	18.5	52	28.5
4.3	3	11	13.5	16	12.2
4.4	4	01	01.3	11	08.4
4.5	5	00	00.0	00	00.0
4.6	6	01	01.3	01	00.7
<b>5</b>	<b>Type of school</b>				
5.1	Government	50	61.7	95	71.9
5.2	Private	31	38.3	37	28.1
<b>6</b>	<b>Class</b>				
6.1	8 <sup>th</sup>	12	14.8	25	19.0
6.2	9 <sup>th</sup>	31	38.2	37	28.0
6.3	10 <sup>th</sup>	38	47.0	49	37.0
6.4	11 <sup>th</sup>	00	00.0	21	16.0
<b>7</b>	<b>Residence</b>				
7.1	Rural	14	17.3	18	13.6
7.2	Urban	67	82.7	114	86.4
<b>8</b>	<b>Dietary habits</b>				
8.1	Vegetarian	54	66.7	100	75.6
8.2	Non-vegetarian	25	30.8	21	16.0
8.3	Eggetarian	02	02.5	11	08.4
<b>9</b>	<b>Father's education</b>				
9.1	Illiterate	08	09.8	21	16.0
9.2	Elementary	11	13.6	32	24.2

9.3	Matriculation	15	18.6	23	17.5
9.4	Senior secondary	18	22.2	31	23.4
9.5	Graduate	25	30.8	18	13.6
9.6	Post graduate and above	04	05.0	07	05.3
<b>10</b>	<b>Mother's education</b>				
10.1	Illiterate	11	13.6	25	19.0
10.2	Elementary	17	20.9	22	16.4
10.3	Matriculation	08	09.9	29	22.0
10.4	Senior secondary	17	20.9	27	20.4
10.5	Graduate	18	22.3	17	13.0
10.6	Post graduate and above	10	12.4	12	09.2
<b>11</b>	<b>Father's occupation</b>				
11.1	Unemployment	03	03.7	06	04.5
11.2	Private service	27	33.4	61	46.2
11.3	Government service	14	17.3	13	10.0
11.4	Business/Self employed	37	45.6	52	39.3
<b>12</b>	<b>Mother's occupation</b>				
12.1	Housewife	66	81.4	99	75.0
12.2	Private service	08	09.8	20	15.2
12.3	Government service	04	04.9	04	03.0
12.4	Business/Self employed	03	03.7	09	06.8
<b>13</b>	<b>Family income</b>				
13.1	<5,000	19	23.5	49	37.1
13.2	5,001-10,000	16	19.7	39	29.5
13.3	10,001-15,000	07	08.7	09	07.0
13.4	15,001-20,000	16	19.7	16	12.1
13.5	>20,000	23	28.4	19	14.3
<b>14</b>	<b>Type of family</b>				
14.1	Nuclear	57	70.4	22	16.6
14.2	Joint	24	29.6	110	83.4
<b>15</b>	<b>Size of family</b>				
15.1	1-4	33	40.0	38	29.0
15.2	5-7	37	46.0	57	43.1
15.3	8-10	08	10.0	22	16.6
15.4	11 and above	03	04.0	15	11.3

Table 2 depicts the frequency and percentage distribution of socio-demographic characteristics of school adolescents. Maximum number of male adolescents (22) was in the age of 14 years whereas most of female adolescents (41) were in the age of 15 years. Female adolescents (132) were higher as compared to male adolescents (81). Regarding age of menarche, the majority of female adolescent (66) were in the age of 12 years. The maximum numbers of male adolescents (44) and female adolescents (52) were in first birth order. Most of male adolescents (50) and female adolescents (95) were studying in government schools. Majority of male adolescents (38) and female adolescents (49) were studying in the 10<sup>th</sup> class. Maximum number of female adolescents (114) was residing in urban area as compared to male adolescents (67) while maximum number of male adolescents was residing in rural area (18) in comparison to female adolescents (14). Mostly male adolescents (54) and female adolescents (100) were vegetarian. Majority of male adolescents' fathers (25) were graduates. In contrast to that female adolescents' fathers (32) were educated up to elementary. Most of male adolescents' mothers (18) were graduates. On the contrary maximum number of female adolescents' mothers (29) was educated up to matriculation. Majority of male adolescents fathers' (37) were doing business/self-employed whereas half number of female adolescents' fathers' (61) were on private job. Most of male adolescents mothers' (66) and female adolescents mothers' (99) were housewives. The maximum family income of male adolescents (23) were more than 20000/- while the family income of female adolescents (49) were below 5,000. Maximum male adolescents (57) and female adolescents (110) belonged to nuclear family. Most of male adolescents' family size (37) and female adolescents' family size (57) was 5-7 members.

