

# A Study To Assess The Prevalence Of Obesity And Evaluate The Effectiveness Of Structured Teaching Programme On Knowledge Regarding “Prevention And Control Of Obesity” Among Adolescents In A Selected School Of Odisha.

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## Abstract

**Introduction:** In India obesity and overweight is increasing among urban adolescent. Both under and over nutrition is grappling the country at faster rate. **Objectives:** 1) To assess the prevalence of obesity among adolescents. 2) To evaluate the effectiveness of awareness programme on “prevention and control of obesity” based on knowledge and attitude of adolescents. **Methodology:** The research approach adopted for the study was survey for phase I and evaluative pre- experimental for phase II. The Research design used was descriptive survey for phase I and pre-experimental one group pre test post test design for phase II. **Analysis and interpretation:** majority i.e. 65 % of the adolescents had healthy weight and 4 % were underweight, followed by 21% of adolescents were overweight where as only 10 % of adolescents were in obese group and majority of girls i.e. (55% ) are obese than boys ( 45%). And the awareness programme was effective in enhancing the knowledge and changing attitude of adolescents regarding prevention and control of obesity as evident from significant ‘t’ value was calculated from pre test and post test scores. **Conclusion:** knowing the facts about obesity can help for prevention and control of different diseases and can protect the health.

**Key words:** Obesity, adolescents, structured teaching programme

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## I. Introduction

Obesity is becoming a global epidemic not only in developed nations but also in developing nations like India. Obesity is linked to a host of lifestyle disorders like diabetes, heart diseases, hypertension and stroke. The fundamental cause of obesity and overweight is an energy imbalance between calories consumed and calories expended. Easy availability of sugars and fats, messing with our body clocks and an increased sedentary lifestyle are responsible for obesity.

## II. Material and Methods

The Phase I of study was carried out on survey basis to assess the prevalence of obesity among adolescent children. The Phase II of study was carried out on experimental basis to evaluate the effectiveness of health awareness program on prevention and control of obesity in terms of knowledge and attitude among adolescent children.

### Study design

**Phase I-Descriptive survey design-**To assess the prevalence of obesity among adolescent.

**Phase-II-One group pre test, post test design-** To evaluate the effectiveness of awareness programme on “Prevention and control of obesity”.

### **Setting of the study**

In the present study both Phase 1 and Phase 2 were planned to be conducted at the selected private school in Odisha- Dr. A.N. Khosla D.A.V Public school, Rourkela, Odisha.

### **Sample And Sampling Technique**

#### **Phase 1-**

- Sample: In the present study sample were adolescent children of age group of 12-16yrs of a selected school of Odisha.
- Sample size: 260 adolescents.

- Sampling technique :
- Convenience sampling technique-was used to select the school.
- Simple random sampling technique by lottery method was use to select an adequate sampling.

**Phase 2 –**

- Sample: Adolescent children who fall in overweight and obesity category.
- Sample size: 80 adolescents
- Sampling technique : Total enumeration

**Criteria For Selecting Sample**

**Inclusive criteria-**

- Adolescent children of age group of 12-16yrs
- Students willing to participate.
- Students who are present during the study.

**Exclusive criteria –**

- Children with bony deformities like kyphosis, scoliosis or any other physical abnormalities are excluded.
- Absentees in the day of examination were excluded.

**Data Collection Tools And Techniques**

The following tools were used to collect the data:

1. A standard weighing machine and height scale used to measure body mass index (BMI) to assess the prevalence of obesity among adolescent school children.
2. A structured knowledge questionnaire to assess the knowledge of adolescent school children regarding prevention and control of obesity.
3. A structured attitude scale to assess the attitude of the adolescent school children regarding prevention and control of obesity.

**Methods to assess body mass index**

1. Obesity was measured through body mass index (BMI).
2. The formula for the body mass index is = Weight (kg)/ height (m<sup>2</sup>). Height as measured by meter scale standard and weight as measured by standard weighing scale.
3. According to **WHO guidelines**, obesity for adolescents is defined to be body mass index equal to or greater 30.
4. BMI- for- age weight status categories and the corresponding BMI are shown in the following table.

