

“Effectiveness of Planned Teaching Programme Regarding Importance of Exercise in Prevention of Obesity among Children.”

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Abstract

Background & Objectives: One of the reasons for growing obesity rate at an alarming pace among children in India is the lack of physical activity among them. The space constraints across schools in Indian cities have directly affects the children's health. They are not provided with adequate opportunity to participate in games and other physical activities. The natural consequences of over-nutrition, sedentary lifestyles, unhealthy eating, wrong choices of food preferences and lack of exercise which will increase the childhood obesity in developing countries. Even in India it has become a growing concern, as the Indian economy is growing rapidly, so the children belongs to middle class families are at risk. Childhood obesity is a condition where excess body fat negatively affects a child's health or wellbeing. Childhood obesity is the leading cause for an increased risk of morbidity and mortality in their adulthood.

The aim of this study was to assess the effectiveness of planned teaching programme regarding importance of exercise in prevention of obesity among children from a selected urban school at Mangalore.

Objectives Of The Study:

1. To determine the pre-test knowledge scores of school children regarding importance of exercise in prevention of obesity using a structured knowledge questionnaire.
2. To evaluate the effectiveness of planned teaching programme for school children regarding importance of exercise in prevention of obesity in terms of gain in post-test knowledge scores.
3. To associate the pre-test knowledge scores of school children regarding importance of exercise in prevention of obesity and selected demographic variables.

Methods: The research design was one group pre-test post-test design and the study was conducted at St. Rita's English Higher Primary School, Mangalore. The samples consisted of 60 school children and were selected by using simple random technique. Data collection was done by using the demographic variables, structured knowledge questionnaire for assessing the knowledge of school children regarding importance of exercise in prevention obesity. After assessing the knowledge of school children a planned teaching programme was given on the same day. A post-test was conducted on the 7th day after the PTP to find out the gain in knowledge among school children regarding importance of exercise in prevention obesity.

Results: Majority of the subjects 37(61.7%) had very good knowledge score in the post-test whereas in the pre-test none of the samples had very good knowledge. In the post-test none of the sample had average knowledge whereas in the pre-test 46(76.7%) samples had average knowledge. The mean post-test knowledge score (20.98) was higher than mean pre-test knowledge score (12.77) suggesting that PTP helped in improving the knowledge of school children regarding importance of exercise in prevention of obesity. The mean difference between the post-test and pre- test knowledge scores of school children regarding importance of exercise in prevention of obesity was found to be highly significant at 0.05 level. There was significant association between mean pre-test knowledge score and mother's educational status ($\chi^2 = 4.444$, $p > 0.05$) at 0.05 level of significance.

Interpretation & Conclusion The findings of the study concluded that school children had inadequate knowledge regarding importance of exercise in prevention of obesity. The planned teaching programme regarding importance of exercise in prevention of obesity was highly effective ($t(59) = 23.14$, $p < 0.05$) in improving the knowledge of school children.

Key Words: Effectiveness; planned teaching programme; exercise; obesity and school children.

I. Introduction

A healthy childhood is the foundation for a healthy adult life. Habits formed in childhood have a long term impact on health and well being. In order to keep a child in good health, parents and significant others should help their children in cultivating healthy habits towards optimal health¹.

The common health related problems encountered during the formative years are gastro intestinal infections, respiratory ailments, obesity etc. Among these the obesity is a global concern due to its potential risk for highest rise in non- communicable diseases like diabetes mellitus, Ischemic heart disease and other cardiac conditions in later part of life².

As per the estimates there are more than 300 million obese people throughout the worldwide³. Childhood obesity has reached epidemic proportions in 21st century, with rising rates in both the developed and developing world, for which prevention of childhood obesity is now a global priority. This reflects the fact that during the past two decades rates of obesity have escalated sharply in both developed and developing countries².

Changing diet and decreasing physical activity are believed to be the two most important factors in causing childhood obesity². In addition to these other factors like urbanization and modernization, sedentary life, consumption of oily, junk food and other life style changes have contributed to overweight and obesity. International

Obesity Task Force (IOTF) calculated the global prevalence of overweight (including obesity) in children aged 5-17 years to be approximately 10%³.

Various studies in India have found that the incidence of childhood overweight and obesity has increased dramatically³. An interventional study was conducted among 6000 Indian school children at Hyderabad, Andhra Pradesh. This study finding revealed the degree of obesity (>30% body fat) in all subjects was 30.19%, where in affluent schools obesity percentage was 50.47 and in non- affluent schools it was 19.92%⁴.

Overall the prevalence of childhood obesity has nearly tripled since the 1970s and is recognized as a serious public health concern. In addition to long-term physical health risks due to overweight, obese children and adolescents face significant mental health and psychosocial morbidities. Thus, research into overweight in childhood, with a focus on prevention of obesity is the topmost priority⁵.

Exercise is a physical activity performed to maintain fitness and health. Health benefits can be derived simply from becoming more physically active, but the greatest benefits come from engaging in planned and structured exercise⁶.

A weight reduction programme for school going children should contain three aspects, intake of 1200 calories low in fat, active exercise programme and counselling program. The counselling programme is done to discuss various aspects such as concentrating on self image and motivation to reduce weight etc⁷.

When children engage in longer periods of sustained physical activity, there is a smaller likelihood of developing overweight or obesity⁸.

With unprecedented global increases in the prevalence of childhood overweight and obesity, there is an urgent need for effective physical activity programs to reduce the incidence of overweight and obesity⁹.

In the Ancient period, Egyptians considered obesity as a disease. The most famous and earliest evidence of obesity is the Venus figurines, statuettes of an obese female torso that had a major role in rituals. The Greeks were the first to recognize obesity as a medical disorder. Hippocrates wrote that “Corpulence is not only a disease itself, but the harbinger of other”. He was aware of sudden deaths being more common among obese men than lean ones².