**Table 3:** Level of Prevalence of Overweight and Obesity According to WHO Standards among Male and Female School Adolescents

N=213

Body Mass Index	Male (N=81)		Female (N=132)	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Starvation	11	13.5	06	04.6
Underweight	33	40.6	45	34.0
Normal	32	39.5	68	51.6
Overweight	03	04.0	12	09.0
Obesity	02	02.4	01	00.8

\*Starvation: <15; Underweight: 15-18.5; Normal: 18.5-25; Overweight: 25-30; Obesity: 30-40

Table 3 depicts the level of prevalence of overweight and obesity among male and female school adolescents. Mostly male adolescents (33) were underweight whereas more than half of female adolescents (68) were normal.

**Table 4:** Mean, Median Standard Deviation and Range of Height, Weight and BMI of Male and Female School Adolescents

N =213

Variables	Height (cm)		Weight (kg)		BMI (kg/m <sup>2</sup> )	
	Male (N=81)	Female (N=132)	Male (N=81)	Female (N=132)	Male (N=81)	Female (N=132)
Mean ± SD	156.1± 6.6	153.1 ±4.8	47.1± 10.9	46.5 ± 9.3	19.2 ± 3.9	19.8 ± 3.5
Median	156	153	46	45	18.1	19.3
Range	64	22	55	46	20.2	18.5

Table 4 depicts the mean, median and standard deviation of height, weight and BMI of male and female school adolescents. The mean and standard deviation of height, weight and BMI of male and adolescents was 156.1± 6.6, 47.1± 10.9, 19.2 ± 3.9; and 153.1 ±4.8, 46.5 ± 9.3, 19.8 ± 3.5 respectively. The median of height, weight and BMI of male and female adolescents was 156 cm, 46 kg, 18.1 kg/m<sup>2</sup>; and 153 cm, 45 kg, 19.3 kg/m<sup>2</sup> respectively. The range of height, weight and BMI of male and female adolescents was 64 cm, 55 kg and 20.2 kg/cm<sup>2</sup>; 22 cm, 46 kg and 18.5 kg/cm<sup>2</sup> respectively.

**Table 5:** Frequency and Percentage Distribution of Dietary Factors of School Adolescents

N = 213

Sr. no.	Dietary factors	Male (N=81)		Female (N=132)	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
<b>How often do you consume coffee daily?</b>					
1.1	Once	21	25.9	26	19.7
1.2	Twice	06	07.4	20	15.2
1.3	Thrice	04	04.9	02	01.5
1.4	Four or more times	02	02.5	03	02.3
1.5	None	48	59.3	81	61.4
<b>How often do you consume tea daily?</b>					
2.1	Once	35	43.2	49	37.1
2.2	Twice	18	22.2	18	13.6
2.3	Thrice	00	00.0	01	00.8
2.4	Four or more times	00	00.0	02	01.5
2.5	None	28	34.6	63	47.7
<b>How often do you consume milk daily?</b>					
3.1	Once	37	45.6	65	49.2
3.2	Twice	22	27.2	17	12.9
3.3	Thrice	08	09.9	02	01.5
3.4	Four or more times	05	06.2	01	00.8
3.5	None	09	11.1	44	33.3
<b>How often do you consume juice daily?</b>					
4.1	Once	36	44.4	47	35.6
4.2	Twice	12	14.8	24	18.3
4.3	Four or more times	01	01.3	03	02.3
4.4	None	29	35.8	49	37.1
<b>How often do you consume coca cola/aerated drinks daily?</b>					
5.1	Once	30	37.0	49	37.1
5.2	Twice	07	08.6	13	09.8
5.3	Thrice	00	00.0	06	04.5