Weight status categories	BMI
Underweight	Less than 18.5
Healthy weight	18.5-24.9
Overweight	25-29.9
Obese	More than 30

**Statistical Analysis**

**PHASE I: SECTION I: FINDINGS RELATED TO SAMPLE CHARACTERISTICS OF SUBJECTS**

**Table 1-**Frequency and percentage distribution of adolescents (12-16 years) by their demographic characteristic  
N=260

SL NO.	CONTENT	FREQUENCY	PERCENTAGE
1	<b>AGE</b>		
	14 yrs	73	28%
	15 yrs	138	53%
2	<b>SEX</b>		
	16yrs	49	19.00%
	Male	125	48%
3	<b>RELIGION</b>		
	Female	135	52%

	Hindu	245	94.00%
	Muslim	10	4.00%
	Christian	5	2%
	Sikh	0	
	Any other	0	
4	<b>FATHER'S EDUCATION</b>		
	Professional Education	45	17%
	Post graduation	67	26.00%
	Graduation	126	48%
	Upto higher secondary level	22	9%
	Upto primary level	0	
	Illiterate	0	
5	<b>MOTHER'S EDUCATION</b>		
	Professional Education	5	2.00%
	Post graduation	45	17.00%
	Graduation	147	56%
	Upto higher secondary level	61	24.00%
	Upto high level	2	1%
	Illiterate	0	
6	<b>FATHER'S OCCUPATION</b>		
	Professional	19	8%
	Semi professional	48	18%
	Business man	138	53%
	Clerical worker	55	21.00%
	Unskilled worker	0	
	Unemployed	0	
7	<b>MOTHER'S OCCUPATION</b>		
	Professional	3	1.00%
	Semi professional	48	18.00%
	Business man	26	10%
	Clerical worker	12	5%
	Unskilled worker	0	
	Unemployed	171	66%
8	<b>FAMILY INCOME PER MONTH</b>		
	More than Rs.30,000	186	72.00%
	Rs 20,000-Rs30,000	41	16%
	Rs-10,000-Rs20,000	28	12.00%
	Less than Rs 10,000	0	
9	<b>TYPES OF FAMILY</b>		
	Joint	75	29.00%
	Nuclear	185	71.00%
10	<b>NO. OF SIBLINGS IN THE FAMILY</b>		

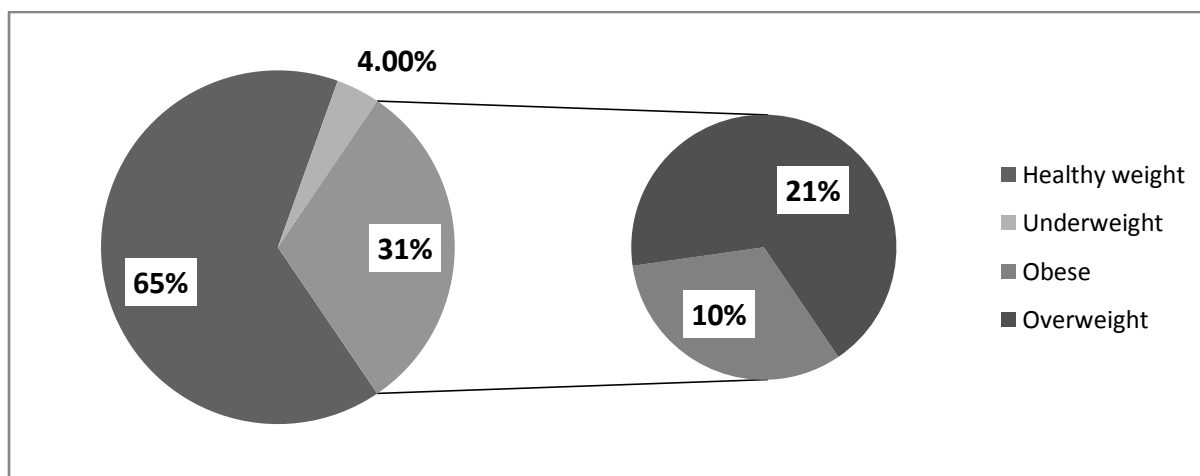
	No sibling	112	43.00%
	One	90	35.50%
	Two	35	13.00%
	Three	19	7.00%
	Above three	4	1.50%
11	<b>DIETARY HABITS</b>		
	Vegetarian	59	23%
	Non-vegetarian	201	77%