Obesity is currently treated as a growing global problem. A natural consequence of over-nutrition and sedentary lifestyles like unhealthy eating, wrong choices of food preferences and lack of exercise which will increase the childhood obesity in developing countries. This leads to an increased risk of morbidity and mortality due to various problems such as diabetes mellitus, hypertension, dyslipidemia, coronary heart disease etc. The World Health Organization has been active in its mission to curb the global problem of childhood obesity¹⁰.

The increasing prevalence of childhood obesity and its concomitant health risks justify widespread efforts toward prevention. Although both diet and physical activity have been emphasized as appropriate interventions, the current study focuses on the role of physical activity in obesity prevention¹¹.

Statement Of The Problem

“A study to assess the effectiveness of planned teaching programme regarding importance of exercise in prevention of obesity among children from a selected urban school at Mangalore.”

II. Objectives

- To determine the pre-test knowledge scores of school children regarding importance of exercise in prevention of obesity using a structured knowledge questionnaire.
- To evaluate the effectiveness of planned teaching programme for school children regarding importance of exercise in prevention of obesity in terms of gain in post-test knowledge scores.

- To associate the pre-test knowledge scores of school children regarding importance of exercise in prevention of obesity and selected demographic variables.

Operational Definitions

Effectiveness: In this study, it refers to the extent to which the planned teaching programme has achieved the desired objectives for the school children regarding importance of exercise in prevention of obesity.

Planned teaching programme: In this study, it refers to a systematically developed teaching programme designed for the school children with the help of LCD projector, charts and flash cards in order to provide information regarding meaning, definition, causes, complications, benefits and importance of exercise in prevention of obesity.

Exercise: In this study, it refers to those aerobic activities like running, jogging, walking, swimming, dancing, etc which will help the school children to keep away from obesity and also from its complications.

Prevention: In this study, it refers to the measures taken by the school children like performing aerobic exercises, consuming balanced diet etc to control obesity.

Obesity: In this study, it refers to an abnormal increase in the proportion of fat cells in the viscera and subcutaneous tissue of the body of school children.

Children: In the present study, it refers to the school students those who are aged between 11 to 13 years, studying in the selected Urban Private English medium school at Mangalore.

Assumptions

The investigator assumes that

- Planned teaching programme is an approved strategy for improving the knowledge.
- School children have knowledge regarding importance of exercise in prevention of obesity.
- School children will sincerely answer the questions.

Hypotheses

The hypothesis will be tested at 0.05 level of significance.

H1: The mean post test knowledge score of school children will be significantly higher than mean pre-test knowledge score.

H2: There will be significant association between pre-test knowledge score and selected demographic variables.

Delimitations

This study will be delimited to school children who are aged between 11-13 years of selected urban private English medium school at Mangalore.

III. Materials And Methods

Research Approach

Evaluative approach is an applied form of research that involves finding out how well a programme, procedure or policy is working. Its goal is to assess or evaluate the success of a programme⁴⁸.

Research Design

One group pre-test-post-test design is the most appropriate design for measuring the impacts or effectiveness of a programme. The design is described as two sets of cross-sectional observations on the same population to find out the change in the phenomenon between two points in time. The change is measured by comparing the difference in the phenomenon at the pre-test and post-test observation.

No comparison with the control group is provided⁴⁹.

In view of the nature of the problem and to accomplish the objectives of the study, with a one group pre-test-post-test, quasi experimental design was used to evaluate the effectiveness of the planned teaching programme regarding importance of exercise in prevention of obesity among school children.

Variables

Independent variable: The independent variable is the variable that stands alone and not dependent on any other⁵⁰. It is the cause of action. In this study, planned teaching programme was the independent variable.

Dependent variable: Dependent variable is the effect of the action of the independent variable and can't exist by itself⁵⁰. In this study, knowledge of school children were dependent variable.

Setting

There were 25 Urban Private English Medium Schools at Mangalore. The present study was conducted in St. Rita's English Higher primary school, jeppu, Mangalore

Population

The population for the study comprised of school children between the age group of 11-13 years who are studying in 6th and 7th standard at St. Rita's English Higher primary school, jeppu, Mangalore. In 6th standard 50 students and 7th standard 50 students were studying. Among which 25 students and 35 students from 6th and 7th standards were selected by random sampling technique.

Sample

The present study was conducted among 60 school children studying in Urban Private English Medium School at Mangalore who met the sampling criteria.

Sampling Technique

Simple random sampling technique was used for the present study for the location of the private English medium school and selection of the school children. In the present study, Simple random sampling method, i.e., lottery method was used to select the school. Thus St. Rita's English Higher Primary School was selected randomly. In this school, 6th standard 50 students and 7th standard 50 students were studying. In second stage random sampling using lottery method, 25 students from 6th standard and 35 students from 7th standard were selected who were fulfilling the sampling criteria.

Sampling Criteria

Inclusion Criteria

- School children who are willing to participate.
- School children who are present at the time of teaching programme.
- School children between 11-13 years.

Exclusion Criteria

- School children who are less than 11 years and more than 13 years.
- School children who are absent in the day of data collection.

Findings

Section I: Demographic variables

This section deals with the frequency and percentage distribution of demographic variables and presented in the table 1 and 2.