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5.4	Four or more times	02	02.5	03	02.3
5.5	None	42	51.9	58	43.9
<b>What do you drink with meals?</b>					
6.1	Water	68	83.9	113	85.6
6.2	Juice	04	04.9	07	05.3
6.3	Tea	00	00.0	02	01.5
6.4	Coffee	03	03.7	01	00.8
6.5	Coca cola or aerated drinks	01	01.3	02	01.5
6.6	Something else	04	04.9	01	00.8
6.7	Nothing	01	01.3	05	03.8
<b>What do you normally have for breakfast?</b>					
7.1	Parantha	55	67.9	82	62.1
7.2	Nan	00	00.0	01	00.8
7.3	Bread	04	04.9	13	09.8
7.4	Cereal	00	00.0	01	00.8
7.5	Milk	16	19.8	21	15.9
7.6	Tea	07	08.6	27	20.5
7.7	Coffee	00	00.0	05	03.8
7.8	Juice	01	01.3	03	02.3
7.9	Fruit	00	00.0	01	00.8
7.10	Any other	04	04.9	02	01.5
7.11	Combination	01	01.3	08	06.1
7.12	Nothing	00	00.0	02	01.5
<b>What do you usually have for sweet dish?</b>					
8.1	Fruit	33	40.7	59	44.7
8.2	Sweets	13	16.0	22	16.7
8.4	Chapatti with ghee and shakkar	06	07.4	00	00.0
8.5	Chocolate	08	09.9	39	29.5
8.6	Any other	06	07.4	02	01.5
8.7	Combination	00	00.0	00	00.0
8.8	Nothing	15	18.5	15	11.4
<b>How often do you eat breakfast before going to school?</b>					
9.1	Always	59	72.8	64	48.5
9.2	Frequently	02	02.5	01	00.8
9.3	Sometimes	14	17.3	42	31.8
9.4	Very rarely	03	03.7	07	05.3
9.5	Never	03	03.7	18	13.6
<b>How often do you skip meals in a week?</b>					
10.1	Always	03	03.7	10	07.6
10.2	Frequently	01	01.3	02	01.5
10.3	Sometimes	23	28.4	41	31.1
10.4	Very rarely	08	09.9	31	23.5
10.5	Never	45	55.6	47	35.6
<b>How often do you eat salad or vegetables with lunch?</b>					
11.1	Always	34	42.0	50	37.9
11.2	Frequently	06	07.4	03	02.3
11.3	Sometimes	15	18.5	35	26.5
11.4	Very rarely	10	12.3	20	15.2
11.5	Never	15	18.5	23	17.4
<b>How often do you eat salad or vegetables with dinner?</b>					
12.1	Always	37	45.7	52	39.4
12.2	Frequently	07	08.6	07	05.3
12.3	Sometimes	18	22.2	31	23.5
12.4	Very rarely	09	11.1	17	12.9
12.5	Never	12	14.8	29	22.0
<b>How often do you eat sweet dish with lunch?</b>					
13.1	Always	12	14.8	15	11.4
13.2	Frequently	03	03.7	04	03.0
13.3	Sometimes	34	42.0	40	30.3
13.4	Very rarely	07	08.6	23	17.4
13.5	Never	26	32.1	47	35.6
<b>How often do you eat sweet dish with dinner?</b>					
14.1	Always	11	13.6	13	09.8
14.2	Frequently	08	09.9	08	06.1
14.3	Sometimes	27	33.3	46	34.8
14.4	Very rarely	06	07.4	26	19.7
14.5	Never	25	30.9	36	27.3
<b>How often do you eat fast foods in restaurants in a week?</b>					
15.1	Once	23	28.4	51	38.6