**SECTION 2**

**Findings related to frequency and percentage distribution of pattern of body mass index among adolescents.**

**Table -2: Frequency and percentage distribution of body mass index patterns among adolescents. N= 260**

WEIGHT CATEGORY	FREQUENCY	PERCENTAGE
Obese	26	10.00%
Overweight	54	21%
Healthy weight	168	65%
Underweight	11	4.00%



**Figure 17: Pie diagram showing percentage distribution of adolescents in terms of body mass index**

The data presented in Table- 6 and Figure 17 indicates majority 65 % of the adolescents had healthy weight and 4 % were underweight, followed by 21% of adolescents were overweight where as only 10 % of adolescents were in obese group.

**PHASE II: SECTION 1: DESCRIPTION OF SAMPLE CHARACTERISTICS**

**Table 3** Frequency and percentage distribution of children by demographic characteristics i.e. age, gender, religion, educational qualification, occupation, monthly income, type of family, number of sibling, dietary habit.

**N=80**

FREQUENCY AND PERCENTAGE DISTRIBUTION OF SAMPLE CHARACTERISTIC OF ADOLESCENT CHILDREN			
Sl No.	Content	Frequency	Percentage
1	<b>Age</b>		
	14 yrs	38	48%
	15 yrs	37	46%
	16yrs	5	6.25%
2	<b>Sex</b>		
	Boys	36	45%
	Girls	44	55%
3	<b>Religion</b>		
	Hindu	77	96.25%
	Muslim	3	3.75%
	Christian	0	
	Sikh	0	
	Any Other	0	
4	<b>Father's Education</b>		
	Professional Education	26	33%
	Post Graduation	24	30.00%
	Graduation	22	28%
	Upto Higher Secondary Level	8	10%
	Up To High School Level	0	
	Upto Primary School	0	
	Illiterate	0	
5	<b>Mother's Education</b>		
	Professional Education	11	13.75%
	Post Graduation	11	13.75%
	Graduation	44	55.00%
	Upto Higher Secondary Level	12	15%
	Up To High School Level	2	2.5
	Upto Primary School	0	
	Illiterate	0	
6	<b>Father's occupation</b>		
	Professionals	19	24%
	Semi Professional	26	33.00%
	Business Man	30	37.50%
	Clerical Worker	5	6.25%
	Unskilled Worker	0	
	Unemployed	0	
7	<b>Mother's occupation</b>		
Professionals	11	13.75%	

