

“A Study To Assess The Effectiveness Of Booklet On Knowledge Regarding Cause And Prevention Of Overweight/Obesity Among Adolescent In Selected Schools Of Gandhinagar City, Gujarat State”

Ms. Rajvi Patel¹, Ms. Himali Prajapati²

(C. M. Patel College Of Nursing, / Kadi Sarva Vishwavidhyalaya, India)

(Shardaben Bhagubhai Mangaldas Patel College Of Nursing / Kadi Sarva Vishwavidhyalaya, India)

Abstract:

Background: Childhood obesity occurs when a child is well above the normal weight for his or her age and height. Childhood obesity is particularly troubling because the extra pounds often start children on the path to health problems that were once confined to adults such as diabetes, high blood pressure and high cholesterol. Childhood obesity can also leads to poor self esteem and depression. If current trends continue without attention, today's children will become the first generation to live shorter life spans than their parents. Between 1980 and 2000, there was twofold increase in overweight

/ obese children (i.e 6-11 years old) and a threefold increase in overweight / obese adolescents. Being overweight in adolescence has been associated with increased risk of death among adult males and a variety of disease such as diabetes and cardio vascular disease in both adult male and female.

Materials and Methods: In this study Quasi- experimental research approach and one-group pre-test posttest research design was used; variables under the study were given booklet as independent variable; knowledge of Adolescents as dependent variables. Research setting was selected schools, Gandhinagar city, Gujarat state in that total 60 samples were selected with simple random sampling techniques. The instrument used for gathering necessary data was a semi structured knowledge questionnaire.

Results: The data obtained were analyzed and interpreted in the light of objectives and hypothesis using descriptive and inferential statistical in terms of mean, standard deviation, 't' test, and chi- square test value. The mean post-test knowledge score 17.17 was higher than mean pre-test score 10.47 with the mean difference of 6.7 and the calculated 't' value 10.45 was greater than tabulated 't' 2.00 thus findings indicate that the booklet regarding causes and prevention of overweight/ obesity was a suitable and effective method of instruction for updating and enhancing the knowledge of the Adolescents.

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I. Introduction

The term obesity is derived from the Latin word "Obesus" which means having "eaten until fat". It is usually defined as an excess of body fat and is often seen as an imbalance between energy intake and expenditure. Obesity is a state in which there is generalized accumulation of excess fat in the body leading to the body weight more than 20% of the required weight where as overweight is a state in which there is generalized accumulation of excess fat in the body leading to the bodyweight of more than 10% of required weight.

According to WHO, The fundamental cause of obesity and overweight is an energy imbalance between calories consumed and calories expended. Globally, there has been:

- an increased intake of energy-dense foods that are high in fat and sugars; and
- an increase in physical inactivity due to the increasingly sedentary nature of many forms of work, changing modes of transportation, and increasing urbanization.

Changes in dietary and physical activity patterns are often the result of environmental and societal changes associated with development and lack of supportive policies in sectors such as health, agriculture, transport, urban planning, environment, food processing, distribution, marketing, and education. The Healthy People 2010, objectives identify obesity as one of the most significant current health promotion and disease prevention priorities in this country because it is a major contributor to many preventable causes of death. Obesity in children is an equally significant public health concern. In addition, there is evidence that the incidence of children who are overweight is increasing despite efforts to the contrary. Overweight children face

an increased risk of compromised physical and mental well-being. Indeed, the consequences of childhood obesity are far reaching, implicating not only children, but parents, schools, communities and health care systems. Moreover, there is evidence that childhood obesity may become a lifetime sentence. Pediatric providers are at the forefront of the effort to reverse these trends, particularly in the role of determining the breadth of the problem. Yet there is evidence that there are shortcomings to current childhood obesity monitoring practices. Advanced practice nurses are uniquely positioned to impact the problem through their dual role in research and clinical practice.

II. Material And Methods

This Quasi-experimental with One Group Pre-test Post-test Design was carried out on Selected adolescent school students of Gandhinagar city. A total 60 Adolescents school students (both male and females) of aged 11 to 14 years were for in this study.

