

Original Research Article

# A Pre-Experimental Study to Assess the Effectiveness of Planned Teaching Programme on Knowledge and Attitude Regarding Prevention of Obesity among Adolescent Girls in Selected Schools of Joginder Nagar, Mandi District, Himachal Pradesh

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## ABSTRACT

Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have an adverse effect on health, leading to reduced life expectancy and/or increased health problems. An evaluatory approach, pre-experimental one group pre-test post-test design, 60 randomly selected (lottery method) students from two conveniently selected schools of district Mandi, Himachal Pradesh. Planned teaching programme with the help of interactive lecture method was administered after the assessment of pre-intervention knowledge and attitude regarding prevention of obesity. Post intervention knowledge and attitude was assessed on the 7<sup>th</sup> day of the administration of planned teaching programme through the same structured knowledge questionnaire to assess knowledge and structured attitude scale was used to assess the attitude regarding prevention of obesity. The results of this study in general showed, the significant difference between the mean pre-test and post-test knowledge score ( $t_{59}=15.363$ ,  $p<0.001$ ) and attitude score ( $t_{59}=9.861$ ,  $p<0.001$ ). The significant difference was found in between all the areas. There were associations between the pre-test knowledge and attitude score and selected demographic variables. Hence it can be concluded that planned teaching programme was effective in improving knowledge and changing attitude regarding prevention of obesity among adolescent girls, which was evident in post-test knowledge score and attitude score.

**Key words:** Effectiveness, Planned Teaching Programme, Knowledge, Attitude, Obesity, Adolescent girls.

## INTRODUCTION

Obesity is a global health challenge of 21<sup>st</sup> century, with morbid obesity affecting 5 percent of the country's population. Obesity in teenagers is a growing problem that has become worse in recent times. Obesity can be seen as the first wave of a defined cluster of non-communicable diseases called "New World Syndrome," creating an enormous socio economic and public health burden in poorer countries. Obesity is the most common nutritional disorder in the western countries and among the higher income groups in the developing countries. <sup>[1]</sup>

According to Centre for Disease Control and Prevention (2008) Obesity means having too much body fat. It is not the same as being overweight, which means weighing too much. A person may be overweight from extra muscle, bone, or water, as well as from having too much fat. Both terms mean that a person's weight is greater than what is considered healthy for his/her height. Obesity is one of the most serious public health challenges of 21<sup>st</sup> century. <sup>[2]</sup>

World Health Organization stated about 21 million children under age 20 are overweight or obese in China by 2015 which consisted of 23% of boys and 14% of

girls. World Health Organization existing data it has been projected that by the year 2030 level of obesity could be as high as 50-80% in the USA, between 30-40% in Australia, England and Mauritius and over 20.5% in some developing countries. According to WHO (2014) the prevalence was comparatively lower in Asia (4.9% in 2010), the number of afflicted children were greater. The prevalence of childhood obesity increased from 4% to 6% in 2010 which is expected to reach 90% or approximately 60 million in 2020. [3]

A study conducted to assess the prevalence of overweight and obesity among 1061 (610 boys and 451 girls) children and adolescent in Kolkata India. Participants were divided in to three ages, Group I (8-11), Group II (12-15) and Group III (16-18). The prevalence of overweight was 13.3%, 19.8% and 18.5% and obesity was 4.1%, 7.6% and 5.4%. Respectively higher prevalence of overweight and obesity was observed for girls in the age group 12-15 years and 16-18 years. [4]

A cross-sectional study was carried out to determine the prevalence of overweight and obesity among urban school-going adolescents 10-19 years of both sexes studying from 5<sup>th</sup> to 12<sup>th</sup> classes in various government and private schools of Shimla city in Himachal Pradesh. A sample of 3385 students comprising 1665 female (49.2%) and 1720 (50.8%) was formed for the purpose of the study. The total 1665 females, 661 (19.5% of total students) and 1004 (29.7% of total students) were from government and private schools, respectively. Similarly, of a total of 1720 males, 916 (27.1% of total students) and 804 (23.8% of total students) were from government and private schools. It was observed that 39.8% subjects were underweight, 3.0% were overweight, and 0.9% obese. In the present study, 86 (85%) of the total 101 overweight and 31 (100%) of the total 31 obese subjects were from the private schools. [5]

Foregoing literature explains about clear evidence of demographic,

epidemiological and nutritional transition fuelling the epidemic of overweight, obesity and chronic disease particularly in urban areas of India. With continuous increasing levels of obesity there is corresponding increase in diabetes, cardiovascular diseases, hypertension and ultimately mortality rates.

