

“Study To Assess The Effectiveness Of Aerobic Exercise Regarding Obesity Among Adolescent Girls In Selected Schools Of Jabalpur City”

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ABSTRACT

“Study to assess the effectiveness of aerobic exercise regarding obesity among adolescent girls in selected schools of Jabalpur city” The research approach adopted for this study was a pre- experimental evaluative research approach in nature. A Pre- experimental one group pre-test and post-test design was used to evaluate the effectiveness of aerobic exercise on obesity among adolescents in selected school of Jabalpur, Madhya Pradesh. The sample consisted of 60 adolescents (11-16 years) students, who are available at the time of study. Non-probability purposive sampling method was used for the selection of samples. The instrument for the data collection was BMI classification to perceived level of BMI and teaching aerobic exercise. The data obtained was analyzed by using descriptive and inferential statistics in terms of frequency, percentage, mean, standard deviation, paired t-test and chi-square test. Socio-demographic variables: majority (61.6%) belonged to 13 - 14 years, (68.33%) was from 10th standard, (85%) lived in home, (66.66%) lived in nuclear family, (65%) family monthly income was from 10,001/-to above, (56.66%) no information about obesity, (68.33%) of “NO” obese in the family, (61.66%) of three times meal schedule, (41.66%) of mixed food consumed, (36.66%) of once a week frequency of spicy food consumption, (76.66%) 8 hours sleep pattern and (73.33%) no exercise by their own. The mean post-test perceived level of BMI is significantly less than the mean pre-test perceived level of BMI that is 23.65 in pre-test and 21.59 in post-test with paired t-value=2.59 at P =0.05 level of significance. The results of major findings indicated that adolescent (11-16 years) students had decreased the perceived level of BMI. Aerobic exercise was found to be a very effective method of providing information regarding reducing obesity among adolescents. There was significant association between the pre-test perceived level of BMI and demographic variables such as age, education, residence, type of family, total family monthly income, type of food consumed, sources of prior information about obesity, anybody obese in the family, meal schedule, frequency of spicy food consumption, sleep pattern within 24 hours, exercise schedule estimated by chi-square test. The study concluded that the aerobic exercise on perceived BMI level was an effective method for reducing obesity to adolescent age group (11-16 years) to enhance their knowledge regarding reducing obesity through aerobic exercise.

Keywords: Obesity, Adolescent age, M.P

INTRODUCTION

During the past two decades, the prevalence of overweight and obesity in children has increased worldwide. Obesity in childhood and adolescence has adverse consequences on premature mortality and physical morbidity in adulthood and is associated with impaired health during childhood itself. Once obesity is established in children (as in adults) it is hard to reverse. Monitoring the prevalence of obesity in order to plan services for the provision of care and to assess the impact of policy initiatives is essential.

In recent decades, the prevalence of obesity in children and adolescent has risen steeply world Wide. A high prevalence of adolescence obesity and overweight cases has been reported in Developing countries undergoing nutritional transition. These are emerging as a major public health problem in India also.

Early stage of adolescent is characterized by an exceptionally rapid rate of growth and is often variable in individuals due to its dependence on genetic hormonal and nutritional factors. Obesity in children and adolescents is a serious issue not only because of the health consequences in childhood and adolescence but also because of the greater risk of obesity in adulthood. Epidemiological literature shows that about one-third of obese pre-school children and about one-half of obese school age children become obese adults. Obesity is associated with significant co morbidities and health problems such as diabetes mellitus, hypertension, coronary artery disease, orthopedic problems, along with other problems such as impaired quality of life and negative self-esteem.

The adolescent period of human life is one of the vital times when most of the body growth and development occur. Preparation for adulthood takes place in this period in the form of physical, sexual, and psychological growth and development. Nearly 35% of the global burden of disease has its root emergence in adolescence. Overweight and obesity are defined as "abnormal or excessive fat accumulation that presents a risk to health." Energy imbalance between consumed and expended constitutes the primary etiology behind overweight and obesity. Changing dietary pattern and sedentary lifestyle are said to have led to the increasing prevalence of overweight and obesity. South Asia is found to have the highest prevalence of obesity and it was found to increase every year. Obesity in adolescents is found to have association with the occurrence of various lifestyle diseases such as diabetes, hypertension, dyslipidemia, osteoarthritis. during adulthood. It is essential to know the prevalence of overweight and obesity among adolescents so that appropriate preventive measures can be taken. The present study aims to measure the prevalence of overweight and obesity among adolescent students (aged 10-18 years) in Pondicherry.