Table 1: Distribution of parent's demographic data N=60

Sl.No.	Variables	Frequency	Percentage
Educational status			
Father			
	No formal education	2	3.3
	Primary school	6	10.0
	Higher primary	15	25.0
	Higher secondary	12	20.0
	e. PUC	16	26.7
	f. Graduates	9	15.0

Sl.No	Variables	Frequency	Percentage
II. Mother			
	a. No formal education	3	5.0
	b. Primary school	9	15.0
	c. Higher primary	18	30.0
	d. Higher secondary	8	13.3
	e. PUC	17	28.3
	f. Graduates	5	8.3

2.	Occupational StatusFather		
I.	a. Unemployed	1	1.7
	b. Employed	36	60.0
	c. Business	23	38.3
II.	Mother		
	a. Housewife	42	70.0
	b. Employed	18	30.0
	Monthly income of the family (Rs) a. 5000 – 10000	44	73.3
	b. 10001 – 15000	6	10.0
	c. 15001 – 20000	2	3.3
	d. 20001 and above	8	13.3
4.	Type of diet		
	a. Vegetarian	1	1.7
	b. Non-vegetarian	59	98.3
5.	Type of family		
	a. Nuclear	38	63.3
	b. Joint	22	36.7
6.	Number of children		
	a. One	16	26.7
	b. Two	32	53.3
	c. More than two	12	20.0

Sl.No.	Variables	Frequency	Percentage
7.	Have you attended any formal / informal education programme regarding importance of exercise in prevention of obesity?		
	a. Yes	16	26.7
	b. No	44	73.3

Table 2: Distribution of child’s demographic data

Sl. No.	Variables	Frequency	Percentage
1.	Age of the child		
	a. 11 years	25	41.7
	b. 12 years	30	50
	c. 13 years	5	8.3
2.	Gender		
	a. Male	33	55
	b. Female	27	45
3.	Do you perform exercise daily in school?		
	a. Yes	35	58.3
	b. No	25	41.7
4.	How do you spend your leisure time?		
	a. Indoor games	6	10
	b. Outdoor games	39	65
	c. Cultural activities	4	6.7
	d. Reading	11	18.3

Sl. No.	Variables	Frequency	Percentage
5.	Do you perform exercise at home?		
	I. a. Yes	36	60
	b. No	24	40
	II. If yes, what type of exercise?		
	a. Yoga	7	19.4
	b. Jogging	8	22.2
	c. Walking	18	50
	d. Aerobics	3	8.3
	III. How long do you perform exercise?		
	a. Less than half an hour	19	52.8
	b. Half to one hour	16	44.4
	c. More than one hour.	1	2.8

Table 1 reveals the following findings:

Educational Status of father:

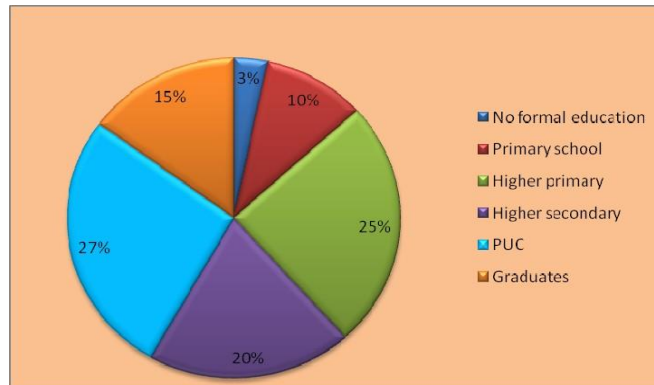


Figure 4: Distribution of Father's according to their educational status

The above data shows that 2 (3.3%) fathers were not having formal education whereas 16 (26.7%) fathers had PUC qualification (Table 1 and Figure 4).

Educational Status of mother:

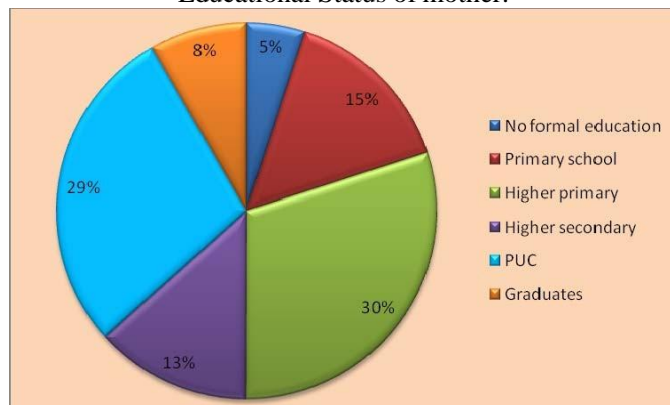


Figure 5: Distribution of Mother's according to their educational status

The above data shows that 3 (5%) mothers were not having formal education whereas 18 (30%) mothers had higher primary education (Table 1 and Figure 5).

Occupational Status of father:

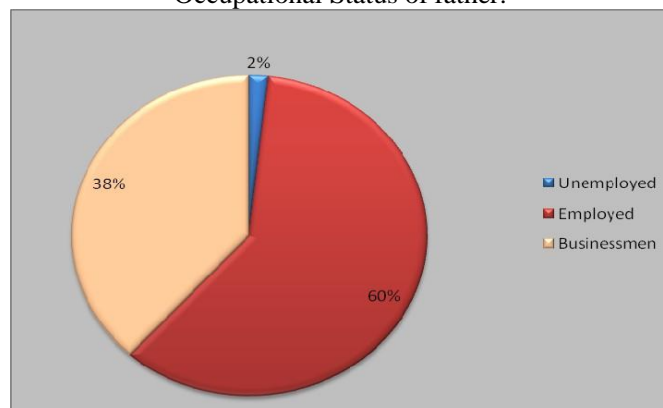


Figure 6: Distribution of Father's according to their occupational status

The above data shows that majority 36 (60%) fathers were employed, 23 (38.3%) were businessmen and only 1 (1.7%) father was unemployed (Table 1 and Figure 6).



Figure 7: Distribution of Mother’s according to their occupational status

The above data shows that 42 (70%) mothers were housewives and 18 (30%) were employed (Table 1 and Figure 7).