#### **Need for study**

“Prevention is better than cure”. Therefore as a nurse, the researcher has a pivotal role in creating awareness among adolescent girls about the modification of lifestyle and prevention of future complications, which can help to improve the quality of life by providing education and support.

Today most of the research studies among adolescents have focused on the nutritional problems, anemia and menstrual problems. Very little information is available on knowledge and attitude of adolescents regarding obesity in urban and rural areas.

As an Investigator, I found adolescent girls are spending more time on mobile phone, playing video games, watching television and work on computers without doing any activity. Adolescent girls have lack of knowledge regarding obesity and were neglecting to take care of their health according to their age group.

Hence Investigator felt a strong need to conduct a study in a local setting. It is better to prevent obesity and its complications in adolescent period by conducting health awareness programme regarding lifestyle modification. The massive health education programme were urgently needed both in urban & rural areas in India. The awareness and knowledge regarding obesity is grossly inadequate among adolescents in India. Adolescent period may be the best time to mount primary and secondary prevention programme against obesity, because this the age of which individuals become more independent in their food choices and also when many cases of chronic overeating begin.

## METHODS

One group pre-test post-test research design used for the study. The population of the study were adolescent girls between the age group of 13-18 years.

### Inclusion criteria

1. Adolescent girls between the age group of 13-18 years.
2. Adolescent girls who were willing to participate in the study.
3. Adolescent girls who were able to understand English.
4. Adolescent girls who were available during the time of data collection.

### Exclusion criteria

1. Government school students.
2. Adolescent girls who were irregular in attending the school.
3. Adolescent girls who were having mental stress.

An evaluatory approach with pre-experimental one group pre-test post-test design was used for the study. The present study was conducted at two conveniently selected schools of district Mandi. The schools were selected on the basis of expected availability of adolescent girls, giving permission to conduct the study and convenience in terms of distance. The population for the study was 60 adolescent girls (13-18 years) in selected randomly from selected schools of District Mandi, Himachal Pradesh. The group included only those adolescent girls who were present at the time of data collection and who were willing to participate in the study.

Out of 60 randomly selected (lottery method) subjects, 30 subjects were selected from Gurukul and 30 subjects from Navjyoti senior secondary school of Joginder Nagar. Researcher took 10 students from each class. Duration of data collection was up to 4 weeks in the month of November, 2015. The tool was constructed after extensive review of literature and discussion with the subject-experts.

**Description of the tool:** The tool consisted of following 4 sections.

**Section A:** It consisted of personal profile of the subjects' which included age, class in

which studying, religion, type of family, area of residence, education of mother, education of father, monthly family income, family history of obesity, dietary habits and sources of information.

**Section B:** It consisted of structured knowledge questionnaire which contained 20 items regarding prevention of obesity.

Table No 3.1: Scoring key to assess the knowledge regarding prevention of obesity among adolescent girls.

Knowledge	Range of scores
Poor	0-5
Average	6-10
Good	11-15
Excellent	16-20

**Section C:** It consisted of structured attitude scale which contained 24 items regarding prevention of obesity.

Table No 3.2: Scoring key to assess the attitude regarding prevention of obesity among adolescent girls.

Attitude	Range of scores
Unfavorable	1-32
Moderately favorable	33-64
Favorable	65-96

### Scoring key

In structured knowledge questionnaire which contained 20 items regarding prevention of obesity, each right response carried one mark and wrong response carried zero marks.