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15.2	Twice	09	11.1	25	18.9
15.3	Thrice	07	08.6	05	03.8
15.4	Four times	03	03.7	05	03.8
15.5	Five times	04	04.9	01	00.8
15.6	Daily	02	02.5	00	00.0
15.7	Never	35	43.2	45	34.1
<b>How often do you drink tea or coffee following dinner in a week?</b>					
16.1	Once	15	18.5	21	15.9
16.2	Twice	11	13.6	05	03.8
16.3	Thrice	00	00.0	01	00.8
16.4	Four or more times	02	02.5	01	00.8
16.5	Daily	03	03.7	04	03.0
16.6	Never	52	64.2	101	76.5
<b>How often do you skip meals in a week?</b>					
17.1	Once	19	23.5	40	30.3
17.2	Twice	09	11.1	31	23.5
17.3	Thrice	03	03.7	08	06.1
17.4	Four times	03	03.7	01	00.8
17.5	Five or more times	01	01.2	01	00.8
17.6	Never	44	54.3	50	37.9
<b>Which is your most frequently skipped meal?</b>					
18.1	Breakfast	22	27.2	52	39.4
18.2	Lunch	13	16.0	20	15.2
18.3	Dinner	12	14.8	37	28.0
18.4	Not applicable	33	40.7	23	17.4
<b>How often do you substitute your meal with snacks in a week?</b>					
19.1	Once	20	24.7	48	36.4
19.2	Twice	18	22.2	33	25.0
19.3	Thrice	08	09.9	01	00.8
19.4	Four or more times	04	04.9	11	08.3
19.5	Never	30	37.0	39	29.5
<b>At what time do you generally take snacks?</b>					
20.1	Sweet	23	28.4	30	
20.2	Salty	20	24.7	43	
20.3	Baked	11	13.6	15	11.4
20.4	Fried	27	33.3	40	30.3
20.5	Any other	00	00.0	01	00.8
20.6	Not applicable	00	00.0	01	00.8
20.7	Combination	00	00.0	01	00.8
<b>At what time do you generally take snacks?</b>					
21.1	As soon as I get up	03	03.7	07	05.3
21.2	Between breakfast and lunch	11	13.6	17	12.9
21.3	Between lunch and evening tea	44	54.3	77	58.3
21.4	Between tea and dinner	15	18.5	21	15.9
21.5	Between dinner and bed time	08	09.9	10	07.6
<b>What kind of oil is routinely used for cooking at home?</b>					
22.1	Mustard oil	31	38.3	59	44.7
22.2	Vegetable oil	25	30.9	41	31.1
22.3	Sunflower oil	08	09.9	15	11.4
22.4	Pure ghee	16	19.8	12	09.1
22.5	Any other	01	01.2	03	02.3
22.6	Combination	00	00.0	01	00.8
<b>With which meal do you take pickle?</b>					
23.1	Breakfast	12	14.8	27	20.5
23.2	School lunch	21	25.9	41	31.1
23.3	Lunch	15	18.5	20	15.2
23.4	Dinner	04	04.9	10	07.6
23.5	Any other	03	03.7	02	01.5
23.6	Never	26	32.1	33	25.0
<b>Which butter do you take in routine?</b>					
24.1	White butter	34	42.0	43	32.6
24.2	Yellow butter	15	18.5	36	27.3
24.3	Nutrilite butter	10	12.3	17	12.9
24.4	Any other	03	03.7	02	01.5
24.5	Combination	05	06.2	01	00.8
24.6	None	15	18.5	29	22.0
<b>How often do you diet in a conscious effort to control your weight?</b>					