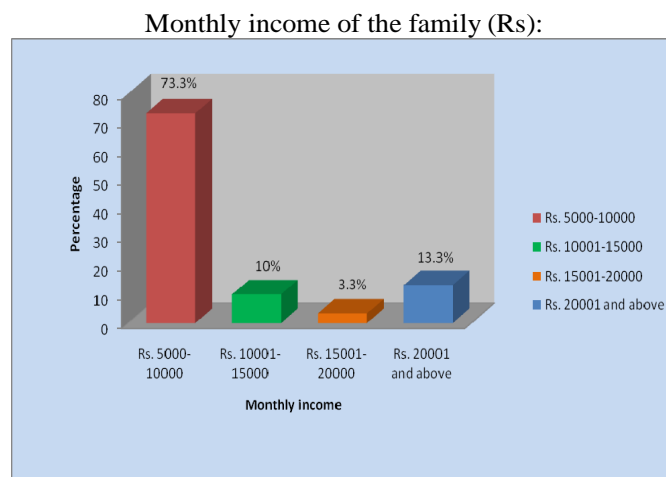


Figure 8: Distribution of samples according to their monthly income of the family

The above data shows that 44 (73.3%) children’s families were having Rs 5000 – 10,000/- monthly income and 8 (13.3%) were having Rs 20,001 and above monthly income (Table 1 and Figure 8).

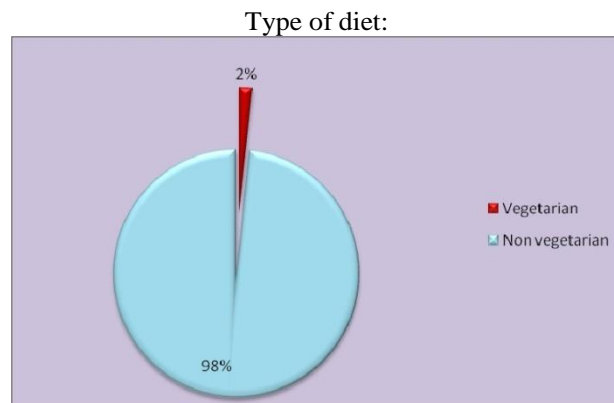


Figure 9: Distribution of samples according to their type of diet

The above data shows that 59 (98.3%) children’s families were consuming non vegetarian diet and only 1 (1.7%) child’s family was purely vegetarian (Table 1 and Figure 9).

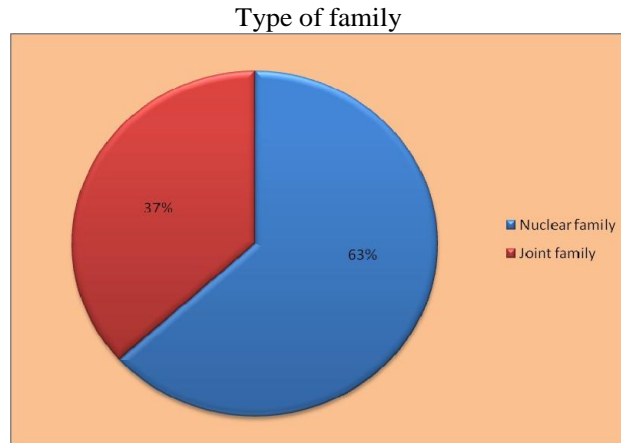


Figure 10: Distribution of samples according to type of family

The above data shows that 38 (63.3%) children belong to nuclear families and 22 (36.7%) children belong to joint family (Table 1 and Figure 10).

Table 2 reveals the following findings

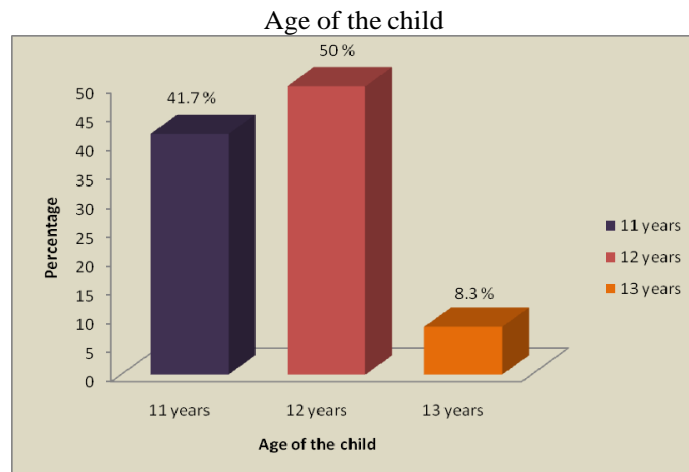


Figure 11: Distribution of samples according to age

The above data shows that 25 (41.7%) children were in the age of 11 years, 30 (50%) children were in the age of 12 years and 5 (8.3%) were in the age of 13 years (Table 2 and Figure 11).

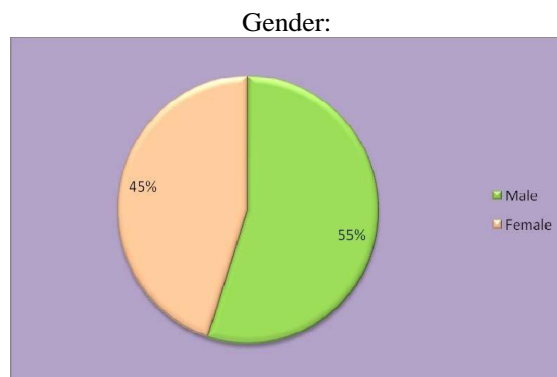


Figure 12: Distribution of samples according to gender

The data shows that majority of 33 (55%) children were males and 27 (45%) children were females (Table 2 and Figure 12).

