

A STUDY TO EVALUATE THE EFFECTIVENESS OF AEROBIC EXERCISE COMBINED WITH RELAXATION TECHNIQUES ON BODY MASS INDEX AMONG WOMEN WITH POLYCYSTIC OVARY SYNDROME.

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ABSTRACT

Polycystic Ovary Syndrome (PCOS) is a common endocrine disorder associated with obesity and metabolic risk. Most of the women having high Body mass index because of PCOS especially in the reproductive age between and may contribute to metabolic complications. The relaxation techniques and aerobic exercise is help to the women whose undergoing PCOS. Routine BMI assessment is important for early identification and management of health risks in PCOS. These results emphasize the need for regular monitoring and lifestyle modification strategies aerobic exercise and relaxation techniques to reduce obesity and improve overall health outcomes in affected individuals effectively. An observational study was conducted among 15 women aged 18–45 years diagnosed with PCOS using convenience sampling. Height and weight were measured & BMI was calculated using standard formula. Aerobic and relaxation techniques was given. Data were analyzed using descriptive statistics.

KEYWORDS: Aerobic exercise, Relaxation techniques, lifestyle modification, PCOS, Body Mass Index

INTRODUCTION

Polycystic Ovary Syndrome (PCOS) is one of the most common endocrine disorders affecting women of reproductive age. It is characterized by hormonal imbalance, menstrual irregularities, and metabolic disturbances. In addition to reproductive complications, PCOS is strongly associated with obesity, insulin resistance, and an increased risk of long-term conditions such as type 2 diabetes and cardiovascular diseases⁽¹⁾. Body Mass Index (BMI) is widely used to assess obesity and plays a significant role in determining the severity and clinical presentation of PCOS.

Increased BMI contributes to insulin resistance, which is a central feature in the pathophysiology of PCOS. Higher levels of body fat, especially visceral fat, disrupt insulin signaling and lead to hyperinsulinemia, which further stimulates androgen production and worsens PCOS symptoms. Women with elevated BMI often present with more severe clinical features such as irregular menstruation, anovulation, and metabolic abnormalities^(2,3).

Lifestyle modification is considered the first-line management strategy for PCOS, particularly in addressing obesity and metabolic dysfunction. Aerobic exercise helps reduce body weight and improve insulin

sensitivity, while relaxation techniques such as breathing exercises and yoga contribute to stress reduction and hormonal balance. Combining these interventions may enhance their effectiveness in reducing BMI and improving overall health outcomes. Therefore, this study aims to evaluate the effectiveness of aerobic exercise along with relaxation techniques on BMI among women with PCOS⁽⁴⁾.

AIM OF THE STUDY:

- To evaluate the effectiveness of aerobic exercise combined with relaxation techniques on Body Mass Index (BMI) among women with PCOS.

OBJECTIVE OF THE STUDY:

- To evaluate the effectiveness of the effectiveness of aerobic exercise on women with PCOS
- To evaluate the effectiveness of the effectiveness of Relaxation techniques on women with PCOS
- To evaluate the Body Mass Index on women with PCOS

BACKGROUND OF THE STUDY

Polycystic ovary syndrome is major endocrine disorder it affects overall wellbeing in women in reproductive age and **Osibogun O et al. (2020)** reported that obesity plays a major role in worsening metabolic complications in PCOS. **Greenwood EA et al. (2020)** found a strong relationship between BMI, insulin resistance, and PCOS severity. **Lim SS et al. (2022)** emphasized the importance of lifestyle interventions in reducing BMI and improving outcomes. **Sharma S et al. (2023)** showed that aerobic exercise significantly reduces BMI in PCOS women. **Kumar P et al. (2024)** concluded that BMI reduction improves metabolic health in PCOS.

NEED OF THE STUDY

PCOS is commonly associated with obesity, which worsens hormonal imbalance and metabolic complications. BMI is a simple and reliable tool to assess obesity in women with PCOS. Although exercise is recommended as a first-line treatment, limited studies have evaluated the combined effect of aerobic exercise and relaxation techniques specifically on BMI. Therefore, this study is needed to determine whether these interventions can effectively reduce BMI and improve physical health in women with PCOS.

HYPOTHESIS

Null Hypothesis:

There is no significant difference in BMI among women with PCOS following aerobic exercise and relaxation techniques.

Alternate Hypothesis:

There is significance difference in BMI among women with PCOS following aerobic exercise and relaxation techniques.