NEED FOR THE STUDY

Overweight and obesity have reached epidemic levels in adolescent minority females (12–19 years of age). Public health and practitioner interventions to modify teens' diet and exercise behaviors' have not yet proven effective in reversing this epidemic. It is very difficult to change an individual's lifestyle, developed over a lifetime of choices based on family and personal preferences, and reinforced by habit and culture.

PROBLEM STATEMENT

“A Study To Assess The Effectiveness Of Aerobic Exercise Regarding Obesity Among Adolescent Girls In Selected Schools Of Jabalpur City”

OBJECTIVES OF THE STUDY

- i) Assess the perceived level of BMI among adolescent girls in selected schools.
- ii) Evaluate the effectiveness of aerobic exercise among adolescent girls in selected schools.
- iii) Association between perceived level of BMI of adolescent girls with selected demographic variables.

RESEARCH HYPOTHESIS

H1- There will be significant difference between mean pre-test and mean post-test perceived level of BMI among adolescent girls at the level of $p < 0.05$.

H2 - There will be a significant association between the pre-test perceived level of BMI among adolescent girls with selected demographic variables at the level of $p < 0.05$.

ASSUMPTIONS

- Adolescent have obesity.
- Aerobic exercise may reduce the obesity among adolescent girls(11–16 years).

DELIMITATIONS

- The study is limited to adolescent girls aged between 11–16 years.
- The duration of the study is limited for 1 month only.
- Sample size is limited to 60 only.

RESEARCH METHODOLOGY

RESEARCH APPROACH

In this study Quantitative evaluative research approach is used.

RESEARCH DESIGN

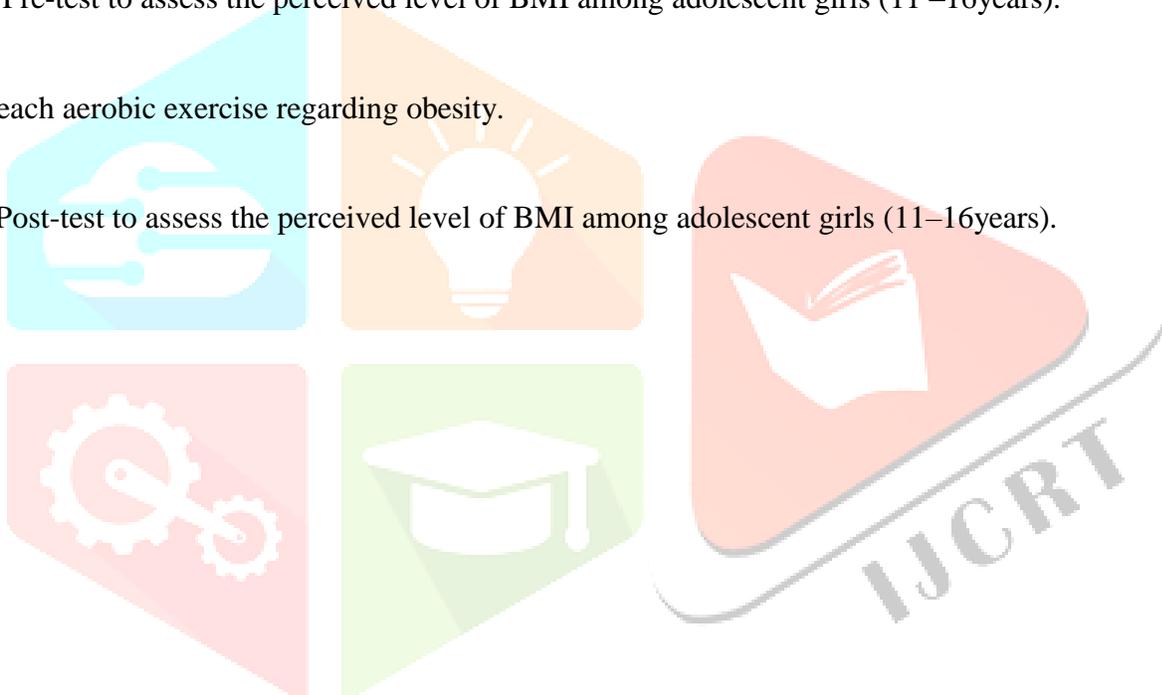
In the present study, the investigator selected Pre experimental one group pre-test post-test design to observe the effectiveness of aerobic exercise regarding obesity among adolescent girls.