25.1	Daily	10	12.3	13	09.8
25.2	1-3 times a week	09	11.1	20	15.2
25.3	Rarely	03	03.7	11	08.3
25.4	Very rarely	06	07.4	19	14.4
25.5	Never	52	64.2	70	53.0
	<b>Why do you diet?</b>				
26.1	To look thinner and beautiful	20	24.7	42	31.8
26.2	To lose weight	09	11.1	30	22.7
26.3	To please others	02	02.5	00	00.0
26.4	Any other	10	12.3	05	03.8
26.5	Not applicable	40	49.4	55	41.6
	<b>What techniques have you tried for dieting?</b>				
27.1	Skipping a meal	01	01.2	09	06.8
27.2	Avoiding fried foods	08	09.9	21	15.9
27.3	Avoiding junk foods	07	08.6	18	13.6
27.4	Doing regular exercise	15	18.5	24	18.2
27.5	Limiting food intake	04	04.9	10	07.6
27.6	Taking slim medication	01	01.2	00	00.0
27.7	Taking liquids only	00	00.0	01	00.8
27.8	Other methods				
27.9	Combination	00	00.0	02	01.5
27.10	Not applicable	45	55.5	50	37.9
	<b>How often have you been able to fulfill your goal of dieting?</b>				
28.1	Always	14	17.3	14	10.6
28.2	Often	00	00.0	04	03.0
28.3	Sometimes	07	08.6	44	33.3
28.4	Rarely / never	04	04.9	12	09.1
28.5	Not applicable	54	66.6	57	43.2
	<b>Do you enjoy eating along with your family?</b>				
29.1	Yes	76	93.8	121	91.7
29.2	No	04	04.9	11	08.3
	<b>When in school, do you enjoy eating with friends or do you eat alone?</b>				
30.1	Eat with friends	76	93.8	129	97.7
30.2	Eat alone	05	06.2	03	02.3

Table 5 depicts the frequency and percentage distribution of dietary factors of school adolescents. The findings revealed that most of the male and female adolescents did not take coffee, tea, milk, juice and coca cola/aerated drinks (48), (81) and (35), (63) and (37), (65) and (36), (49) and (42), (58) daily. Maximum number of male (68) and female adolescents (113) had drunk water with meals. Majority of the male adolescents and female adolescents normally ate parantha for breakfast (55), (82) and ate breakfast before going to school (59), (64) respectively. Most of the male adolescents and female adolescents usually took fruits for sweet dish (33), (59) and did not skip meals in a week (45), (47) respectively. Majority of male adolescents and female adolescents always ate salad or vegetables with lunch (34) and (50) and with dinner (37) and (52) respectively. Most of the male adolescents (34) sometimes ate sweet dish with lunch whereas female adolescents (47) did not eat sweet dish with lunch. Majority of the male adolescents (27) and female adolescents (46) sometimes ate sweet dish with dinner. Most of the male adolescents (35) did not eat fast food in restaurants in a week as compared to female adolescents (51) did eat fast food in restaurants once a week. Majority of the male adolescents (52) and female adolescents (101) did not drink tea or coffee following dinner in a week. Majority of male adolescents (44) and female adolescents (50) did not skip meals in a week. Most of the male adolescents (33) did not skip meal whereas female adolescents (52) skipped breakfast most frequently. Most of the male adolescents (30) did not substitute their meal with snacks in a week as compared to female adolescents (48) substituted their meal with snacks once a week. Majority of male adolescents (27) and female adolescents (50) usually took fried snacks. Majority of the male adolescents (44) and female adolescents (77) generally took snacks between breakfast and lunch. Majority of the male adolescents (31) and female adolescents (59) routinely used mustard oil for cooking at home. Most of the male adolescents (26) did not take pickle whereas female adolescents (41) took pickle with school lunch. Majority of the male adolescents (34) and female adolescents (43) took white butter in routine. Majority of the male adolescents (52) and female adolescents (70) were not in conscious diet effort to control their weight. Majority of the male adolescents (40)

and female adolescents (55) did not diet. Majority of the male adolescents (45) and female adolescents (50) never tried for dieting. Majority of the male adolescents (54) and female adolescents (57) were not able to fulfill goal of dieting. Most of the male adolescents (76) and female adolescents (121) enjoyed eating along with family. Most of the male adolescents (76) and female adolescents (129) enjoyed eating with friends.