REVIEW OF LITERATURE

- **Osibogun O et al.(2020)**This study emphasized that obesity is a major contributing factor in the progression of PCOS. Increased BMI was found to be strongly associated with insulin resistance and cardiometabolic complications. The authors highlighted that women with higher BMI are at greater risk of developing long-term conditions such as diabetes and cardiovascular disease. The study concluded that lifestyle modification, including exercise, plays a crucial role in reducing BMI and improving overall health outcomes in PCOS.
- **Greenwood EA et al.(2020)**This study explored the relationship between BMI, insulin resistance, and hormonal imbalance in women with PCOS. The findings showed that higher BMI is directly linked to increased insulin resistance and elevated androgen levels. These metabolic disturbances worsen the clinical symptoms of PCOS. The study further emphasized that reduction in BMI can significantly improve metabolic and endocrine function.
- **Lim SS et al.(2022)**This systematic review evaluated the effectiveness of lifestyle interventions in PCOS management. It was found that interventions such as aerobic exercise and dietary modification significantly

reduce BMI and improve metabolic outcomes. The study concluded that BMI is a key indicator for monitoring the effectiveness of treatment strategies in women with PCOS.

- **Joham AE et al.(2022)**This study investigated the prevalence of PCOS and its association with obesity. The authors reported that women with higher BMI have a greater likelihood of developing PCOS and related complications. Obesity was identified as a significant risk factor influencing disease severity. The study highlighted the importance of early BMI assessment in preventing disease progression.
- **Sharma S et al.(2023)**This study demonstrated the effectiveness of aerobic exercise in reducing BMI among women with PCOS. Participants who engaged in regular exercise showed significant improvements in body composition and metabolic parameters. The study concluded that aerobic exercise is an effective non-pharmacological intervention for managing obesity in PCOS.
- **Gupta M et al.(2023)**This study focused on the impact of relaxation techniques on stress and overall well-being in women with PCOS. Although primarily addressing stress, the findings suggested that relaxation techniques can support lifestyle interventions by improving adherence and reducing physiological stress. This indirectly contributes to better weight management and BMI reduction.
- **Kumar P et al.(2024)**This study highlighted the role of BMI in determining metabolic outcomes in PCOS. Increased BMI was associated with higher insulin resistance, poor metabolic profile, and increased disease severity. The study also emphasized that interventions aimed at reducing BMI can significantly improve overall health and reduce complications.

METHODOLOGY

Study Design: Observation study

Sample Size: 15

Sampling method: Random sampling

Study Duration: 4 Weeks

Study setting: Priya physio care

SAMPLE SETTING

INCLUSION CRITERIA:

- Women aged 18–45 years
- Diagnosed with PCOS
- Willing to participate
- BMI above normal range

EXCLUSION CRITERIA:

- Pregnancy
- Severe medical conditions
- Recent participation in exercise programs
- Other endocrine disorders

• OUTCOME MEASURE

• **BODY MASS INDEX:** Body mass (BMI) is used to assess overall body weight and obesity status. BMI provides an indication of general composition & helps in identify overweight and obesity which are commonly associated with PCOS.

• PROCEDURE

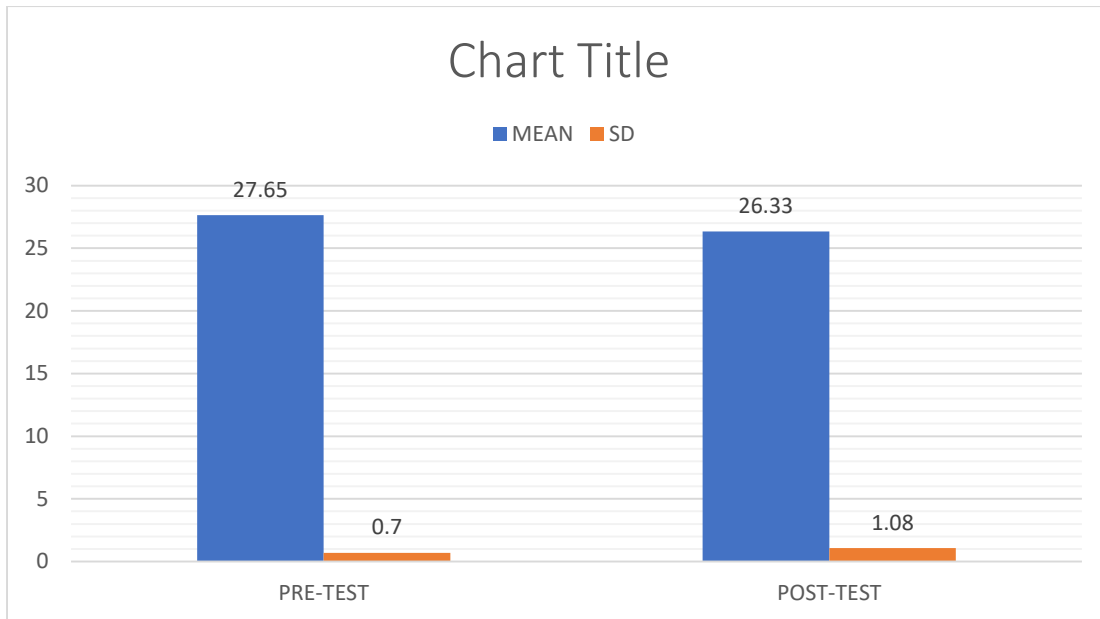
• Participants who met the inclusion criteria were selected for the study and informed consent was obtained. Baseline measurements of height and weight were recorded, and Body Mass Index (BMI) was calculated using the standard formula. The participants were then instructed to perform **aerobic exercise**, including brisk walking and cycling, jumping jacks for 30 minutes per session, five days a week, for four weeks. Along with this, **relaxation techniques** such as deep breathing exercises, savashana, bhujangasana and baddha konasana simple yoga practices were taught and performed for 15 minutes daily.