O1:- Pre-test to assess the perceived level of BMI among adolescent girls (11 –16years).

X:-Teach aerobic exercise regarding obesity.

O2:-Post-test to assess the perceived level of BMI among adolescent girls (11–16years).



RESEARCH DESIGN**FIGURE:2 SCHEMATIC REPRESENTATION OF RESEARCH DESIGN**

RESEARCH VARIABLES

Independent variable: In this study the independent variable is **Aerobic exercise**.

Dependent variable: In the study the dependent variable is **obesity in Adolescent girls(11–16 years)**.

Extraneous variables:

In the present study it refers to the selected demographic variables such as age, education, residence, type of family, total family monthly income, sources of prior information about obesity, anybody obese in family, (Life style pattern) meal schedule, type of food consumed, frequency of spicy food consumption, sleep pattern, exercise schedule.

SETTING

This study is being conducted in selected schools at Jabalpur. Setting refers to the physical locations and conditions in which data collection takes place in the study. This study was undertaken in Girls Higher Secondary School Sadar of Jabalpur city. The reason for selecting this school was the investigator's interest in assessing the effectiveness of aerobic exercise on perceived level of BMI in adolescent girls (11 -16 years).

POPULATION

The population in this study consists of Adolescent girls in selected school of Jabalpur.

TARGET POPULATION

The target population of the present study includes the adolescent girls (11 -16 years) the school of Jabalpur.

ACCESSIBLE POPULATION

The accessible population of the present study includes all the adolescent girls (11-16years) studying in Girls Higher Secondary School of Jabalpur city.

SAMPLE AND SAMPLE SIZE

In this study, the samples include 60 Adolescent girls in the selected school of Jabalpur city.

SAMPLING TECHNIQUE:-

Non Probability Purposive sampling technique will be used.

SAMPLING SELECTION CRITERIA**INCLUSION CRITERIA****Students who belong to-**

1. All the adolescent girls aged between 11-16years.
2. Adolescent girls who are willing to participate.
3. Adolescent girls who know English and Hindi.

EXCLUSION CRITERIA**Student who will not be-**

1. Adolescent girls who are not available at the time of data collection.
2. Adolescents girls who are physically and mentally handicapped.

SECTION-1**Distribution of the subjects according to frequency and percentage****(N=60)**

S.NO	VARIABLES	FREQUENCY	PERCENTAGE
1.	AGE		
	a.11-12years	14	23.33%
	b.13-14years	37	61.6%
	c.15-16years	9	15%
2.	EDUCATION		
	9 th standard	19	31.66%
	10 th standard	41	68.33%
3.	RESIDENCE		
	Home	51	85%
	Hostel	9	15%
4.	TYPEOFFAMILY		
	Nuclear	40	66.66%
	Joint	20	33.33%

5. FAMILYMONTHLYINCOME		
Lessthan1000/-	0	0%
1001-5000/-	7	11.66%
5001-10,000/-	14	23.33%
0,001/-and above	39	65%
6. SOURCES OF PRIOR INFORMATIONABOUTOBESITY		
Mass media	1	1.66%
Health personnel's	8	13.33%
School	17	28.33%
No information	34	56.66%
7.ANY BODY OBESE IN THE FAMILY		
Yes	19	31.66%
No	41	68.33%
LIFESTYLE PATTERN MEAL		
8.SCHEDULE		
Two times a day	15	25%
Three times a day	37	61.66%
Four times a day	8	13.33%
More than four times a day	0	0%
9.TYPE OF FOOD CONSUMED		
Vegetarian	21	35%
Non-vegetarian	11	18.33%
Eggetarian	28	46.66%
10. FREQUENCY OF SPICY FOOD CONSUMPTION		
Once a week	22	36.66%
Two times a week	21	35%
Three times a week	3	5%
Almost everyday	14	23.33%

