

The Effectiveness of a Structured Exercise Programmed and Progressive Muscle Relaxation Technique on Physical and Emotional Disturbance Among College Girls with Pcos

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Abstract

The objective of the study: The aim of this study is to see how an organized exercise regimen and the Progressive Muscle Relaxation Technique affected physical and mental disturbances in PCOS college girls.

Method: At random, 40 people who met the inclusion criteria were selected. Group A was given a structured workout regimen as well as PMRT (Progressive Muscle Relaxation Technique). Group B was given only the Progressive Muscle Relaxation Technique.

Outcome Measures: Beck's depression inventory, Beck's anxiety inventory, and Body mass index. These were used to evaluate pre- and post-therapy outcomes.

Results: Group A differs from Group B in more ways, a structured exercise program combined with Progressive Muscle Relaxation Technique is more effective than Progressive Muscle Relaxation Technique alone in reducing depression, anxiety, and physical disturbance among PCOS-affected college girls.

Conclusion: The statistical results show that combining a structured exercise programmed with progressive muscle relaxation exercise produces a significant difference when compared to progressive muscle relaxation exercise alone.

Keywords: beak's depression inventory; beak's anxiety inventory and body mass index progressive muscle relaxation technique; structured exercise program

Introduction

PCOS (polycystic ovarian syndrome) has to be the more prevalent endocrine illness affecting women of reproductive age [1]. The state of your endocrine and metabolic systems prolonged oligomenorrhea, hyperandrogenism, and insulin resistance are all symptoms of Poly Cystic Ovary Syndrome (PCOS). [2] An ovulation, hyperandrogenism, and polycystic ovaries are three primary diagnostic symptoms of PCOS, according to the Rotterdam criteria. To be diagnosed with PCOS, patients must exhibit two of the three characteristics the most prevalent symptom of PCOS is an ovulation, which affects up to 90% of women with the condition [3]. Oligomenorrhea (less than eight periods per year) is a common symptom (one and a half years after menarche, a persistent bleeding pattern begin; if this length exceeds three years, PCOS must be examined.4) PCOS is the leading cause of infertility in almost all races and

ethnicities, with a prevalence of 15%. In India, the prevalence of PCOS ranges from 9.13 to 36 percent, with around 50 percent of PCOS women being overweight or obese and the majority was having the abdominal phenotype [5].

According to a recent survey, individuals with PCOS face challenges to their female orientation, with a frequency of 9.13 percent in south Indian adolescent girls. Teenagers with PCOS who are nearing the end of their identity formation and body image consciousness are more prone to have psychological issues. Obesity, acne, hair thinning on the scalp, monthly irregularities, hoarseness of voice, dysmenorrhea, hirsutism, and anxiety of infertility are all signs of PCOS. Other clinical features include oily skin, dandruff, and skin discoloration, all of which are likely to affect quality of life and mood, potentially leading to sadness and anxiety in college girls. [7] It has been linked to not just reproductive problems but also cosmetic consequences. These signs

and symptoms can potentially lead to mental illness. Women with PCOS had significantly higher rates of mild anxiety and depression than women without the condition [8].

According to a study, PCOS women had a high incidence of anxiety (11.6%). The concept that anxiety is a risk factor for the development of depressive illnesses is supported by data, hence anxiety symptoms must be assessed when diagnosing adolescents with PCOS. [9] Women's body weight fluctuations are influenced by a variety of factors physical exercise, as well as environmental, nutritional, social, and psychological issues, are all elements to consider. Obesity has been linked to a variety of hormonal alterations. In women with PCOS, weight loss of 5–10 percent has been found to improve reproductive, metabolic, and psychological outcomes. Eating a well-balanced diet, increasing physical activity, and avoiding bad thinking habits can help women with PCOS lose weight. [10]

Exercise is recommended as the very first management for oligomenorrhea, hirsutism, infertility, and obesity by the majority of endocrinologists, gynecologists, and PCOS specialists. According to gynecologists, exercise training improves the maximal oxygen consumption (maxVo_2 , weight, and waist circumferences of PCOS individuals. In women with PCOS, a combination of aerobic and resistance activities is highly effective at improving insulin sensitivity than those of aerobic or resistance workouts alone. [11] A systematic physical activity that is undertaken with the objective of increasing or maintaining physical fitness is known as aerobic exercise. Fasting insulin and insulin resistance were reduced more effectively with aerobic exercise. Changes in visceral fat caused by exercise in PCOS aren't going away. Exercise improves muscle performance, connective tissue, tendon, and ligament strength, as well as bone mineral density. They also improve body composition and physical well-being by increasing lean muscle mass. [12]