Study Design: Quasi-experimental Design

Study Location: The research setting were VED international school, Sargasan, M.M VASA primary School, Koba, Government School, Sector-16, Government School, Sector-30 at Gandhinagar city, Gujarat state, India.

Study Duration: 15/04/2024 to 27/04/2024.

Sample size: 60 Adolescents school student.

Sample size calculation: Among the total population of children in selected school among them total of 60 children selected by using Probability simple random sampling technique in selected schools, Gandhinagar city, Gujarat.

Subjects & selection method: Probability simple random sampling technique

Inclusion criteria:

1. Samples that was willing to participate in the study.
2. Samples who know Gujarati language.
3. Sample between the age group of 10-14years.

Exclusion criteria:

Children who are not available at the time of data collection. Children who are physically and mentally challenged.

Procedure methodology

An informed written consent from all the participants was taken before starting the study. The investigator approached the sample individually, discussed the objectives of the study and obtained consent for participation in the study. The investigator administered pre test on 1st day and then administered Booklet on the next day. The post test was taken after 7 days.

The Investigator analyzes the data in the following manner.

Section A: Demographic Variable to be analyzed using frequency and percentage and was presented in the form of table. The association of pre test knowledge scores with selected demographic variables was analyzed using 'chi square' test.

Section B: The data from the Semi Structured Knowledge Questionnaire before and after administration of Planned Teaching Programme was analyzed using mean, standard deviation (SD) and paired "t-test" and was presented in the form of tables and graphs.

Statistical analysis

Quasi experimental design was used in this study and it follows hypothesis. Hence it was essential to test null hypothesis. Statistical tests were used to test the hypothesis. For testing null Hypothesis 't' value calculated at 0.05 level of significance. If the Calculated 't' value was greater than the table 't' value, then the null hypothesis was rejected, and the research hypothesis was accepted. Paired 't' test was applied for paired data of independent observations. In paired 't' test degree of freedom was number of observations minus one (n-1). In this study, total samples were 60, so degree of freedom (DF) was 59 (60-1 = 59). Also, in this study one tailed 't' test was used so the tabulated 't' at 0.05 level of significance, for 59 DF was 2.00.

III. Result

- I. Table 1 Frequency and Percentage Wise Distribution of Samples Based on Demographic Variables of the Samples [N=60]
- II. Table no 1 Table 4.1. shows that out of 60 samples in Age 00 (00.00%) samples were of 11 years, 10 (16.67%) samples were 12 years, 28 (46.67%) samples were 13 years, 22(36.67%) samples were 14 years of age.
- III. In Gender out of 60 samples 40(66.67%) were males and 20(33.33%) were females.
- IV. In Standards out of 60 samples 00(00.00%) were in 6th standard, 15(25.00%) were in 7th standard, 14(23.33%) were in 8th standard, 31(51.67%) were in 9th standard.
- V. In Area of Living out of 60 samples 37(61.67%) were lives in urban area and 23(38.33%) were lives in rural area.
- VI. In religion out of 60 samples 52(86.67%) were Hindus, 4(6.67%) were Christians, 4(6.67%) were Muslims and 00(00.00%) were in others.
- VII. In Father’s Education out of 60 samples 26(43.33%) were primary education, 15(25.00%) were secondary education, 16(26.67%) were Higher secondary, 1(1.67%) were Degree.
- VIII. In Mother’s education out of 60 samples 52(86.67%) were primary education, 6(10.00%) were secondary, 2(3.33%) were Higher secondary, 00(00.00%) were degree.
- IX. In Father’s Education out of 60 samples 12(20.00%) were Government employee, 23(38.33%) were Private, 18(30.00%) were Business, 7(11.67%) were unemployed.
- X. In Previous Source of Information regarding causes and prevention of overweight/ obesity out of 60 samples 15(25.00%) were Family, 5(8.33%) were Friends/ Classmates/ Relatives, 6(10.00%) were Teachers, 4(6.67%) were Mass Media/ Electronic Media, 30(50.00%) were have No Such Kind Of Information.