For structured attitude scale which contained 24 items regarding prevention of obesity, for positive and for negative statements highest score was four.

The 24 questions in Section- C are rating questions. The scoring scale consists of four options Strongly agree(4) – agree(3) – disagree(2)– Strongly disagree(1). There are 12 positively stated items and 14 negatively stated items. In positively stated items the scores awarded in the order of 1, 2, 3 and 4. Negatively stated items the scores awarded in the order of 4, 3, 2 and 1.

The content validation was done by 17 experts in which 5 internal-experts were from Akal College of Nursing and 12 were external-experts. The experts suggested simplification of language, reorganization and addition of certain items. Appropriate modifications were accordingly made and the tool was finalized.

The reliability of the tool was established by test-retest and split-half method by administering the tool for 6 adolescent girls from Mount Maurya International senior secondary school, Joginder Nagar, Mandi District, Himachal Pradesh. Reliability was established by test-retest method to assess the structured knowledge questionnaire and split-half method to assess the structured attitude scale. Karl Pearson's correlation coefficient formula was used. The reliability for the tool was found to be 0.87 for knowledge and 0.81 for attitude respectively, which showed that the tool was reliable. Data was collected and was tabulated according to objectives of the study using descriptive and inferential statistics.

Written permission was obtained from the concerned authorities before the data collection and the investigator familiarized herself with her subjects and explained the purpose of the study to them. After giving necessary instructions to the subjects, the baseline information was collected along with knowledge questionnaire. Pre-test knowledge level and attitude were assessed by structured knowledge questionnaire and structured attitude scale. Time taken for the pre-test was 30 minutes. Immediately after the pre-test, planned teaching programme regarding prevention of obesity was administered to the subjects. Post-test was conducted on the 7<sup>th</sup> day using the same structured knowledge questionnaire and structured attitude scale.

## RESULTS

Main findings are discussed under the following headings

### SECTION A: Personal profile of the subjects.

**Table No. 1: Frequency and percentage distribution of personal profile of the subjects. N=60**

Sr. No.	Variables	Personal profile of the subjects	frequency	%
1	Age (in years)	13-14years	30	50.0
		15-16 years	26	43.3
		17-18 years	4	6.7
2	Class in which studying	10th class	20	33.3
		11th class	20	33.3
		12th class	20	33.3
3	Religion	Hindu	60	100.0
4	Type of family	Nuclear	34	56.7
		Joint	26	43.3
5	Area of residence	Urban	13	21.7
		Rural	42	70.0
		Semi-urban	5	8.3
6	Education of mother	No formal education	00.00	00.00
		Primary	2	3.3
		Secondary	14	23.3
		Higher secondary	26	43.4
		Graduate	11	18.3
7	Education of father	Post graduate	7	11.7
		No formal education	00.00	00.00
		Primary	00.00	00.00
		Secondary	10	16.7
		Higher secondary	14	23.3
8	Monthly family income	Graduate	15	25.0
		Post graduate	21	35.0
		Below<5000	8	13.3
		5001-15,000	8	13.3
		15,001-25,000	14	23.4
9	Family history of obesity	Above>25,001	30	50.0
		Yes	26	43.3
		No	32	53.4
10	Dietary habits	If yes, specify	2	3.3
		Vegetarian	22	36.7
		Non vegetarian	9	15.0
11	Sources of information	Eggetarian	29	48.3
		Formal education	23	38.4
		Family members	6	10.0
		Friends	5	8.3
		Media including newspapers and TV	26	43.3

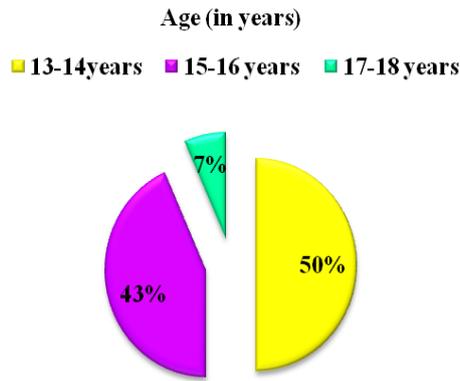


Fig.No.1: Percentage distribution according to age

## SECTION B: PRE-TEST AND POST-TEST KNOWLEDGE REGARDING PREVENTION OF OBESITY AMONG ADOLESCENT GIRLS.

Table No. 2: Pre-test and post-test knowledge regarding prevention of obesity among adolescent girls. N=60