11.	SLEEP PATTERN WITH IN 24 HOURS		
	6hours	10	16.66%
	8hours	43	71.66%
	c10hours	7	11.66%
	d.12hours	0	0%
12.	EXERCISES CHEDULE		
	Regular exercise	6	10%
	No exercise	44	73.33%
	Moderate exercise	5	8.33%
	Irregular exercise	5	8.33%

Table No. 2: Shows that majority (61.6%) belonged to 13-14 years, (68.33%) was from 10th standard, (85%) lived in home, (66.66%) lived in nuclear family, (65%) family monthly income was from 10,001/- and above, (56.66%) of no sources of prior information about obesity, (68.33%) of “NO” obese in the family, (61.66%) of three time a day meal schedule, (46.66%)of eggetarian food consumed, (36.66%) of frequency of spicy food consumption in once a week, (71.66%) of 8 hours sleep pattern, (73.33%) of no exercise schedule.

**CLASSIFICATION OF HEALTH STATUS ON THE BASIS OF BODY MASS INDEX AS
PROPOSED BY WORLD HEALTH ORGANIGATION (2013) AND DFI, AIIMS AND ICMR
(2008)**

S.No.	CLASSIFICATION	BMI(KG/M²) (WHO, 2013)	BMI (KG/M²) (DFI,AIIMS,ICMR, 2008)
1.	Underweight a)Severe thinness b)Moderate thinness c)Mild thinness	<18.50 <16.00 16.00– 16.99 17.00– 18.49	<18.40
2.	Normal health	18.50–24. 99	18.50– 22.90
3.	Overweight	≥ 25.00	23.00– 24.90
4.	Pre-obese	25.00– 29.99	
5.	Obese a)Obese class I b)Obese class II(obese morbidity) c)Obese class III(obese morbidity)	≥ 30.00 30.00– 34.99 35.00– 39.99 ≥ 40.00	≥ 25.00

Allotment of score for the assessment of perceived level of BMI among adolescent girls**N =60**

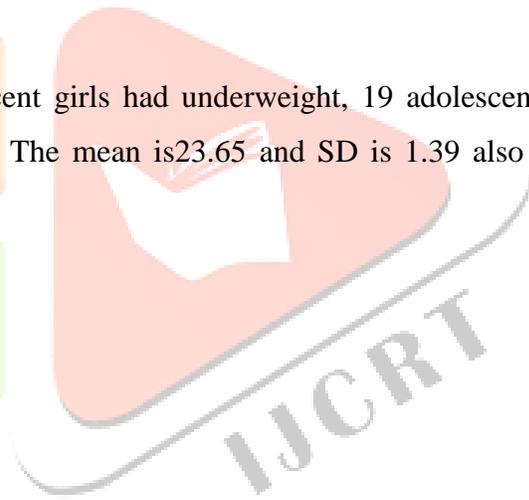
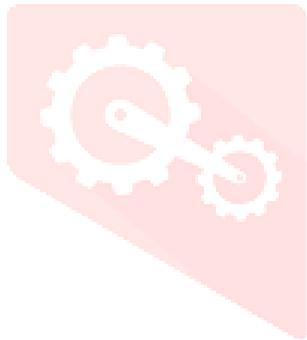
S.No.	BMI	SCORE
1.	Underweight	Below 18.4
2.	Healthy weight	18.5–22.9
3.	Overweight	23.0–24.9
4.	Obese	≥ 25.0

Description:-The table No. 16 indicates the assessment of perceived level of BMI by measuring height and weight to the adolescents(11-16years)regarding obesity. Score can be categorized in to four categories i.e., underweight (18.4), healthy weight (18.5- 22.9), over weight (23.0–24.9), obese(≥ 25.0).