Table no: 1 Shows metabolic parameters of patients of the three groups before treatment. (10)

ANALYSIS AND INTERPRETATION OF DATA RELATED TO ASSOCIATION BETWEEN PRE-TEST KNOWLEDGE SCORE WITH SELECTED DEMOGRAPHIC VARIABLES.			
Sr. No.	Demographic Variables	Frequency	Percentage (%)
1	Age in Year:		
	11 years	0	0%
	12 years	10	16.67%
	13 years	28	46.67%
	14 years	22	36.67%
2	Gender:		
	Male	40	66.67%
	Female	20	33.33%
	Transgender	0	0.00%
3	Standard		
	6th standard	0	0.00%
	7th standard	15	25.00%
	8th standard	14	23.33%
	9th standard	31	51.67%
4	Area of Living		
	Urban	37	61.67%
	Rural	23	38.33%
5	Religion		
	Hindu	52	86.67%
	Christian	4	6.67%
	Muslim	4	6.67%
	Other	0	0.00%
6	Father's Education		
	Primary	26	43.33%
	Secondary	15	25.00%
	Higher Secondary	16	26.67%
	Degree	1	1.67%
7	Mother's Education		
	Primary	52	86.67%
	Secondary	6	10.00%
	Heigher Secondary	2	3.33%
	Degree	0	0.00%
8	Father's Occupation		
	Government Employee	12	20.00%
	Private Service	23	38.33%
	Business	18	30.00%
	Unemployed	7	11.67%

9	Previous Source of Information		
	Family	15	25.00%
	Friends/ Classmates/ Relatives	5	8.33%
	Teaches	6	10.00%
	Mass Media/ Electronic Media	4	6.67%
	Have No such kind of information	30	50.00%

Follow up after 14 days

Table no 2: analysis and interpretation of data related to the knowledge of the samples before and after administration of booklet regarding causes and prevention of overweight/ obesity.

Table no2: Mean percentage and percentage gain of pre-test and post-test knowledge of the samples.

Content area	Number of question s	Pre test Knowledge score			Post test Knowledge score			Percentage(%) gain	Mean Differenc e
		obtai n score	Mean score	Mean %	obtain score	Mea n score	Mean %		
Introduction	4	45	0.75	18.8%	116	1.93	48.3%	29.58%	1.183
Causes	5	81	1.35	27%	171	2.85	57%	30%	1.5
Risk Factors	2	36	0.6	30%	64	1.07	53.3%	23.33%	0.467
Balanced Diet	13	338	5.63	43.3%	459	7.65	58.8%	15.51%	2.017
Prevention	6	128	2.13	35.6%	220	3.67	61.1%	25.56%	1.533
Total	30	628	10.5		1030	17.2		124%	6.7

- Table 2. The above table shows mean pre-test and mean post-test scores according to area wise distribution of knowledge scores. The mean pre-test score in “Introduction” is 0.75 which rise to 1.93 in the post test.
- In the area of “Causes” mean pre-test of 1.35 become 2.85 score as the post-test mean.
- In the area of risk factors mean pre-test of 0.6 rises to 1.07 in the post-test mean.
- In the area of Balanced diet mean pre test was 5.63 become 7.65 as the post test mean.
- In the area of Prevention mean pre-test score was 2.13 rises to 3.67 as post test mean score.

Figure no 1: Shows shows the comparison between pre-test and post-test knowledge scores obtained by the respondents regarding causes and prevention of overweight/ obesity among selected adolescents at selected school. The mean pre-test score was 10.47 and the mean post test score is 17.17 the mean difference between pre-test and post-test knowledge is 6.7. The table was also showing that the standard deviation of pre-test was 3.36 and post-test was 3.00. The calculated ‘t’ was 10.45 and tabulated ‘t’ is 2.00 at 0.05 level of significance.