Level of knowledge	Pre-test score			Post-test score		
	Range of scores	F	%	Range of scores	frequency	%
Poor	0-5	2	3.3	0-5	0	0
Average	6-10	43	71.7	6-10	4	6.7
Good	11-15	14	23.3	11-15	23	38.3
Excellent	16-20	1	1.7	16-20	33	55.0
	Mean± SD=9.30±2.204			Mean± SD=15.28±2.799		

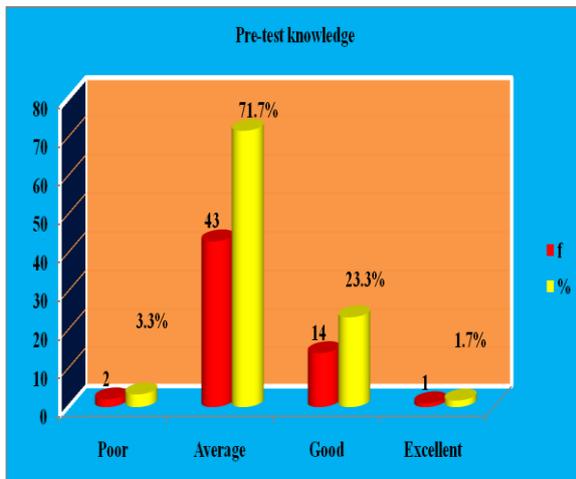


Fig.No.1: Percentage distribution according to the pre-test knowledge.

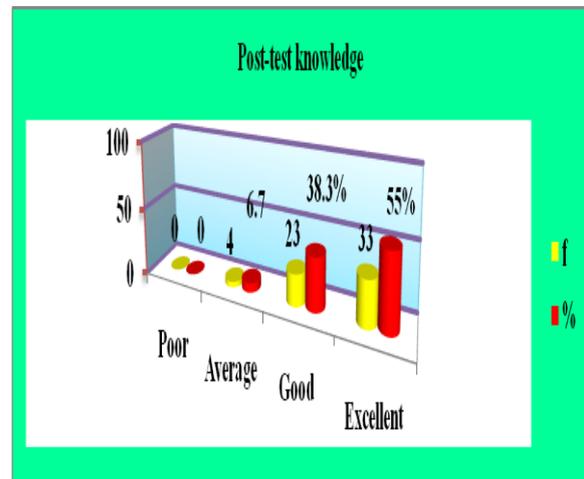


Fig.No.2: Percentage distribution according to the post-test knowledge.

## SECTION C: PRE-TEST AND POST-TEST ATTITUDE REGARDING PREVENTION OF OBESITY AMONG ADOLESCENT GIRLS.

Table No. 3: Pre-test and post-test attitude regarding prevention of obesity among adolescent girls. N=60

Level of attitude	Pre-test score			Post-test score		
	Range of scores	frequency	%	Range of scores	frequency	%
Unfavorable	0-32	0	0	0-32	0	0
Moderately favorable	33-64	2	3.3	33-64	0	0
Favorable	65-96	58	96.7	65-96	60	100
	Mean± SD=75.83±5.654			Mean± SD=82.00±5.932		

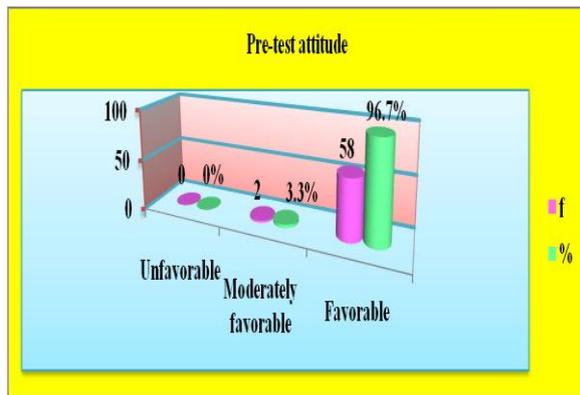


Fig.No.3: Percentage distribution according to the pre-test attitude.