Performance of Exercise at school

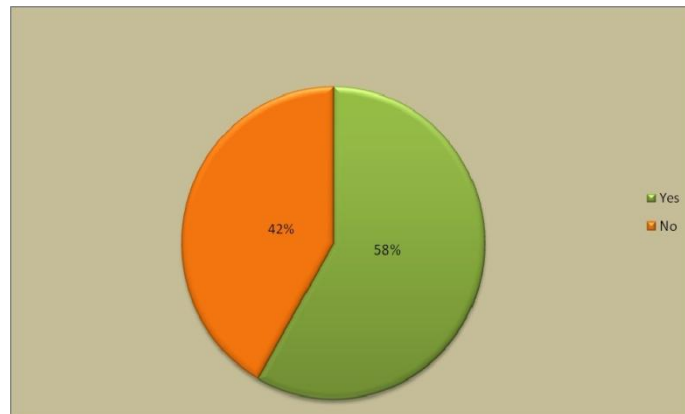


Figure 13: Distribution of samples according to exercises performed daily in school

The above data shows that 35 (58%) children performs exercises daily in school but 25 (42%) do not perform exercise daily in school (Table 2 and Figure 13).

Use of leisure time

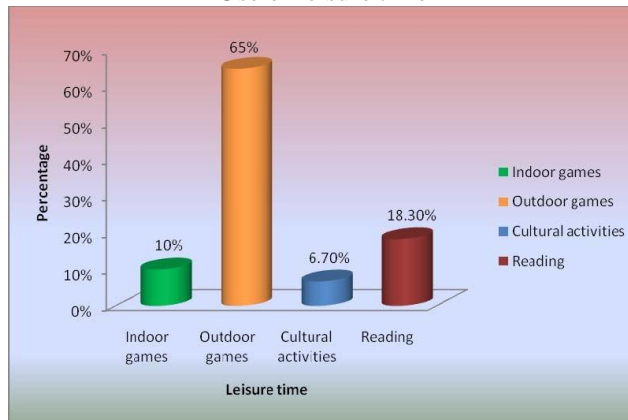


Figure 14: Distribution of samples according to spending leisure time

The above data shows that majority 39 (65%) spend their leisure time by outdoor games but minimum of 3 (10%) children spend their leisure time by indoor games (Table 2 and Figure 14).

I. Performance of exercise at home

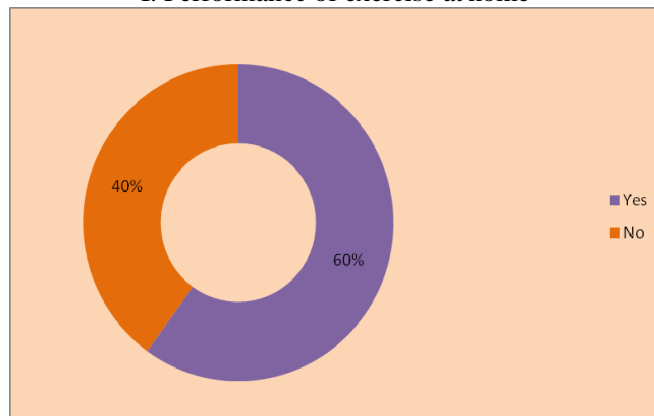


Figure 15: Distribution of samples according to exercise performed at home

The above data shows that 36 (60%) children perform exercise at home but 24 (40%) do not perform exercise at home (Table 2 and Figure 15).

5. II. Type of Exercise

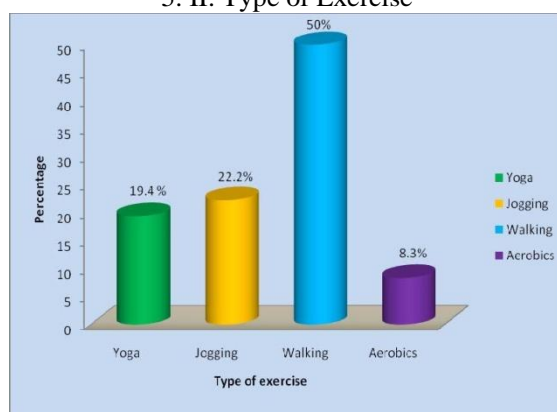


Figure 16: Distribution of samples according to type of exercises

The above data shows out of 60 children, 36 perform exercises at home. In that majority of the children who had answered positively for performing exercise at home. 18 (50%) children were practicing walking as an exercise and 3 (8.3%) were doing aerobics at home (Table 2 and Figure 16).

III. Duration of exercise

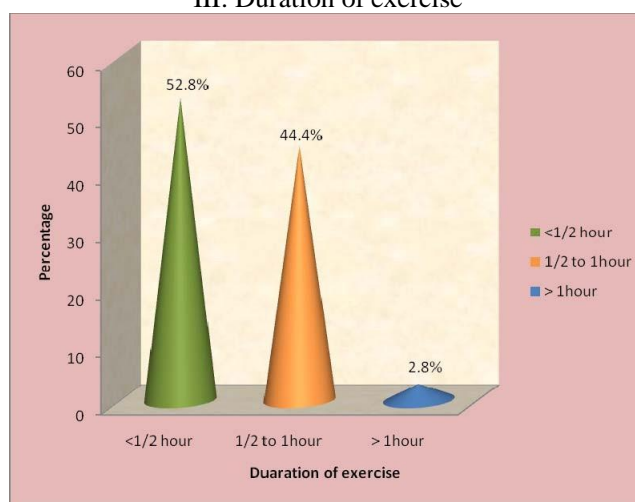


Figure 17: Distribution of samples according to duration of exercise

The above data shows that, out of 60 children who were involved in the study, 36 perform exercises at home. In that majority of the children who had answered positively for performing exercise at home. 19 (52.8%) children performs less than half an hour exercise, 16 (44.4%) children performs half to one hour exercise and only 1 (2.8%) child perform exercise more than one hour (Table 2 and Figure 17).