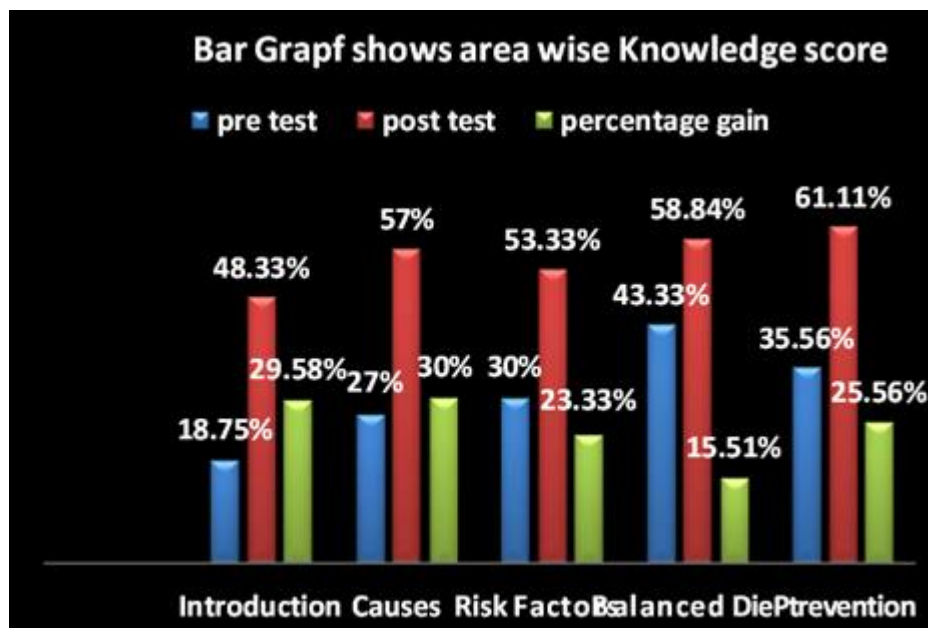


Figure no 1: Shows analysis and interpretation of the data related to assess the effectiveness of planned teaching programme regarding food borne disease and food safety in terms of knowledge.

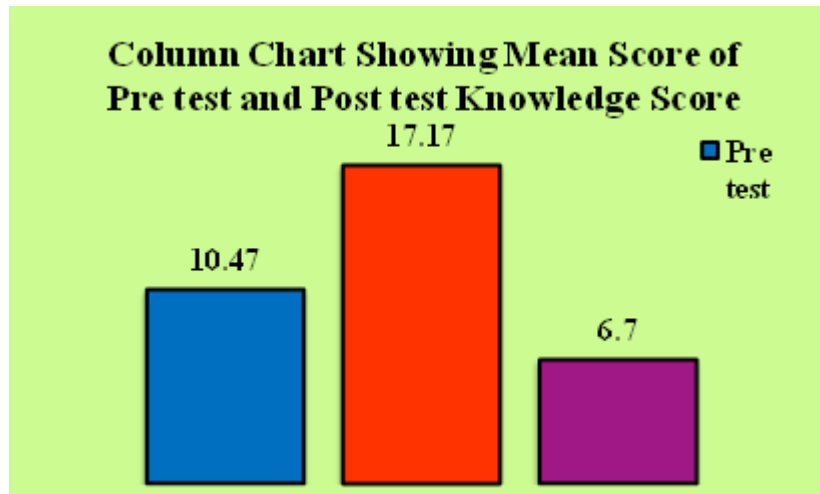


Figure- 2: Graph chart reveals that the mean post-test knowledge score was significantly higher than the mean pre-test knowledge scores. The calculated 't' value ($t = 10.45$) was greater than the tabulated 't' value ($t = 2.00$) therefore the null hypothesis H_0 was rejected and research hypothesis H_1 was accepted and it reveals that booklet was effective in terms of knowledge among the samples. Investigator concluded that there was significant increase in the mean post knowledge score as compared to the mean pre-test knowledge score after administration of booklet regarding causes and prevention of overweight/ obesity among adolescents.