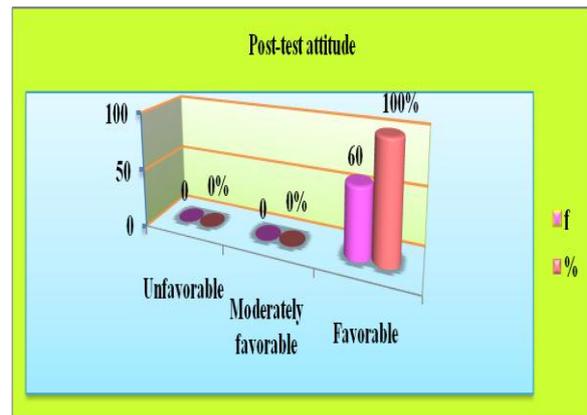


Fig.No.4: Percentage distribution according to the post-test attitude.

### SECTION D: EFFECTIVENESS OF PLANNED TEACHING PROGRAMME ON KNOWLEDGE AND ATTITUDE REGARDING PREVENTION OF OBESITY AMONG ADOLESCENT GIRLS.

Table No. 4: Pre-test and post-test knowledge regarding prevention of obesity among adolescent girls. N=60

Knowledge	Pre-test		Post-test		Paired 't' test df=59	Table 't' value		p-value
	f	%	f	%		0.05	0.01	
Poor	2	3.3	0	0	-15.363	2.00	2.66	.001***
Average	43	71.7	4	6.7				
Good	14	23.3	23	38.3				
Excellent	1	1.7	33	55.0				
<b>Mean ±SD</b>	<b>9.30±2.204</b>		<b>15.28±2.799</b>					

\*Statistically significant at  $p < 0.05$  \*\*\*statistically highly significant at  $p < 0.001$

The data in table 6 depicts the mean knowledge of the pre-test and post-test score regarding prevention of obesity among adolescent were mostly different. The pre-test mean score was 9.30 with a standard deviation of 2.204 and post-test mean score was 15.28 with a standard deviation of 2.799 which showed that there

was increase in excellent knowledge of the subjects.

The statistical paired 't' test indicated that the sample mean, namely the pre-test and post-test differed significantly from each other indicating rejection of the null hypothesis and upholding the alternate hypothesis pointing to the effectiveness of the planned teaching programme.

Table No. 5: Pre-test and post-test attitude regarding prevention of obesity among adolescent girls. N=60

Attitude	Pre-test		Post-test		Paired 't' test df=59	Table 't' value		p-value
	f	%	f	%		0.05	0.01	
Unfavorable	0	0	0	0	-9.861	2.00	2.66	.001***
Moderately favorable	2	3.3	0	0				
Favorable	58	96.7	60	100				
<b>Mean ± SD</b>	<b>75.83±5.654</b>		<b>82.00±5.932</b>					

\*Statistically significant at  $p < 0.05$  \*\*\*statistically highly significant at  $p < 0.001$

The data in table 7 depicts the mean attitudes of the pre-test and post-test score regarding prevention of obesity among adolescent. The pre-test mean score was 75.83 with a standard deviation of 5.654 and post-test mean score was 82.00 with a standard deviation of 5.932 which showed

that there was a visible increase in favorable attitude of the subjects.

The statistical paired 't' test indicated that the attitude mean score found to be increase at the level  $p < 0.001$  revealing the effectiveness of planned teaching programme and acceptance of the alternate hypothesis.