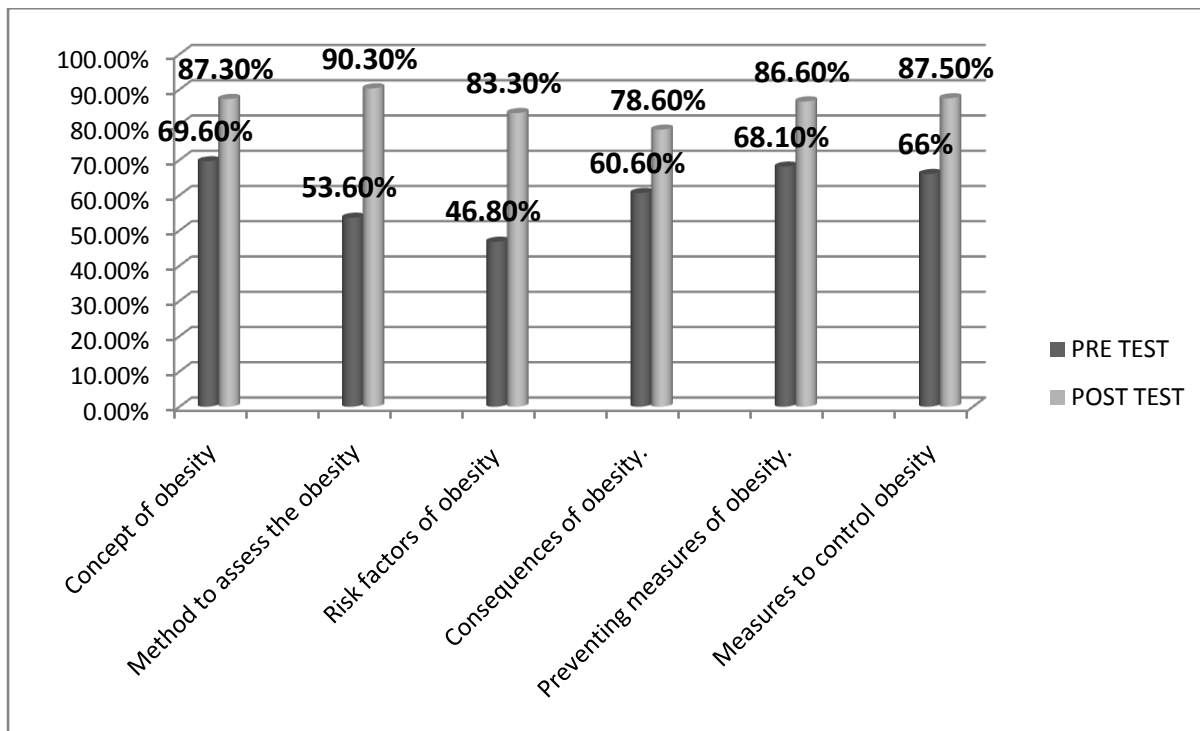
	Semi Professional	11	13.75%
	Business Man	0	
	Clerical Worker	5	6.25%
	Unskilled Worker	0	
	Unemployed	53	66.25%
8	<b>Family income per month</b>		
	more than Rs30,000	47	58.75%
	Rs 20,000-Rs30,000	26	33.00%
	Rs-10,000-Rs20,000	7	8.75%
	less than Rs 10,000		
9	<b>Types of family</b>		
	Joint	33	41.25%
	Nuclear	47	58.75%
10	<b>No. of siblings in the family</b>		
	No Sibling	12	15.00%
	One	36	45.00%
	Two	17	21.25%
	Three	11	13.75%
	Above Three	5	6%
11	<b>Dietary Habits</b>		
	Vegetarian	21	26.25%
	Non-Vegetarian	59	73.75%

**Table-4: SECTION 2: FINDINGS RELATED TO KNOWLADGE SCORES OF CHILDREN REGARDING PREVENTION AND CONTROL OF OBESITY**

KNOWLEDGE SCORES	Range Of Knowledge Scores	MEAN	Mean D	MEDIAN	S.D
PRE TEST	8-26	19.2		20	3.8
POSTTEST	14-29	25.47	6.27	25	2.1

The finding also shows that the standard deviation of post test knowledge score ( 2.1) is lower than pre test knowledge score (3.8).It shows that the group became more homogenous in terms of their knowledge in post test.

**Graph-1: Area- wise mean knowledge score, Mean percentage and Mean percentage gain of pretest post test knowledge scores of adolescent children.**



**Table-5: SECTION 3: FINDINGS RELATED TO ATTITUDE SCORES OF CHILDREN REGARDING PREVENTION AND CONTROL OF OBESITY**

ATTITUDE SCORES	Range of attitude scores	MEAN	Mean D	MEDIAN	S.D
PRE TEST	56-88	68.7	8.71	69.5	7.9
POSTTEST	59-94	77.41		78	7.8

The finding also shows that the standard deviation of post test attitude score ( 7.8) is lower than pre test attitude score (7.9).It shows that the group became more homogenous in term of their attitude.