**Table 6:** Frequency and Percentage Distribution of Life Style factors of School Adolescents  
N=213

Sr. No	Life Style Factors	Male		Female	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
<b>1</b>	<b>How many hours do you watch television in a day?</b>				
1.1	No television watching	12	15.0	17	13.0
1.2	<3h per day	45	55.5	65	49.0
1.3	>3h per day	24	29.5	50	38.0
<b>2</b>	<b>How many hours do you play computer/video games in a day?</b>				
2.1	No computer/video games	43	53.2	80	60.6
2.2	<3h per day	22	27.1	37	28.1
2.3	>3h per day	16	19.7	15	11.3
<b>3</b>	<b>How much time do you spend in talking with friends in a day?</b>				
3.1	None	13	16.0	16	12.1
3.2	<3h per day	42	51.8	63	47.7
3.3	>3h per day	26	32.2	53	40.2
<b>4</b>	<b>How much time do you spend in sitting activities in a day?</b>				
4.1	No sitting activity	16	20.0	19	14.4
4.2	<3h per day	41	50.5	56	42.4
4.3	>3h per day	24	29.5	57	43.2
<b>5</b>	<b>How often do you go to morning walk in a week?</b>				
5.1	Daily	17	21.0	18	13.7
5.2	1-3 times in a week	15	18.5	25	18.8
5.3	4-6 times in a week	05	06.1	09	06.8
5.4	Rarely	22	27.2	35	26.6
5.5	Never	22	27.2	45	34.0
<b>6</b>	<b>How often do you play the outdoor games?</b>				
6.1	Daily	36	44.4	31	23.5
6.2	1-3 times in a week	19	23.4	15	11.4
6.3	4-6 times in a week	05	06.3	02	01.5
6.4	Rarely	11	13.5	42	31.8
6.5	Never	10	12.4	42	31.8
<b>7</b>	<b>How often do you go to gym for exercise?</b>				
7.1	Daily	07	08.6	07	05.3
7.2	1-3 times in a week	05	06.3	05	03.8
7.3	Very rarely	16	19.7	07	05.3
7.4	Never	53	65.4	113	85.6
<b>8</b>	<b>How often do you help your parents in household activities?</b>				
8.1	No	03	03.7	09	06.8
8.2	Sometimes	49	60.5	65	49.2
8.3	Frequent	29	35.8	58	44.0
<b>9</b>	<b>How often do you eat food while watching television in a week?</b>				
9.1	Once	09	11.1	10	07.5
9.2	Twice	08	10.0	14	10.6
9.3	Thrice	08	10.0	10	07.5
9.4	Four times	08	10.0	02	01.6
9.5	Five times	02	02.4	02	01.6
9.6	Daily	39	48.1	59	44.6
9.7	Never	07	08.4	35	26.5
<b>10</b>	<b>How often do you eat food while reading newspaper in a week?</b>				
10.1	Once	04	04.5	05	04.0
10.2	Twice	03	03.4	01	01.0
10.3	Thrice	02	02.4	02	01.6
10.4	Four times	00	00.0	00	00.0
10.5	Five times	01	01.2	00	00.0
10.6	Daily	04	04.5	06	04.4
10.7	Never	68	84.0	117	89.0
<b>11</b>	<b>How many days were you physically active for a total of at least 60 minutes per day during last 7 days?</b>				
11.1	Once	10	12.2	19	14.3
11.2	Twice	05	06.1	15	11.3
11.3	Thrice	06	07.3	15	11.3
11.4	Four times	03	04.0	02	01.6
11.5	Five times	08	10.0	03	02.2

11.6	Daily	24	29.4	29	22.0
11.7	Never	25	31.0	49	37.3
<b>12</b>	<b>How many days are you physically active for a total of at least 60 minutes per day during a typical or usual week?</b>				
12.1	Once	04	04.5	15	11.3
12.2	Twice	07	08.4	20	15.1
12.3	Thrice	10	12.2	13	10.0
12.4	Four times	03	04.0	04	03.2
12.5	Five times	09	11.1	03	02.2
12.6	Daily	16	19.8	31	27.4
12.7	Never	32	40.0	46	34.8