Categorization of knowledge before and after administration of Planned teaching program				
Score of Knowledge	Pre test Knowledge		Post test Knowledge	
	Frequency	Percentage	Frequency	Percentage
Good (21-30)	0	0.00%	10	16.66%
Average (11-20)	27	45.00%	48	80.00%
Poor (0-10)	33	55.00%	2	03.34%
Total	60	100%	60	100%

Table: 4 Level of Knowledge Before and After Administration of booklet regarding causes and prevention of overweight/ obesity among adolescents

Table no 5: Table showing association between pre-test knowledge score and Age of adolescents,

Demographic variables	Frequency	(χ^2)		DF	Association at $P=0.05$
		Calculated Value	Table Value		
11 years	0	0.23	5.99	2	Not Significant
12 years	10				
13 years	28				
ears	22				

Table shows age in years of adolescents with the pre-test knowledge scores, the calculated value of chi-square (χ^2) 0.23 was less than 5.99, the table value of chi- square(χ^2) at the 2 degree of freedom and 0.05 level of significance. Therefore, age in years of adolescents was not significant for the knowledge of the samples.

Table showing association between pre-test knowledge score and Gender of adolescents

Table shows gender of adolescents with the pre-test knowledge scores, the calculated value of chi-square (χ^2) 0.3 was less than 3.84, the table value of chi- square(χ^2) at the 1 degree of freedom and 0.05 level of significance. Therefore, gender of adolescents was not significant for the knowledge of the samples.

Demographic variables	Frequency	(χ^2)		DF	Association at $P=0.05$
		Calculated Value	Table Value		
Male	40	0.3	3.84	1	Not Significant
Female	20				
Transgender	00				

Table showing association between pre-test knowledge score and standard of adolescents

Table shows standard of adolescents with the pre-test knowledge scores, the calculated value of chi-square (χ^2) 0.16 was less than 5.99, the table value of chi- square(χ^2) at the 2 degree of freedom and 0.05 level of significance. Therefore, standard of adolescents was not significant for the knowledge of the samples.

Demographic variables	Frequency	χ^2		DF	Association at P=0.05
		Calculated Value	Table Value		
6th std.	0	0.16	5.99	2	Not Significant
7th std.	29				
8th std.	12				
9th std.	19				

Table showing association between pre-test knowledge score and Living area of adolescents

Table shows living area of adolescents with the pre-test knowledge scores, the calculated value of chi-square (χ^2) 0.035 was less than 3.84, the table value of chi-square (χ^2) at the 1 degree of freedom and 0.05 level of significance. Therefore, living area of adolescents was not significant for the knowledge of the samples.

Demographic variables	Frequency	χ^2		DF	Association at P=0.05
		Calculated Value	Table Value		
Urban	37	0.035	3.84	1	Not Significant
Rural	23				

Table showing association between pre-test knowledge score and Religion of adolescents

Table shows religion of adolescents with the pre-test knowledge scores, the calculated value of chi-square (χ^2) 1.65 was less than 5.99, the table value of chi-square (χ^2) at the 2 degree of freedom and 0.05 level of significance. Therefore, religion of adolescents was not significant for the knowledge of the samples.

Demographic variables	Frequency	χ^2		DF	Association at P=0.05
		Calculated Value	Table Value		
Hindu	53	1.65	5.99	2	Not Significant
Christian	4				
Muslim	3				
Other	0				

Table showing association between pre-test knowledge score and Father’s educational status of adolescents

Table shows father’s educational status of adolescents with the pre-test knowledge scores, the calculated value of chi-square (χ^2) 4.39 was less than 7.82, the table value of chi-square (χ^2) at the 3 degree of freedom and 0.05 level of significance. Therefore, father’s educational status of adolescents was not significant for the knowledge of the samples.

