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## **Effectiveness of Aerobic Exercise in Improving the Physical and Physiological Parameters among Obese Women at Vedapatti, Coimbatore**

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*doi: 10.33472/AFJBS.6.Si3.2024.2535-2543***ABSTRACT:**

Overweight and obesity present significant public health concerns because of the link with numerous chronic health conditions. Excess body weight is a result of an imbalance between energy intake and energy expenditure. Physical activity is the most variable component of energy expenditure and therefore has been the target of behavioural interventions to modify body weight. It appears that physical activity is an important component on long-term weight control, and therefore adequate levels of activity should be prescribed to combat the obesity epidemic. **Methodology:** The research design adopted was one group pre-test post-test design. The sample size was 21 after identifying the prevalence of obesity and overweight among the adult women. Demographic profile and baseline information were collected by interview method. The BMI, waist-hip ratio, cholesterol level, RBC level was assessed before and after the aerobic exercise program. SPSS 20 was used to do data analysis. **Result:** 17. The mean BMI before the aerobic exercise training program was 27.9. The mean BMI of the obese women after the aerobic exercise training program was 26.1. The mean difference between the pre and the post assessment of BMI was 1.8. This assessment shows that there is a decrease of BMI that is reduction in weight after the aerobic exercise program. 21. There is no association between the factors contributing to obesity (Physical activity, dietary practices, menstrual history, family history, contraceptive usage, mode of delivery and regularity of doing physical exercise) and BMI, RBC level and cholesterol level. **Conclusion:** The study highlights the magnitude of problem of obesity among the women and the need to address the problem. Overweight and obesity in healthy population may appear to be innocuous but could lead to significant morbidity and associated health problems.

**Keywords:** Aerobic exercise, physical and physiological parameters, obese

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## **1. Introduction**

An escalating epidemic of overweight and obesity is affecting many countries in the world, and if action is not taken now, millions of people will develop non-communicable diseases and other health disorders like hypertension, hyperlipidemia, and glucose tolerance. This fact together with its association with the leading causes of illness and death has made obesity a high priority problem in the world. The rising epidemic reflects the profound changes in the society and on the behavioral patterns of the communities. Without societal changes adults will develop the many medical complications of obesity. Obesity is now well recognized as a disease in its own right, one which is largely preventable through changes in lifestyle (Sekar, V and Anil Mathew, C., 2003). World's population is growing enormously and people with different cultures are living in different countries. Around 700 crores of population is living at present with various life styles. Sedentary life style of present scenario makes people less stenos and has caused many health problems to the human beings especially women (Anura Kurpad, C., 2005). Obesity is a wide spread and growing problem around the world, with a population of more than 1 billion overweight adults of which at least 300 million are clinically obese. Obesity now considered as a "Killer lifestyle" disease is an important cause of preventable death worldwide. According to the World Health Organization (WHO), 1.2 billion people worldwide are officially classified as overweight. This is probably the most sedentary generation of people in the history of the world (WHO, 2010).

### **Need of The Study**

In developed countries and in some developing countries, obesity is a serious health problem. The connection between severe obesity and premature death from diabetes, hypertension and coronary heart diseases is well accepted, the basic cause of obesity is limited physical activity (Park K, 2011). In 1997, World Health Organization (WHO) formally recognized obesity as a global epidemic act of 2005, and estimates that at least 400 million adults (9.8%) are obese, with higher rates among women than men. As of 2008 WHO claimed that 1.5 billion individuals over the age of 20 years are considered obese. The rate of obesity also increases with age up to 50 or 60 years old. Once considered a problem only in high income countries, obesity rates are raising worldwide. These increases have been felt most dramatically in urban settings (The NHFS-3, 2005). Overweight and obesity are the fifth leading risk for global deaths. WHO estimates that 1.5 billion adults were overweight and overall more than 1 in 10 of the world's adult population were obese (WHO, 2009). Obesity increases the likelihood of various disease, type 2 diabetes mellitus, breathing difficulty during sleep, certain types of cancer and osteoarthritis. Obesity is most commonly caused by a combination of excessive dietary calories, limited physical activity, and genetic susceptibility, although a few cases are caused primarily by gene, endocrine disorder, Medications or psychiatric illness (Asma Rahim, 2008).