Section II: Pre-test knowledge scores of school children regarding importance of exercise in prevention of obesity. This section deals with analysis and interpretations of pre-test knowledge such as range, frequency, percentage, mean score, standard deviation, distribution of samples, area wise mean, standard deviation and mean percentage.

Table 3: Range, frequency, percentage, mean score and standard deviation of pre-test knowledge scores of school children regarding importance of exercise in prevention of obesity N=60

Range of scores	Frequency	Percentage	Meanscores	SD
8 - 10	11	18.3		
11 - 12	13	21.7		
13 - 14	30	50	12.77	2.295
15 - 16	3	5		
17 - 18	2	3.3		
19 - 20	1	1.7		

Maximum score = 26

The data in the table 3 shows that the pre-test knowledge score ranged from 8-20. The mean pre-test knowledge score was 12.77 ± 2.295 . This shows that majority 30 (50%) children belongs to 13-14 knowledge score range and only 1(1.7%) child belongs to 19-20 knowledge score range.

Table 4: Distribution of samples according to their pre-test knowledge N=60

Scoring	Grading	Frequency	Percentage
0-10	Poor	11	18.3
11-15	Average	46	76.7
16-20	Good	3	5
21-26	Very Good	0	0

Maximum score = 26

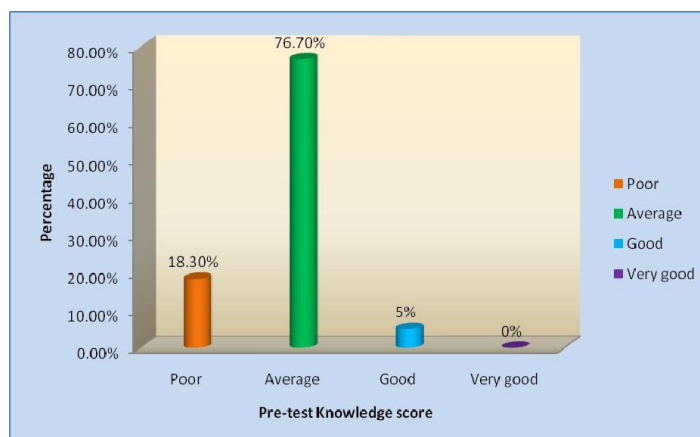


Figure 18: Distribution of samples according to their pre-test knowledge

The data in table 4 and figure 18 shows that majority of 46 (76.7%) children had average knowledge, 11(18.3%) had poor knowledge, 3 (5%) had good knowledge whereas none of the children had very good knowledge regarding importance of exercise in prevention of obesity.

Table 5: Area wise mean, standard deviation and mean percentage of pre-test knowledge scores N = 60

Knowledge areas	Max.possible score	Meanscores	SD	Mean%
Definition of overweight and obesity	3	1.33	0.986	44.44
Causes and Complications of obesity	5	2.20	1.205	44.00
Prevention of obesity	6	3.02	1.157	50.28
Benefits and importance of exercise in prevention of obesity	12	6.22	1.462	51.81
Total	26	12.77	2.295	49.10

Maximum score = 26

The mean percentage of the pre-test knowledge scores was 49.10% with mean and SD (12.77±2.295). Area wise mean percentage of knowledge scores was 44.44% in the area of definition of overweight and obesity with mean and SD (1.33±.986). In the area of causes and complications of obesity the mean percentage was 44.00% with mean and SD (2.20±1.205). In the area of prevention of obesity the mean percentage was 50.28% with mean and SD (3.02±1.157). The mean percentage of benefits and importance of exercise in prevention of obesity score was 51.81% with mean and SD (6.22±1.462).

Section III: Post-test knowledge scores of school children regarding importance of exercise in prevention of obesity. This section deals with analysis and interpretations of post-test knowledge such as range, frequency, percentage, mean score, standard deviation and distribution of samples.

Table 6: Range, frequency, percentage, mean score and standard deviation of post-test knowledge scores of school children regarding importance of exercise in prevention of obesity N=60

Range of score	Frequency	Percentage	Mean score	SD
15 - 16	2	3.3		
17 - 18	4	6.7		
19 - 20	17	28.3	20.98	2.054
21 - 22	27	45		
23 - 24	6	10		

25 - 26 4 6.7

Maximum score = 26

The data in the above table 6 shows that the post-test knowledge score ranged from 15-26. The mean post-test knowledge score was 20.98 ± 2.054 . This shows that majority 27 (45%) children belongs to 21-22 knowledge score range and only 2 (3.3%) children belongs to 15-16 knowledge score range.

Table 7: Distribution of samples according to their post-test knowledge N= 60

Scoring	Grading	Frequency	Percentage
0 – 10	Poor	0	0
11 – 15	Average	0	0
16 – 20	Good	23	38.30
21 – 26	Very Good	37	61.70

Maximum score = 26

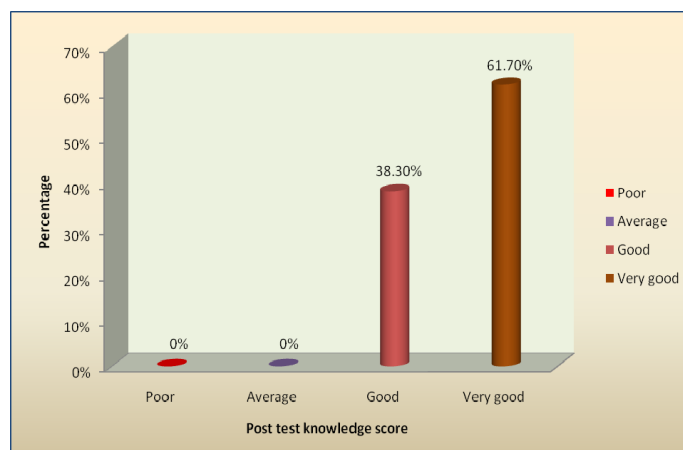


Figure 19: Distribution of samples according to their post-test knowledge

The data in the table 7 and Figure 19 shows that majority of children 37 (61.7%) had very good knowledge, 23 (38.3%) children had good knowledge whereas none of the children had average and poor knowledge regarding importance of exercise in prevention of obesity.