SECTION-II**Assessment of pre-test perceived level of BMI among adolescent girls****N =60**

CLASSIFICATION	BMI	FREQUENCY	PERCENTAGE	MEAN	SD
Underweight	Below18.4	0	0%	23.65	1.39
Healthy weight	18.5–22.9	19	31.66%		
Overweight	23.0–24.9	27	45%		
Obese	≥ 25.0	14	23.33%		

The data presented clearly indicate that none adolescent girls had underweight, 19 adolescent girls had healthyweight,27 had over weight and 14 had obese. The mean is23.65 and SD is 1.39 also justify the perceived level of BMI among adolescent girls.



SECTION-III

Assessment of post-test perceived level of BMI among adolescent girls

N =60

CLASSIFICATION	BMI	FREQUENCY	PERCENTAGE	MEAN	SD
Underweight	Below18.4	0	0%	21.59	1.33
Healthy weight	18.5–22.9	50	83.33%		
Overweight	23.0–24.9	10	16.66%		
Obese	≥ 25.0	0	0%		

The data presented clearly indicate that none adolescent girls had underweight, 50 adolescent girls had healthy weight, 10 had overweight and none had obese. The mean is 21.59 and SD is 1.33 also justify the perceived level of BMI among adolescent girls.

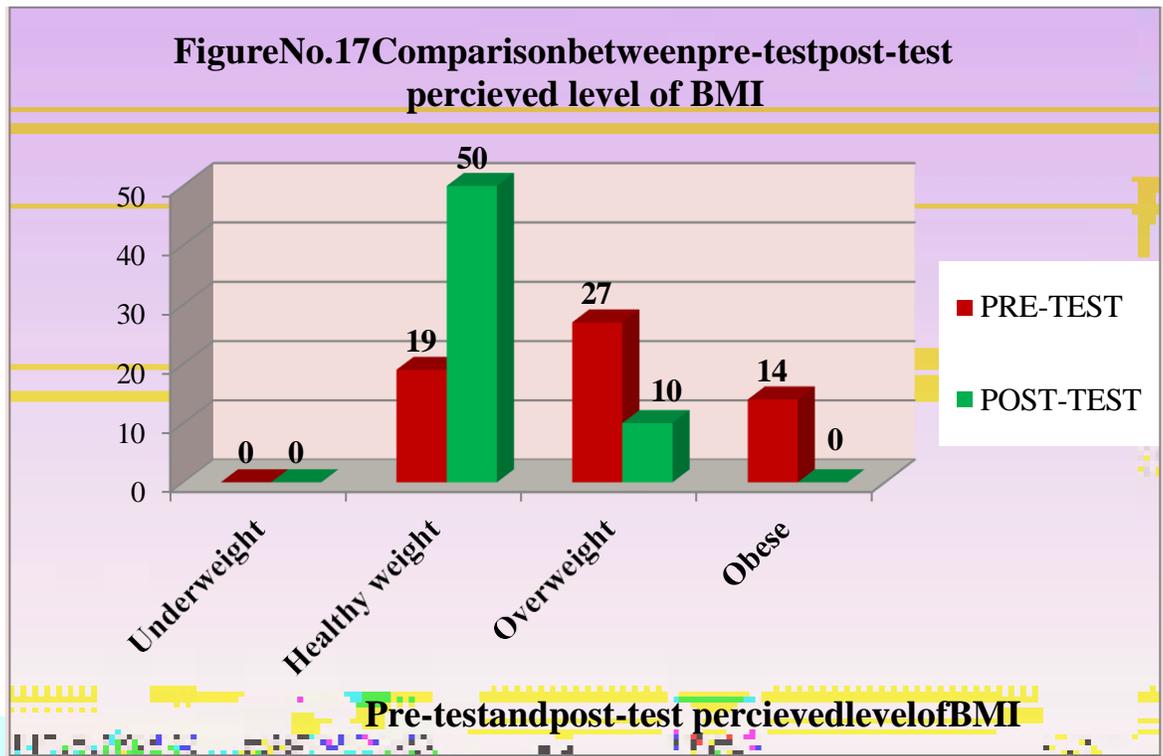
SECTION-IV

Comparison between pre-test & post-test perceived level of BMI among adolescent girls

N =60

S.No.	BMI	Mean	SD	MEAN DIFFERENCE	t-Test
1	Pre-test	23.65	1.39	2.06	2.59
2	Post-test	21.59	1.33		

The comparison between pre-test and post-test perceived level of BMI made by t- test fulfills objective 2. The pre-test and post-test BMI was statistically tested by applying t-test method at the level of 0.05 and the t- value was 2.59 .In this case the calculated value of ‘t’ is greater than the table value (2.00), the hypothesis H1 is accepted.