**Table-6: Coefficient of correlation between knowledge scores and attitude score of adolescents regarding prevention and control of obesity**

N: 80

COEFFICIENT OF CORRELATION BETWEEN KNOWLADGE SCORE AND ATTITUDE SCORE			
VARIABLE	MEAN	STANDARD DEVIATION	'r' VALUE
KNOWLEDGE	25.47	2.10	0.20
ATTITUDE	77.41	7.8	

The data indicates that, the mean knowledge scores of adolescents was 25.47 with standard deviation 2.1 and mean attitude score was 77.41with standard deviation 7.8. Pearson r value was found to be .20 which is not significant at 0.05 level of significance. Hence there was no significant correlation between knowledge and attitude scores. Hence the knowledge and attitude scores are independent of each other.

**Table-7: SECTION 7: FINDINGS RELATED TO EFFECTIVENESS OF PLANNED TEACHING PROGRAM AND INFORMATION BOOKLET**

N=80

KNOWLEDGE SCORES	MEAN	MEAN D	SD <sub>D</sub>	SE <sub>D</sub>	t' VALUE
PRE TEST	19.2	6.27	2.02	0.52	9.45*
POST TEST	25.47				

df (78)= 1.99\* significant at 0.05 level

The data reflected the comparison between pre test and post test knowledge scores. The mean post test knowledge score(25.47) was higher than mean pre test knowledge score(19.2) with the mean difference of 6.27. the obtained mean difference was found to be statistically significant as evident from t' value of 9.45 for **df (78)** significant at 0.05 level of significance. This shows that the PTP and information booklet was effective in enhancing the knowledge of the adolescents.

### III. Results

#### SECTION:1 Findings related to the description of sample characteristics

- Out of 80 adolescents, 38(48%) are in the age group of 14 years, 37(46%) are in the age group of 15 years, 5(6.5%) are in the age group of 16 years. So maximum prevalence i.e. 48% was found in children of the age of 14 years.
- The subjects comprised of 36(45%) boys and 44(55%) girls. This shows that girls are more obese than boys.
- Majority of the subjects are Hindu by religion i.e. 77(96.25%), and only 3 (3.75%) are Muslim.
- Regarding education of father 26(33%) have professional education, 24(30%) are post graduates, 22(28%) are graduates and 8(10%) studied upto higher secondary level.
- Maximum mothers are graduates i.e. 44(55%), both professional education and post graduation are 11(13.75%) and only 2(2.5%) are upto higher secondary level of education.
- Regarding occupation of father, there are more businessmen i.e. 30 (24%), followed by semi professionals 26(33%), and those with professional job 19( 27.50%) and only 6(6.25%) are in clerical job .
- Majority of mothers are housewives 53(66.25%), 13.75% mothers are school teacher and 6.25% are in clerical job.
- The data regarding family income per month shows that 58.75% has family income of more than Rs.30000 per month, whereas 33% are in the range of family income of Rs.20,000-30,000 and only 8.75% are in the range of family income Rs.10,000-20,000
- Majority of subjects 47(58.75%) are from nuclear family, 33(41.25%) are from joint family
- Majority of subjects have one sibling 36(45%), 21.25% have two siblings, 15% have no sibling and only 6% have more than three siblings.
- Majority of subjects are non- vegetarian 159(73.75%) and only 21(26.25%) are vegetarian.

#### SECTION 2: Findings related to knowledge scores of the subjects regarding prevention and control of obesity.

- The mean post test knowledge score(25.47) was higher than mean pre test knowledge score(19.2) with the mean difference of 6.27.
- The mean knowledge of the adolescent children is 19.2 in pre test i.e. 64% which is less than 80% of the total score i.e. 25. This findings indicate that's the adolescent children are having inadequate knowledge about prevention of obesity.