Section IV: Effectiveness of planned teaching programme regarding importance of exercise in prevention of obesity. This section deals with analysis and interpretations of pre-test and post-test knowledge such as distribution of samples, mean, standard deviation of difference, ‘t’ value, area wise mean, mean percentage and effectiveness.

Table 8: Distribution of samples according to their pre and post-test knowledge N = 60

Pre-test		Post-test	
Grading	Frequency	Percentage	Frequency
Poor	11	18.30	0
Average	46	76.70	0
Good	3	5	23
Very Good	0	0	37

Maximum score = 26

The data in the table 8 depicts that none of the children had very good knowledge regarding importance of exercise in prevention of obesity in pre-test whereas in the post-test, around 37 (61.7%) children had very good knowledge regarding importance of exercise in prevention of obesity.

Table 9: Mean, standard deviation and ‘t’ value of pre- and post-test knowledge score N = 60

Meanscore		Mean	SD of		
Pre test	Post test	difference	difference	df	‘t’ value
12.77	20.98	8.21	2.75	59.00	23.14
t (59)=1.67, p<0.05					*Significant

Data in the table 9 shows that the significant difference between the mean pre- test and post-test knowledge scores. The calculated ‘t’ value (‘t (59)’=23.14, P< 0.05) was greater than the table value (‘t (59)’=1.67) at 5% level. Hence the research hypothesis was accepted and inferred that the planned teaching was effective in improving the knowledge of school children regarding importance of exercise in prevention of obesity.

Table 10: Area wise mean, standard deviation and mean percentage of knowledge scores in pre-test and post-test N = 60

Pre-test (X) Knowledge Area	Post-test (Y) Max. score	Effectiveness (Y-X)					
		Mean±SD	Mean%	Mean±SD	Mean%	Mean±SD	Mean%
Definition of overweight and obesity	3	1.33±0.986	44.44	2.83±0.376	94.44	1.5±0.61	50.00
Causes and Complications of obesity	5	2.20±1.205	44.00	4.03±1.008	80.67	1.83±0.197	36.67
Prevention of obesity	6	3.02±1.157	50.28	4.63±0.938	77.22	1.61±0.219	26.94
Benefits and importance of exercise in prevention of obesity	12	6.22±1.462	51.81	9.48±1.467	79.03	3.26±0.005	27.22
Total	26	12.77±2.295	49.10	20.98±2.054	80.71	8.21±0.241	31.61

Section V: Association between pre-test knowledge score with selected demographic variables. This section deals with the association between pre-test knowledge score with age of the children, father’s and mother’s educational status.

Table 11: Association between Age of the children and pre-test knowledge score N=60

	Age of the Children		Total	χ^2
	< median	\geq median		
11 Years	11	14	25	0.286 NS
12 years	13	22	35	
Total	24	36	60	

$\chi^2=3.84, p<0.05$ NS = Not significant

The data presented in the table 11 shows that the calculated chi-square (χ^2) value is less than the table value and there is no significant association between mean pre-test knowledge score and age of the child at $p<0.05$. Hence the research hypothesis is rejected.

Table 12: Association between Father’s educational status and pre-test knowledge score N=60

	Father’s Educational status		Total	χ^2
	< median	\geq median		
Higher primary	9	14	23	0.012
Graduates	15	22	37	
Total	24	36	60	

$\chi^2=3.84, p<0.05$ NS = Not significant

The data presented in the table 12 shows that the calculated chi-square (χ^2) value is less than the table value and there is no significant association between mean pre-test knowledge score and father’s educational status at $p<0.05$. Hence the research hypothesis is rejected.

Table 13: Association between Mother’s educational status and pre-test knowledge score N=60

	Mother’s educational status		Total	χ^2
	< median	\geq median		
Higher primary	16	14	30	4.444 S
Graduates	24	8	32	
Total	40	22	62	

The data presented in the table 13 shows that the calculated chi-square (χ^2) value is more than the table value and there is significant association between mean pre-test knowledge score and mother's educational status of the child at $p < 0.05$. Hence the research hypothesis is accepted.

IV. Discussion

Pre-test knowledge scores of school children regarding importance of exercise in prevention of obesity The overall pre-test knowledge scores of school children regarding importance of exercise in prevention of obesity shows that majority 46 (76.7%) children had average knowledge, 11 (18.3%) had poor knowledge and 3 (5%) had good knowledge whereas none of the children had very good knowledge regarding importance of exercise in prevention of obesity. A similar study was conducted in Bangalore to assess the knowledge of adolescent girls regarding obesity. About 250 adolescent girls were selected by random sampling technique. Data was collected with the help of a structured interview schedule related to knowledge about obesity. The results revealed that mean knowledge score was 24.7 with a mean percentage of 39.83 which showed that adolescent girls had less knowledge regarding obesity. Thus it can be inferred that the children possess inadequate knowledge regarding obesity and its prevention. Therefore, there arises a great need to educate children about obesity and its consequences in adulthood⁵⁷. Another similar study was conducted at Florida public middle schools to obtain data on physical activity and nutrition knowledge and practice among 4,452 students in grades 6-8. Results showed that less than one fourth of youth met expert recommendation for daily fruit and vegetable intake and less than one fifth identified the daily fruit and vegetable serving recommendation. These findings demonstrate that dietary and physical activity behaviours and knowledge among youth are setting the stage for the obesity epidemic to continue³³. Effectiveness of planned teaching programme for school children regarding importance of exercise in prevention of obesity