**SECTION E: ASSOCIATION BETWEEN THE PRE-TEST KNOWLEDGE AND ATTITUDE WITH PERSONAL PROFILE OF THE SUBJECTS.**

**Table No. 6: Association between the pre-test knowledge with personal profile of the subjects. N=60**

Personal profile of the subjects	Groups	Sum of squares	df	Mean square	F ratio	Table F value		p-value
						0.05	0.01	
Age (in years)	Between Groups	70.422	2	35.211	9.284	3.16	5.00	.001***
	Within groups	216.178	57	3.793				
Class in which studying	Between Groups	57.121	2	28.561	7.094	3.16	5.00	.002***
	Within groups	229.479	57	4.026				
Type of family	Between Groups	35.283	1	35.283	8.143	4.01	7.09	.006***
	Within groups	251.317	58	4.333				
Area of residence	Between Groups	1.693	2	.847	.169	3.16	5.00	.845 <sup>NS</sup>
	Within groups	284.907	57	4.998				
Education of mother	Between Groups	7.248	4	1.812	.357	2.54	3.68	.838 <sup>NS</sup>
	Within groups	279.352	55	5.079				
Education of father	Between Groups	4.410	3	1.470	.292	2.77	4.15	.831 <sup>NS</sup>
	Within groups	282.190	56	5.039				
Monthly family income	Between Groups	29.205	3	9.735	2.118	2.77	4.15	.108 <sup>NS</sup>
	Within groups	257.395	56	4.596				
Family history of obesity	Between Groups	16.110	2	8.055	1.697	3.16	5.00	.192 <sup>NS</sup>
	Within groups	270.490	57	4.745				
Dietary habits	Between Groups	48.589	2	24.294	5.818	3.16	5.00	.005***
	Within groups	238.011	57	4.176				
Sources of information	Between Groups	16.315	3	5.438	1.127	2.77	4.15	.346 <sup>NS</sup>
	Within groups	270.285	56	4.827				

\*Statistically significant at p<0.05 \*\*\*statistically highly significant at p<0.001

The above table presents the summary of ANOVA analysis which was used to bring out the relationship between the pre-test knowledge and personal profile of the subjects. The personal profile of the subjects such as age, class in which studying, type of family and dietary habits were statistically highly significantly

associated with the pre-test knowledge (p<0.001). Area of residence, education of mother, education of father, monthly family income, family history of obesity and sources of information were not found to be statistically significantly associated with the pre-test knowledge (p=0.05).

**Table No. 7: Association between the pre-test attitude with personal profile of the subjects. N=60**

Personal profile of the subject	Groups	Sum of squares	df	Mean square	F ratio	Table F value		p-value
						0.05	0.01	
Age (in years)	Between Groups	227.518	2	113.759	3.909	3.16	5.00	.026*
	Within groups	1658.815	57	29.102				
Class in which studying	Between Groups	11.417	2	5.709	.174	3.16	5.00	.841 <sup>NS</sup>
	Within groups	1874.916	57	32.893				
Type of family	Between Groups	112.247	1	112.247	4.00	4.01	7.09	.060 <sup>NS</sup>
	Within groups	1774.086	58	30.588				
Area of residence	Between Groups	114.398	2	57.199	1.840	3.16	5.00	.168 <sup>NS</sup>
	Within groups	1771.936	57	31.087				
Education of mother	Between Groups	496.831	4	124.208	4.916	2.54	3.68	.002***
	Within groups	1389..50	55	25.264				
Education of father	Between Groups	429.229	3	143.076	5.499	2.77	4.15	.002***
	Within groups	1457.105	56	26.020				
Monthly family income	Between Groups	411.592	3	137.197	5.210	2.77	4.15	.003***
	Within groups	1474.742	56	26.335				
Family history of obesity	Between Groups	226.304	2	113.152	3.885	3.16	5.00	.026*
	Within groups	1660.029	57	29.123				
Dietary habits	Between Groups	179.228	2	89.614	2.992	3.16	5.00	.058 <sup>NS</sup>
	Within groups	1707.105	57	29.949				
Sources of information	Between Groups	26.638	3	8.879	.267	2.77	4.15	.849 <sup>NS</sup>
	Within groups	1859.695	56	33.209				