Demographic variables	Frequency	χ^2		DF	Association at P=0.05
		Calculated Value	Table Value		
Primary	26	4.39	7.82	3	Not Significant
Secondary	15				
Higher Secondary	16				
Degree	1				

Table showing association between pre-test knowledge score and mother’s educational status of adolescents

Table shows mother’s educational status of adolescents with the pre-test knowledge scores, the calculated value of chi-square (χ^2) 2.78 was less than 5.99, the table value of chi-square (χ^2) at the 2 degree of freedom and 0.05 level of significance. Therefore, mother’s educational status of adolescents was not significant for the knowledge of the samples.

Demographic variables	Frequency	χ^2		DF	Association at P=0.05
		Calculated Value	Table Value		
Primary	52	2.78	5.99	2	Not Significant
Secondary	6				
Higher Secondary	2				
Degree	0				

Table showing association between pre-test knowledge score and father’s occupation of adolescents

Table shows father’s occupation of adolescents with the pre-test knowledge scores, the calculated value of chi- square (χ^2) 2.88 was less than 7.82, the table value of chi- square(χ^2) at the 3 degree of freedom and 0.05 level of significance. Therefore, father’s occupation of adolescents was not significant for the knowledge of the samples.

Demographic variables	Frequency	χ^2		DF	Association at P=0.05
		Calculated Value	Table Value		
Govt. Employee	12	2.88	7.82	3	Not Significant
Private	23				
Business	18				
Unemployed	7				

Table showing association between pre-test knowledge score and previous source of information of adolescents

Table shows Previous source of information of adolescents with the pre-test knowledge scores, the calculated value of chi- square (χ^2) 5.66 was less than 9.49, the table value of chi- square(χ^2) at the 4 degree of freedom and 0.05 level of significance. Therefore, previous source of information of adolescents was not significant for the knowledge of the samples.

IV. Discussion

1. Out of 60 samples in Age 00 (00.00%) samples were of 11 years, 10 (16.67%) samples were 12 years, 28 (46.67%) samples were 13 years, 22 (36.67%) samples were 14 years of age.
2. In Gender out of 60 samples 40(66.67%) were males and 20(33.33%) were females.
3. In Standards out of 60 samples 00(00.00%) were in 6th standard, 15(25.00%) were in 7th standard, 14(23.33%) were in 8th standard, 31(51.67%) were in 9th standard.
4. In Areas of Living out of 60 samples 37(61.67%) were lives in urban area and 23(38.33%) were lives in rural area.
5. In religion out of 60 samples 52(86.67%) were Hindus, 4(6.67%) were Christians, 4(6.67%) were Muslims and 00(00.00%) were in others.
6. In Father’s Education out of 60 samples 26(43.33%) were primary education, 15(25.00%) were secondary education, 16(26.67%) were Higher secondary, 1(1.67%) were Degree.
7. In Mother’s education out of 60 samples 52(86.67%) were primary education, 6(10.00%) were secondary, 2(3.33%) were Higher secondary, 00(00.00%) were degree.
8. In Father’s Education out of 60 samples 12(20.00%) were Government employee, 23(38.33%) were Private, 18(30.00%) were Business, 7(11.67%) were unemployed.
9. In Previous Source of Information regarding causes and prevention of overweight/ obesity out of 60 samples 15(25.00%) were Family, 5(8.33%) were Friends/ Classmates/ Relatives, 6(10.00%) were Teachers, 4(6.67%) were Mass Media/ Electronic Media, 30(50.00%) were have No Such Kind Of Information.

V. Conclusion

The following conclusions can be drawn from the study findings

1. Knowledge deficit existed in all area of causes and prevention of overweight/ obesity before implementation of booklet among adolescents in selected schools, Gandhinagar city, Gujarat state.
2. Samples gained significant knowledge after they exposed to booklet regarding causes and prevention of obesity/ overweight. The mean post-test knowledge score was significantly higher than mean pre-test

knowledge score. Thus, booklet to be effective in enhancing the knowledge of adolescents in selected schools, Gandhinagar city, Gujarat state.

3. There was no significant association of pre-test knowledge score with selected demographic variables such as Age, Gender, standard, Area of living, religion, Father's educational status, Mother's Educational status, Father's occupation, and previous

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