The post-test knowledge score reveals that majority of 37 (61.7%) children had very good knowledge, 23 (38.3%) had good knowledge and none of them showing poor knowledge regarding importance of exercise in prevention of obesity. It was also found that the difference between the mean pre-test (12.77) and post-test (20.98) knowledge scores were significant ($t_{59} = 23.14$, $p < 0.05$), which suggests that PTP was effective in enhancing the knowledge of children regarding importance of exercise in prevention of obesity.

The observations of the present study are congruent with a Systematic review which assessed the effectiveness of interventions to promote physical activity in children and adolescents. The search strategy focused on four key elements: population (youth, children), study design (controlled trial, random), behaviour (physical activity, walking and exercise), and intervention (health education, behaviour change). With regard to the evidence of effect on physical activity, measurement of physical activity was mostly focused on non-school related activities and carried out with self reported questionnaire and found a positive intervention effect (67%), achieving statistical significance in 27 (47%). Significant results ranged from an increase of 2.6 minutes during physical education classes to a 42% increase in participation in regular physical activity. Thus the study concludes that educative interventions may make important differences in physical activity levels thereby preventing childhood obesity⁴⁴.

A similar study was conducted at Florida State University, School of Nursing, which initially examined the existing knowledge level of physical activity practices among school-age children. The study indicated that the pre-test scores had a mean of 41.36 (SD = 13.93) and post-test mean score was 55.36 (SD = 12.69) thereby showing an overall increase in test scores on the Student Content Knowledge Assessment. However, there was an overall increase in test scores (pre-to-post-test), it could be discerned if the increase was as a result of this intervention program or increased reading ability as the students were older and had more education, more exposure to media such as television and newspapers. So unfortunately the researcher cannot say with confidence that the increased knowledge scores were as a result of the program intervention⁵⁸.

Hence PTP was effective in improving the knowledge of school children regarding importance of exercise in prevention of obesity, So the research hypothesis which was formulated is accepted. Association between the pre-test knowledge scores and selected demographic variables The association between the pre-test knowledge scores of school children regarding importance of exercise in prevention of obesity and selected demographic variables was computed by using Chi-square test, which revealed a statistical significant association with the mothers educational status $\chi^2 = 4.44$ ($p < 0.05$, 3.84).

The findings are consistent with a cross sectional study which described disparities in the prevalence of overweight and obesity across socioeconomic status. Collected data included measured anthropometry (weight, height and waist circumference) demographic and SES data (occupation, education and frequency of holiday trips as a marker of family income). The results showed that obesity was independently associated with educational level at ($p < 10^{-3}$)⁵⁹.

Another similar study examined the relationship between knowledge, attitudinal and behavioural factors and obesity among obese and non-obese female adolescents aged between 11-15 years and the findings revealed that obese adolescents had significantly lower levels of physical activity, higher inactivity, and also knowledge and attitudinal factors had shown far less association with obesity than activity-related behavioural factors⁶⁰.

Thus from the observations of the above mentioned studies it is clear that the prevention of childhood obesity is linked to the mothers literacy, which should be considered as the potential variable when addressing the obesity issue among children.

Hence there was a significant association between the pre-test knowledge score of school children and mothers educational status, So the research hypothesis which was formulated is accepted.

Major Findings Of The Study

The conclusions related to the major findings are as follows;

In the pre-test 46 (76.7%) children had average knowledge, 11(18.3%) children had poor knowledge, 3 (5%) children had good knowledge and none of the children had very good knowledge regarding importance of exercise in prevention of obesity.

In the post-test, most of 37 (61.7%) children had very good knowledge and 23 (38.3%) children had good knowledge and none of the children had average and poor knowledge regarding importance of exercise in prevention of obesity.

The comparison of the mean pre-test (12.77) and post test (20.98) knowledge scores showed that there was significant gain in knowledge of children after PTP at 0.05 levels ($t_{59}=23.14$, $p < 0.05$). This shows that PTP was effective. There was significant association between pre-test knowledge scores and the mothers educational status 4.44 ($p < 0.05$, 3.84). The study findings concluded that children had inadequate knowledge regarding importance of exercise in prevention of obesity. The planned teaching program had great potential for improving the knowledge regarding importance of exercise in prevention of obesity.

Limitations Of The Study

Sample size was small so the generalization of the findings is limited. The study did not use a control group. No attempt was made to follow-up to measure the retention of knowledge of school children

Recommendations

Based on the findings of the present study recommendations are offered for further researchers: A similar study can be replicated on a large sample there by to generalize the findings to a large population. A comparative study can be conducted to identify the weight perception and dietary practices among obese and non-obese school children. An experimental study can be conducted to find out the effectiveness of planned teaching program on obesity and its consequences among adolescents in school. A descriptive study can be conducted to assess the knowledge regarding importance of exercise in prevention of childhood obesity among teachers in selected urban schools at Mangalore.

V. Conclusion

The result of the study showed that the effectiveness of the planned teaching programme regarding importance of exercise in prevention of obesity among children. Conducting this study was a good experience for the investigator. The present study in short, gave the researcher a new experience, a chance to widen the knowledge and a venue to interact with school children. The directions from the guide, various experts and co-operation of school children played a major role in the successful completion of the study. The investigator didn't face any problem during the data collection. The school children were very attentive and co-operative.

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