## **2. Methodology**

The research design adopted was one group pre-test post-test design. The sample size was 21 after identifying the prevalence of obesity and overweight among the adult women. Demographic profile and baseline information were collected by interview method. The BMI, waist-hip ratio, cholesterol level, RBC level was assessed before and after the aerobic exercise program. The aerobic exercise like walking, stretching and arms up and down exercises that is, rhythmic and repetitively done (faster) by involving the large group of muscles in the duration of 40 minutes. The intensity of the aerobic exercise training will be

taken from 1-4(exertion level) maintained by Standardized Borg's Rating of perceived exertion (RPE) Scale.

### 3. Results

Distribution of Demographic Variables between the adolescents of the experimental and control group.

Regards to age majority in study Age: Age of obese adult women ranged between 19-45 years (Table4. 2). 2(9.5%) women were in the age group of 19-25 years, 5(23.8%) women were in the age group of 26-30 years, 5(23.8%) women were in the age group of 31-35 years, 6 women were in the age group of 36-40 years and 3(23.8%) women were in the age group of 41-45 years. Marital status: Among the 21 women, 2(9.5%) women were unmarried; Most of them 18(85.7%) women were married and one (4.7%) women was widow (Fig 4.3) Education: One (4.7%) woman was illiterate, 3(14.2%) women completed their primary level education, 6 (28.5%) women completed their middle school education,7(33.3%) women completed their higher secondary education and 4(19 %) women were undergone diploma course. Occupation: Among the 21 women, majority of them, 15(71.4%) were housewives, 2(4.7%) women were tailor, 2(4.7%) women were engaged into business and 2(4.7%) women were unemployed (unmarried). Type of work: Among the 21 women, 17(80.9%) women were moderate workers and 4(19%) women were sedentary workers. Monthly income: Out of 21 women 16 (76.1%) women had a monthly income ranged from Rs. 5,000-10000, 4(19%) women had a income of Rs.11, 000 to Rs15, 000 and only 1(4.7%) women had a income of more than Rs.15, 000.

#### **Comparison of Physical Parameters among the Obese Adult Women Before And After The Aerobic Exercise Training Program:**

**1 Body Mass Index:** In the physical parameters such as Body Mass Index, pre-assessment score among the 21 obese adult women were, 19 women were overweight with BMI ranged from 25 to 29.9 and 2 women were obese with BMI more than 30. The post-assessment score is that, 6 women were within the normal BMI ranged between 18.5-24.9, 14 women were overweight with BMI ranged from 25to 29.9 and no women was obese with BMI more than 30

**2 Waist -Hip Ratio:** In the pre-assessment the results of waist hip ratio showed that only one women waist hip ratio was near to normal that is (0.81), 11 women were between the range of 0.86-0.90, 5 women were ranged between 0.91-0.95 and 4 women were between the range of 0.96-1.00. The post-assessment score of waist hip ratio of 4 women were between the range of 0.80-0.85, 10 women were ranged between 0.86-0.90, 5 women were between the range of 0.91-0.95 and 2 women were ranged between 0.96-1.00(Fig

#### **Comparison of physiological parameters among the obese adult women Before And after The Aerobic Exercise Training Program:**

**1 Cholesterol level:** In the physiological parameters such as cholesterol level pre-assessment score among the 21 obese adult women were, 13 women between the range of 200 to 250 mg/dL and 8 women were ranged between 251-300 mg/dL. And the post-assessment score 15 women were ranged from 200 to 250 mg/dL and 6 women were ranged between 251-300 mg/dL

**2 RBC level:** The result on the pre-assessment score of RBC level is 11 women ranged between 4.0-4.50x 10/uL, 9 women were ranged between 4.51-5.0x 10/uL and only 1 woman above 5.01x 10/uL. And the post-assessment score 8 women ranged between 4.0-4.50x 10/uL, 12 women were ranged between 4.51-5.0x 10/uL and only 1 woman was above 5.01x 10/uL

Comparison of Physical and Physiological Parameters Among The Pre-Test Assessment With Post-Test Assessment n =21

S.No	Physical parameters	No. of women	
		Pre-test	post-test
	<b>BMI</b>		
1.	Normal BMI(18.5-24.9)		6
2.	Over weight (25to 29.9)	19	14
3.	Obese (>30)	2	1
	<b>Waist- hip ratio(cm)</b>		
1.	0.80-0.85cm	1	4
2.	0.86-0.90cm	11	10
3.	0.91-0.95cm	5	5
4.	0.96-1.00cm	4	2
	<b>Physiological parameter</b>		
	<b>Cholesterol level(mg/dL)</b>		
1.	200-250 mg/dL	13	15
2.	251-300 mg/dL.	8	6
	<b>RBC level</b>		
1.	4.0-4.50x 10/uL	10	8
2.	4.51-5.0x 10/uL	9	12
3.	>5.01x 10 /uL	1	1