\*Statistically significant at p<0.05 \*\*\*statistically highly significant at p<0.001

The above table presents the summary of ANOVA analysis which was used to bring out the relationship between

the pre-test attitude and personal profile of the subjects. The personal profile of the subjects' such as education of mother,

education of father and monthly family income were statistically highly significantly associated with the pre-test attitude ( $p < 0.001$ ). Age and family history of obesity were statistically significantly associated with the pre-test attitude ( $p < 0.05$ ) whereas class in which studying, type of family, area of residence, dietary habits and sources of information were not found to be statistically significantly associated with the pre-test attitude ( $p = 0.05$ ).

## **DISCUSSION**

The aim of the study was to improve the knowledge and change attitude regarding prevention of obesity among adolescent girls. This study finding revealed that the planned teaching programme is one of the effective strategies to improve the knowledge and change attitude of adolescent girls. A similar study was conducted by Prashanth et al. (2013) the 't' value computed between the pre-test and post-test knowledge scores was statistically significant at 0.05 level of significance. The calculated 't' value ( $t = 10.57$ ) was greater than the table value ( $t(49) = 2.0096$ ). This indicates that the teaching programme on prevention of obesity was effective in improving the knowledge of adolescents. The 't' value (table 2) computed between the pre-test and post-test attitude scores was statistically significant at 0.05 level of significance. The 't' value ( $t = 3.75$ ) computed was greater than the table value ( $t(49) = 2.0096$ ) and showed that the teaching programme on prevention of obesity was effective in improving the attitude of adolescents. [6] In present study the statistical paired 't' test indicated that the mean knowledge found to be increase at the level  $p < 0.001$  revealing the effectiveness of planned teaching programme. Hence,  $H_1$  was accepted and  $H_{01}$  was rejected. Attitudes results showed that the statistical paired 't' test indicated that the attitude mean score found to be increase at the level  $p < 0.001$  revealing the effectiveness of the planned teaching programme. Hence,  $H_2$  was accepted and  $H_{02}$  was rejected. A

similar study was conducted by Kaur et al. (2014) that age, sex, family income, area of residence, type of family, dietary habits were statistically significant whereas education status, education of mother and hobbies were not statistically significant. [7]

The pre-test knowledge with personal profile of the subjects' such as age, class in which studying, type of family and dietary habits were statistically highly significantly associated with the pre-test knowledge ( $p < 0.001$ ). Area of residence, education of mother, education of father, monthly family income, family history of obesity and sources of information were not found to be statistically significantly associated with the pre-test knowledge ( $p = 0.05$ ).

The pre-test attitude with personal profile of the subjects' such as education of mother, education of father and monthly family income were statistically highly significantly associated with the pre-test attitude ( $p < 0.001$ ). Age and family history of obesity were statistically significantly associated with the pre-test attitude ( $p < 0.05$ ) and class in which studying, type of family, area of residence, dietary habits and sources of information were not found to be statistically significantly associated with the pre-test attitude ( $p = 0.05$ ).

## **CONCLUSION**

The study findings revealed that there was significant improvement in post-test knowledge and attitude which showed the effectiveness of planned teaching programme. So educating the adolescent girls regarding prevention of obesity will definitely help to reduce the incidence of obesity. It was the most effective intervention and was concerned with promoting health and preventing diseases. In the light of the above findings and personal experience of the investigator the following recommendations are offered.

1. The study can be replicated on all population samples with different demographic variables; thereby findings

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can be generalized for a larger population.

2. A similar study may be conducted to assess the knowledge, attitudes of mothers regarding obesity of their children.
3. A planned teaching programme can be conducted for adults regarding obesity and its health consequences.
4. A similar study can be replicated in community area.
5. A similar study can be conducted to compare the knowledge and attitude among adolescent girls of urban and rural communities.
6. A comparative study can be conducted to find the prevalence of childhood obesity between urban and rural school children.

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**Conflicts of interest:** None

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