You can reduce weight and enhance your insulin sensitivity by doing resistance training. Combining aerobic and resistance training has been demonstrated to increase insulin sensitivity and glycemic control while also decreasing belly fat in obese people when compared to either form of exercise alone in overweight and obese people, aerobic exercise training improves body composition and lowers a range of cardiovascular disease risk factors. [12] Combining aerobic and resistance

exercise increases insulin sensitivity in women with PCOS more than either aerobic or resistance exercise by itself [11].

PMRT is a systematic strategy for achieving a deep state of relaxation that has been found to improve health-related quality of life in a variety of medical and psychiatric conditions. [14] PMR is a basic relaxation technique that may be taught quickly. It is a powerful tool for alleviating emotional suffering. [15] PMR is a type of physical stimulation and mental relaxation that focuses on muscle stretching and release [contraction-release]. [16] This is based on the International Classifications of Disease (1992) system. The basic symptoms of depression include a depressed mood, a loss of interest or pleasure, decreased energy, and a lack of concentration. It can also cause insomnia, a loss of appetite, low self-esteem, a negative self-image, and guilt feelings. In PCOS, anxiety and sadness are multifactorial. Depression, psychological and psychosexual morbidity, and increased exposure to stressful stimuli, all of which are common symptoms of PCOS, appear to be associated to patients' body image [13].

Study, the emphasis is given on structured exercise program which includes aerobic and Resisted Exercise along with Progressive Muscle Relaxation Technique which may be helpful to reduce anxiety and depression among the college girls with PCOS, so this study may help the college girls with PCOS to get rid of disturbing physical and emotional symptoms. The study's goal was to see how effective an organized exercise regimen and progressive relaxation techniques were at reducing physical and emotional symptoms in college ladies with PCOS.

Methodology

Participants

The participants of both males and females whose age group was 40 years with polycystic ovary syndrome (PCOS). The 40 participants who fulfilled the inclusion criteria were allocated randomly into two groups, Group A ($n=20$) and Group B ($n=20$). Participants who were on hormonal medication had Asthma, Wheezing and had a history of heart, hepatic, renal, or lung problems, as well as thyroid abnormalities. This study did not include any neurological or musculoskeletal problems.

Procedure

The effects of a structured exercise program and Progressive Muscle Relaxation Technique on physical

and mental discomfort were assessed using the BDI [Beck's depression inventory]. A questionnaire called Beck's Anxiety Inventory (BAI) asks you questions regarding your anxiety. The body mass index (BMI) is a metric that assesses a person's overall health. All individuals' values were recorded before and after the therapeutic exercise.

Beck's depression inventory

The BDI [Beck's depression inventory] was used to examine the impact of a structured exercise program and Progressive Muscle Relaxation Technique on bodily and mental discomfort. Beck's Anxiety Inventory (BAI) is a questionnaire that asks you questions about your anxiety. The body mass index (BMI) is a metric that measures how healthy a person is. Before and after the therapeutic activity, all participants' values were recorded [20]. this depression evaluation can be performed on your own time. The survey's score scale may be found at the bottom of the page. Add the scores for each of the twenty-one questions to get the total. With a total of sixty-three points available, the best possible score on each of the twenty-one questions is three. The lowest possible score for the entire test is zero. Only one score should be added per question (the highest rated if more than one is circled).

Beck's anxiety inventory

It's a self-assessment tool for determining how frequently anxiety symptoms appear. It's a Likert-type inventory with a 21-item list and a 0 to 3 rating scale. Anxiety becomes more extreme as the total score rises [20].

Body Mass index

Body mass index (BMI) is a measure for determining body fat content that is calculated by dividing a person's weight in kilograms by the square of their height in meters [19].

Intervention

This study took place over a 12-month period. All of the participants came from the AVMC (ARUPADAI VEEDU MEDICAL COLLEGE) campus in Pondicherry. Subjects were educated, and the study was thoroughly explained to them, with signed informed consent obtained from those who met the study's criteria. The participants were required to complete the intervention for three months. Twenty subjects in Group A were given a structured workout programmed that included the Progressive Muscle Relaxation Technique. The researcher instructed the

patient on how to perform these operations. The exercises were to be done at a moderate intensity for at least 30 minutes three times a week for three months. For the same time period, 20 participants in Group B received only Progressive Muscle Relaxation Technique.