SECTION-V

Association between pre-test perceived levels of BMI with selected demographic variables

N=60

S. No.	Variables	Under weight	Healthy weight	Over weight	Obese	Total	df	Chi-square	P-value	Inference
1.	AGE									
	a.11-12years	0	5	8	1	14	6	120	0	MS
	b.13-14years	0	10	18	9	37				
	c.15-16years	0	4	1	4	9				
2.	EDUCATION									
	a.9 th standard	0	7	9	4	20	3	30.28	0	MS
	b.10 th standard	0	12	18	10	40				
3.	RESIDENCE									
	Home	0	15	25	11	51				

	Hostel	0	4	2	3	9	3	1.0889	0.032135	S
4.	TYPE OF FAMILY									
	Nuclear	0	13	16	10	39		1.64	0.439621	NS
	Joint	0	6	11	4	21	3			
5.	FAMILY MONTHLY INCOME									
	a. Lessthan1000/-	0	0	0	0	0				
	b. 1001-5000/-	0	2	1	3	6				
	c.5001-10,000/-	0	5	9	1	15	9	10.07	0.039118	S
	d.10,001/-and above	0	12	17	10	39				
6.	SOURCES OF PRIOR INFORMATION ABOUT OBESITY									
	a. Mass media	0	0	0	0	0				
	Health personnel's	0	5	2	2	9	9	1.87	0.758237	NS
	School	0	9	18	7	34				
	No information	0	5	7	5	17				
7.	ANYBODY OBESE IN THE FAMILY									
	Yes	0	7	10	1	18	3	0.42	0.810166	NS
	No	0	12	17	13	42				
	LIFESTYLE PATTERN									

8.	MEAL SCHEDULE									
	Two times a Day	0	11	2	2	15				
	b. Three times a day	0	8	24	5	37	9	3.46	0.7483	NS
	Four times a Day	0	0	1	6	7				
	More than Four times a day	0	0	0	1	1				
9.	TYPE OF FOOD CONSUMED									
	Vegetarian	0	11	7	3	21				
	Non-vegetarian	0	0	9	2	11	6	10.73	0.096805	NS
	c. Eggetarian	0	9	10	9	28				
10.	FREQUENCY OF SPICY FOOD CONSUMPTION									
	Once a week	0	11	7	4	22				
	b.Two times a week	0	8	9	4	21				
	c.Three times a week	0	0	2	2	4	9	11.07	0.086052	NS
	d.Almost every day	0	0	9	4	13				
11.	SLEEP PATTERN WITHIN 24 HOURS									
	a.6hours	0	4	7	0	11				
	b.8hours	0	15	16	11	42				
	c.10hours	0	0	4	3	7	9	6.49	0.165383	NS

	d.12hours	0	0	0	0	0				
12.	EXERCISE SCHEDULE									
	a.Regular exercise	0	4	0	1	5	9	9.96	0.12616	NS
	b.Noexercise	0	14	23	7	44				
	c.Moderate exercise	0	1	3	2	6				
	d.Irregular exercise	0	0	1	4	5				

Results significant at 0.05% level of significance)

Abbreviation

MS= Most significant

S=Significant

NS =Not significant

NP=Not possible

Description: reveals that the association between perceived BMI level of adolescent girls with selected demographic variables is statistically tested by applying chi-square test the variables age, education, was found most significant. The variables type of family, sources of prior information about obesity, anybody obese in the family, meal schedule, sleep pattern within 24hours, exercise schedule, type of food consumed and frequency of spicy food consumption was found not significant. The variables family income and residence was found significant

CONCLUSION

The findings of the study support the need to conduct aerobic exercise to adolescent girl students (11 -16 years). This study has proved that the adolescent girls (11 -16years) students have remarkable reduce obesity in perceived BMI due to the effectiveness of aerobic exercise. Thus for the future outlook there is need to reduce the obesity by programme on various type of aerobic exercise

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