#### SECTION 3: Findings related to attitude scores of the subjects regarding prevention and control of obesity.

- The mean post test attitude score(77.41) was higher than mean pre test attitude score(68.7) with the mean difference of 8.71.
- The mean attitude of the adolescent children is 68.7 in pre test i.e. 68.7% which is less than 80% of the total score i.e. 80. This findings indicate that's the adolescent children are having inadequate attitude about prevention of obesity.

#### SECTION 4: Findings related to co-relation between knowledge and attitude scores.



➤ The calculated 'r' value is statistically not significant. Hence there was no significant correlation between knowledge and attitude scores. So, the null hypothesis was accepted and research hypothesis was rejected.

➤ Hence the knowledge and attitude scores are independent of each other.

#### **SECTION 5: Findings related association between knowledge scores of adolescent children regarding prevention and control of obesity and selected variables .**

➤ There was no association between knowledge score and the factors such as education of father, occupation of parent, type of family, no. of sibling , dietary pattern.

➤ There was a significant association between knowledge score and income of the family.

#### **SECTION 6: Findings related to evaluation of effectiveness of awareness programme on prevention and control of obesity in terms of knowledge scores of the children.**

➤ The mean post test knowledge score(25.47) was higher than mean pre test knowledge score(19.2) with the mean difference of 6.27.

➤ Thus it is established that the differences obtained in mean pre test and mean post test knowledge scores was statistically significant. The obtained t' value 9.45 is significant at 0.05 level of significant. Hence we fail to accept null hypotheses.

➤ This shows that the PTP and information booklet was effective in enhancing the knowledge of the student.

#### **SECTION 7: Findings related to evaluation of effectiveness of awareness programme on prevention and control of obesity in terms of attitude scores of the children.**

➤ The mean post test attitude score is higher than mean pre test attitude score with the mean difference of 8.71. The obtained t' value 3.41 is significant at 0.05 level of significant. Hence we fail to accept null hypotheses.

➤ This shows that the PTP and information booklet was effective in enhancing positive attitude of the student.

### **IV. Discussions**

There is rapid rise in obesity of children. The consequences are diminishing quality of life and threatening the health of present and future generations. This trend needs to be reversed by bringing about awareness in children and teachers of all the classes of the society.

The present study was planned to evaluate, the knowledge and the attitude of the adolescent children regarding prevention and control of obesity. The other aim of the study was to highlight the consequences and prevention of obesity among adolescent children. The findings of the present study indicates that the prevalence of obesity is 31%, where 55% of girls were obese and 45% boys were obese. The findings were consistent with the study conducted by Jagadeshan S et al. (2014) where they did a study on prevalence of overweight and obesity among school children and adolescents in Chennai, India. There was the prevalence of overweight/obesity was significantly higher in private(21.4%,) compared to government schools(3.6%,) and, Overweight/obesity was higher among girls ( 18%) as compared to boys (16.2%,) .

The study also shows that majority 58.75% of obese adolescent school children had their family income more than Rs30,000. which suggested that they are socioeconomically well. The findings are similar to the findings of Goyal R.K. et al. (2010), where they found association of obesity with higher socioeconomic status.

The findings of the study also revealed that mean post test knowledge and attitude scores of adolescent school children are higher than mean pre test knowledge and attitude scores. The awareness programme was found to be effective in enhancing the knowledge and developing a positive attitude among adolescent children regarding prevention and control of obesity. The findings were somehow similar with the findings of Kaur Khushpreet (2012), to evaluate the effectiveness of information booklet on harmful effects of junk food in terms of knowledge in adolescent children. The study findings revealed that the information booklet was effective in enhancing knowledge of the adolescents.

Thus the study suggested that there is need to have survey on regular basis to assess the prevalence of obesity and measures should be taken to prevent obesity among adolescent school children.

### **V. Conclusions**

There was a deficit in knowledge among adolescent school children regarding prevention and control of obesity. The awareness programme was effective in enhancing the knowledge of school children.

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