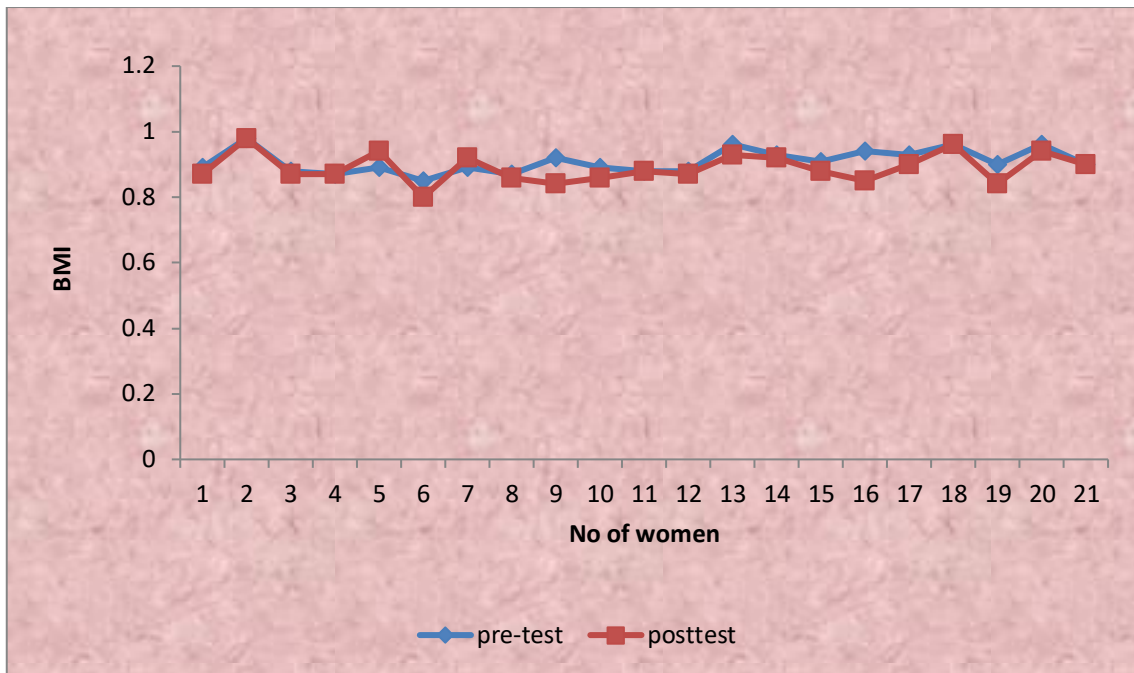


Figure 1. BMI of Obese Women

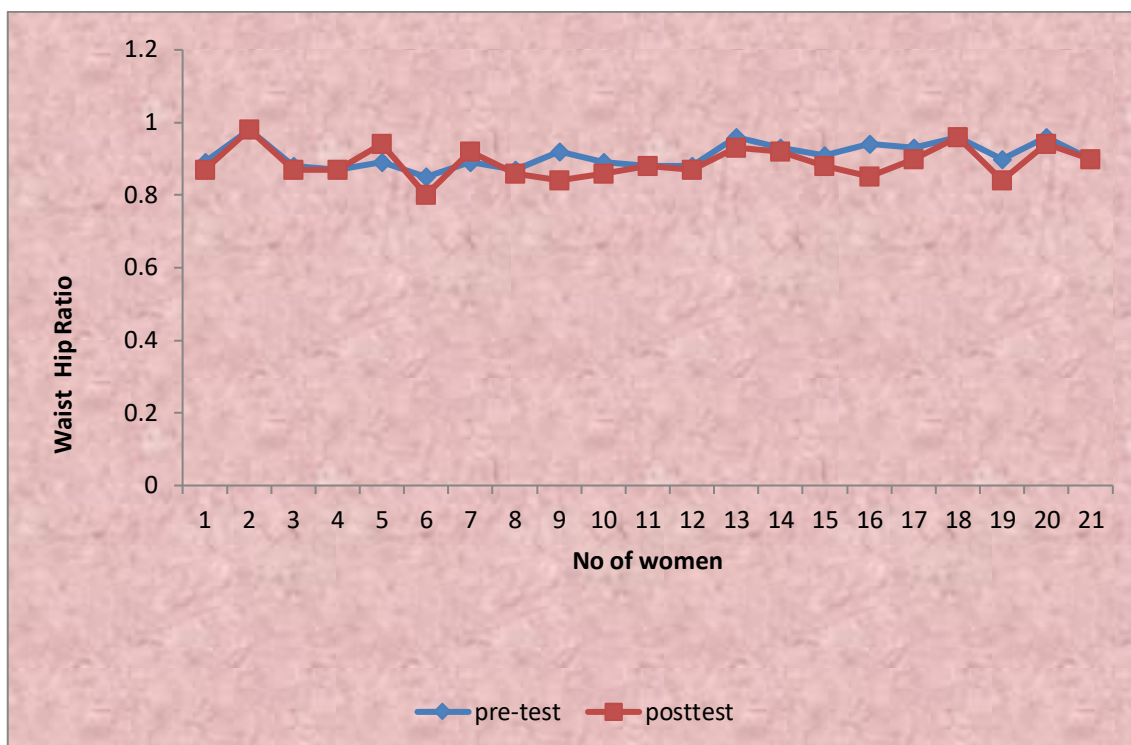


Figure 2. Waist -hip Ratio of Obese Women

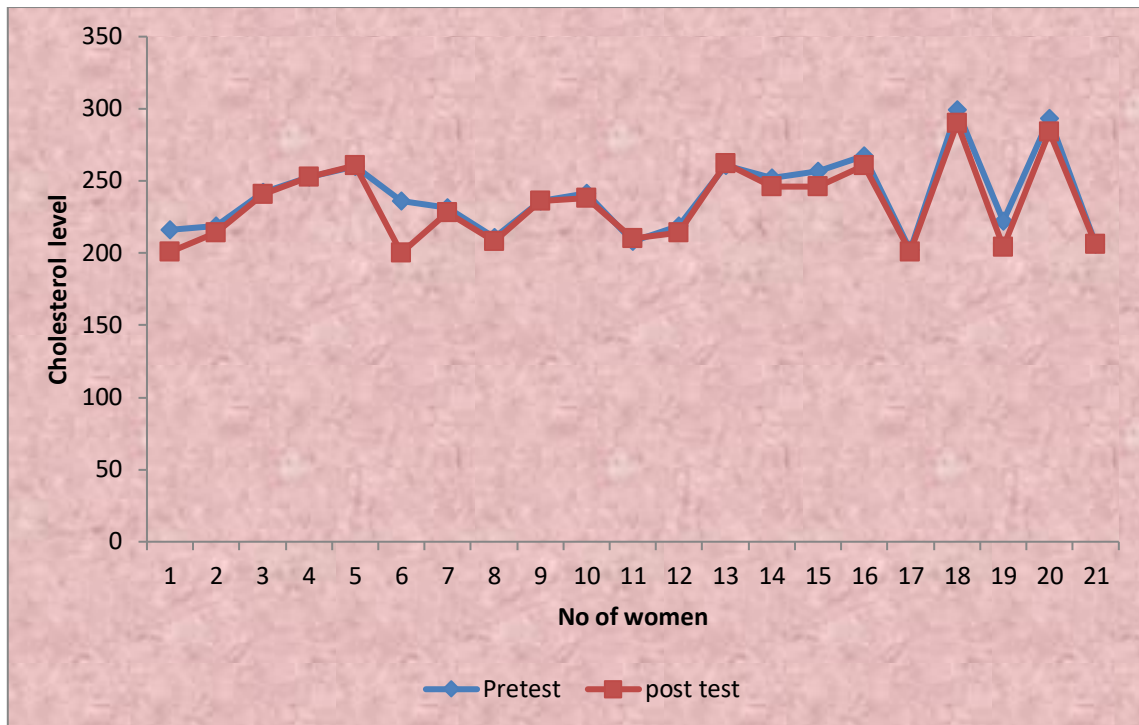


Figure 3. Cholesterol Level of Obese Women

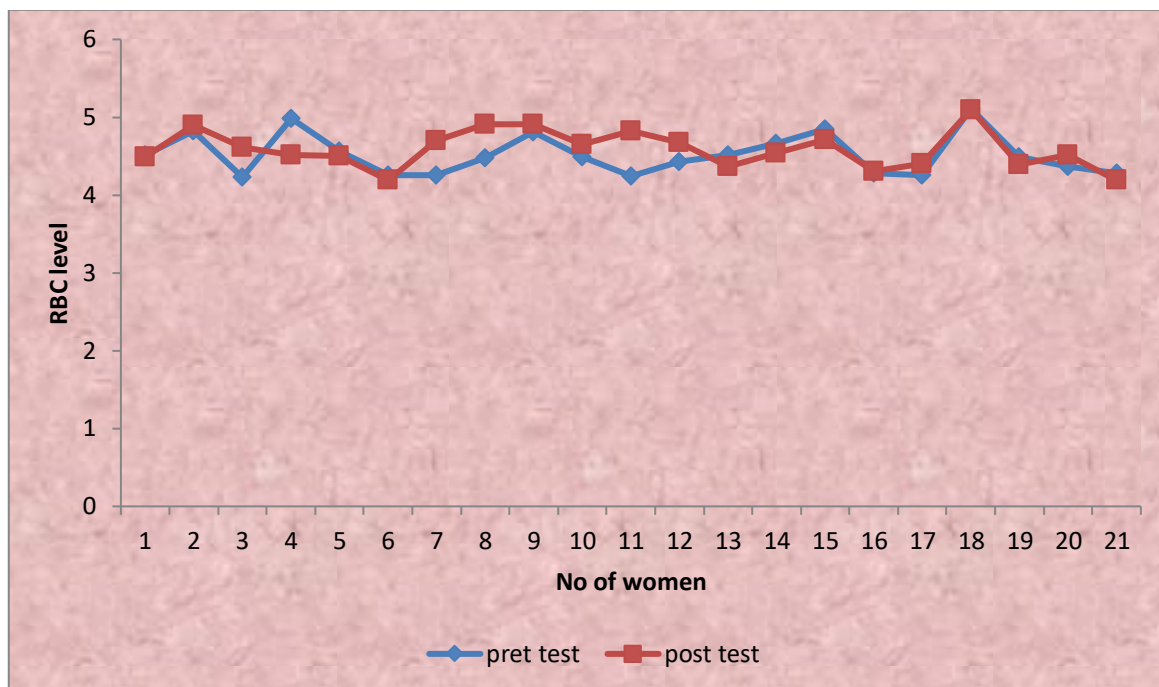


Figure 4. RBC Level of Obese Women

**Comparison of Physical and Physiological Parameters among the Pre-Test Assessment with Post-Test Assessment through Paired ‘t’ Test**

There is no association between the factors contributing to obesity( Physical activity, dietary practices, menstrual history, family history, contraceptive usage, mode of delivery and regularity of doing physical exercise)and BMI,RBC level and cholesterol level.

#### 4. Discussion

The present study is focused to determine the effectiveness of aerobic exercise on improving the physical and physiological parameters among the obese women. This chapter deals with the discussion based on objectives, study findings and conclusion by