- All sessions were conducted under supervision to ensure proper technique and safety. After completion of four weeks, BMI was reassessed using the same method. The pre and post values were recorded and compared to determine the effectiveness of the intervention.

DATA ANALYSIS

BMI	MEAN	SD	t-TEST	SIGNIFICANCE
PRE-TEST	27.65	0.7	1.0026	0.3247
POST-TEST	26.33	1.08	3.9877	0.0004

The above table presents the mean, standard deviation, t value and p value at pre-test and post-test. The result shows that there was no stastically significant at pre-test($p > 0.05$) However ,at post test a extremely statistically significant ($p < 0.001$)



RESULT

The comparson of mean values between pre-test and post-test in BMI Showed a extremely statistically significant difference($p < 0.001$) pre-test demonstrated greater improvement than post-test as indicated by lower mean values. Therefore, the null hypothesis is rejected.

DISCUSSION

The present study aimed to evaluate the effectiveness of aerobic exercise combined with relaxation techniques on Body Mass Index (BMI) among women with Polycystic Ovary Syndrome (PCOS). The results demonstrated a statistically significant reduction in BMI values from pre-test (mean = 27.65 ± 0.7) to post-test (mean = 26.33 ± 1.08), indicating the effectiveness of the intervention.

The reduction in BMI observed in this study can be attributed to the role of aerobic exercise in increasing energy expenditure and improving metabolic function. Regular aerobic activity enhances insulin sensitivity, which is a key factor in the management of PCOS. Improved insulin sensitivity helps reduce fat accumulation and contributes to weight reduction, thereby lowering BMI values.

Additionally, relaxation techniques such as deep breathing and yoga may have contributed to the observed

outcomes by reducing stress levels and improving hormonal balance. Stress is known to influence hormonal disturbances in PCOS, and its reduction can support better metabolic regulation and weight management. These findings are consistent with previous studies which reported that lifestyle interventions, particularly aerobic exercise, significantly reduce BMI and improve metabolic health in women with PCOS. The combined approach of exercise and relaxation may provide a more holistic benefit compared to single interventions.

Therefore, the present study supports the effectiveness of aerobic exercise along with relaxation techniques in reducing BMI among women with PCOS, emphasizing the importance of lifestyle modification in managing the condition.

CONCLUSION

The present study concludes that aerobic exercise combined with relaxation techniques is effective in reducing Body Mass Index (BMI) among women with Polycystic Ovary Syndrome (PCOS). The significant decrease in BMI values from pre-test to post-test indicates that lifestyle interventions play a vital role in managing obesity associated with PCOS. Aerobic exercise helps improve metabolic function and energy expenditure, while relaxation techniques support hormonal balance and stress reduction.

Therefore, incorporating regular physical activity along with relaxation practices can be considered an effective and non-pharmacological approach in the management of PCOS. These findings emphasize the importance of lifestyle modification in improving overall health and reducing the risk of metabolic complications in women with PCOS.

LIMITATIONS OF THE STUDY

- Small sample size (15 participants)
- Short study duration(4 weeks)
- Only limited outcome measures used BMI
- No control over diet and lifestyle
- No long term follow-up

RECOMMENDATIONS OF THE STUDY

- Increase sample size in future studies
- Conduct study for longer duration
- Include more parameters
- Combine with diet management
- Do follow-up studies

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