Table 6 depicts the frequency and percentage distribution of life style factors of school adolescents. The findings revealed that majority of male adolescents (45) and female adolescents (65) watched television less than 3 hour per day. Most of the male adolescents (43) and female adolescents (80) did not play computer/video games in a day. The majority of male adolescents (42) and female adolescents (63) spend < 3 hour per day in talking with friends. Mostly male adolescents (41) spend <3 hour per day in sitting activities while female adolescents (57) spend >3 hour per day in sitting activities. The majority of male adolescents (22) rarely or never went to morning walk in a week while female adolescents (45) never went to morning walk in a week. Maximum male adolescents (36) daily played the outdoor games whereas female adolescents (42) rarely or never played the outdoor games. None of male adolescents (53) and female adolescents (113) went to gym for exercise. Occasionally male adolescents (49) and female adolescents (65) helped their parents in the household activities. Majority of male adolescents (39) and female adolescents (59) ate food while watching television. None of male adolescents (68) and female adolescents (117) ate food while reading newspaper. Neither male adolescents nor female adolescents were physically active for a total of at least 60 minutes per day during last 7 days and during a typical or usual week (25), (49) and (32), (46) respectively.

#### IV. Discussion

The present study revealed the prevalence of overweight and obesity in male and female school adolescent were (4%) and (9.0%); (2.4%) and (0.8%) respectively. The findings were consistent with Bhargava, Kandpal, Aggarwal, and Sati (2016) who conducted a study to assess the prevalence of overweight and obesity in urban private schools on 1266 children aged between 6-17 years. Their findings revealed that the prevalence of overweight was 15.6% of which 5.4% were obese, with maximum prevalence in boys attending urban private school. The findings were also consistent with Pawar and Choksey (2016) who conducted a study to find out the prevalence of overweight and obesity among students in four schools on 828 students (590 were girls and 1238 were boys). The findings revealed that the prevalence of overweight and obesity by cole et al., criteria, were 11.3% and 3.3% and by Khadilkar et al., criteria were 17.5% and 7.8 % respectively

The present study revealed that the overall prevalence of overweight was higher in female adolescents as compared to male adolescents whereas the overall prevalence of obesity was higher in male adolescents as compared to female adolescents. The findings were consistent with Khadilkar and Cole (2011) who conducted a study to assess the prevalence of overweight and obesity in apparently healthy children in eleven affluent urban and rural private schools on 20243 children aged between 2 and 17 years. The findings revealed that the prevalence of overweight and obesity was 18.2% by the IOTF classification and 23.9% by the WHO standards. The prevalence of overweight and obesity was higher in boys than girls.

#### References

- [1]. AA Zayed, AM Beano, FI Haddadin, SS Radwan, SA Allauzy, MM Alkhayyat, ZA Al-Dahabrah, YG Al-Hasan, and AF Yousef, *Prevalence of short stature, underweight, overweight, and obesity among school children in Jordan. BMC Public Health.* 16 (1), 2016, 1040.
- [2]. RK Anuradha, RB Sathyavathi, TM Reddy, R Hemalatha, G Sudhakar, P Geetha, and KK Reddy, *Effect of social and environmental determinants on overweight and obesity prevalence in adolescent children, Indian Journal of Endocrinology and Metabolism,* 19(2), 2015, 283-7.
- [3]. M Bhargava, SD Kandpal, P Aggarwal, HC Sati, *Overweight and Obesity in School Children of A Hill State In North India: Is the Dichotomy Urban-Rural or Socio-Economic? Results from a Cross-Sectional Survey, PLoS One,* 11 (5), 2016, 26.
- [4]. SV Pawar, AS Choksey, SS Jain, RG Surude, and PM Rathi, *Prevalence of Overweight and Obesity in Schools of South Mumbai, Journal of Clinical and Diagnostic Research: JCDR,* 10(3), 2016, 2.
- [5]. VV Khadilkar, AV Khadilkar, TJ Cole, SA Chiplonkar, and D Pandit, *Overweight and obesity prevalence and body mass index trends in Indian children, International Journal of Pediatric Obesity: IJPO: an official journal of the international association for the study of obesity,* 6(2-2), 2011, 216-24.