relating with the conclusion of previous studies. Overweight and obesity are the major public health problems due to limited physical activity considered as a main cause, in which there is excessive storage of energy in the form of fat as per height, weight, race and gender (World Health Organization, 2005). Obesity is prevalent among all groups and is on the rise among adults especially the women worldwide in both developed and developing countries (Jenera, 2005). A study conducted in urban city of Punjab on the level of education and obesity, showed an inverse relationship between level of education and prevalence of obesity. A study revealed that prevalence was highest in illiterate people and lowest in people who graduated from universities or colleges. As education level increased, the prevalence of obesity decreased (Enas, 2009).

#### 5. Conclusion

The study highlights the magnitude of problem of obesity among the women and the need to address the problem. Overweight and obesity in healthy population may appear to be innocuous but could lead to significant morbidity and associated health problems. Early prevention and control of obesity with any sort of physical activity and regular dietary modification will minimize these consequences of the condition. This study review showed the effectiveness of aerobic exercise on improving the physical and physiological parameters among the obese women. Nursing includes preventive, promotive, curative and rehabilitative services to the population. Community health nurse plays a major role in those aspects of health care. The findings can be used to impart in-service education to the staff nurses in the hospital settings and in the community settings - community health nurses, village health nurse to make the public aware about importance doing aerobics.

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**Conflict of interest:** There are no conflicts of interest.

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