Structured Exercise Program

Brisk walking at a moderate pace for at least 30 minutes was recommended as an aerobic workout for all 40 participants in the study. They were told to do it three times a week for three months at a suitable tempo. A low resistance band can be used for some resistance training. The knees have been lengthened. The word "hip abduction" refers to the movement of the hips. The word "hip adduction" refers to the movement of the hips. The bending of the hips is known as hip flexion. The hips are splayed apart. The back is elongated. Pull-ups Biceps curls are a biceps curl variation. Triceps extension is a triceps muscle extension technique. Shoulder adduction and abduction are two different workouts. This resistance workout was conducted in three sets of 15 repetitions each, with a one-minute rest period in between. The exercise was then repeated.

Progressive relaxation technique

Table-1 shows the procedure for practicing Jacobson's relaxation technique. For three months, the subjects got three 20-minute PRT sessions per week.

Statistical analysis

The significance difference between the experimental group's pre- and post-test values was determined using a paired 't' test, while the difference between groups was determined using an unpaired 't' test.

Results

Examining the dependent variables Group, A and B of Beck's depression inventory. The derived paired 't' value is 1.393, 1.025, and the table value for 't' is 3.174 at the 0.005 level, as shown in table -2. Beck's Anxiety Inventory Groups A and B were used as dependent variables. At the 0.005 level, the derived paired 't' value is 1.281, while the 0.627 't' table value is 3.174. As a dependent variable, the BMI (body mass index) was investigated. The derived paired 't' value is 0.427 at the 0.005 level, whereas the 0.163 't' table value is 3.174 at the 0.163 level for groups A and B. The above value indicates that there is a notable change in physical and emotional disturbance among college

girls diagnosed with PCOS who participate in a structured exercise program incorporating Progressive Muscle Relaxation Technique because the determined 't' value exceeds the 't' table value. On Beck's depression questionnaire, the dependent variable was examined between Group A and Group B. As seen in table-3, the derived unpaired 't' value is 0.257, while the 't' table value is 2.980 at the 0.005 level. Between Group A and Group B on Beck's anxiety questionnaire, the dependent variable was examined: The computed unpaired 't' value is 0.347,

while the 't' table value is 2.980 at the 0.005 level. The body mass index (BMI) has been researched as an independent variable. Differences between Groups A and B are measured in the following ways: The unpaired derived 't' value is 0.167 at the 0.005 level, and the 't' table value is 2.980. Because the computed 't' value is less than the 't' table value, the above value demonstrates that there is a significant difference in an organized exercise program with Progressive Muscle Relaxation Technique over Progressive Muscle Relaxation Technique alone.

Table 1: Jacobson's Progressive Muscle Relaxation Technique

SNO.		Procedure Of Jacobson's Progressive Muscle Relaxation Technique	Tensing Time	Relaxation Time
1.		Hands		
	a)	For 5 seconds, clench each fist individually (right and left) and feel the strain in the fist and forearm. For 10 seconds, release the fist, relax, and enjoy the relaxation.	5 sec	10 sec
2.		Arms		
	a)	Bend each arm up at the elbow (right and left) and tense the biceps while maintaining the hand relaxed. Feel the tension for 5 seconds. For 10 seconds, release the arm, relax, and feel at ease.	5 sec	10 sec
	b)	Straighten each arm (right and left) and tension the triceps while keeping the lower arms supported by the chair and the hands relaxed for 5 seconds. For 10 seconds, relax and feel relaxed.	5 sec	10 sec

Table 2: Paired t test for PCOS

Parameter	Groups		Pre-test	Post-test	Difference	Paired 't' value
Beck's depression inventory	A	Mean	20.6	14.85	5.75	1.393
		Standard Deviation	6.094	5.042	1.052	
	B	Mean	21.55	18.3	3.25	1.025
		Standard Deviation	5.987	5.301	2.737	
Beck's Anxiety inventory	A	Mean	24.9	19.9	5	1.281
		Standard Deviation	6.579	5.830	0.749	
	B	Mean	24.65	21.75	2.9	0.627
		Standard Deviation	6.687	5.795	0.892	
BMI	A	Mean	28.31	25.9	2.41	0.427
		Standard Deviation	2.707	2.7	0.007	
	B	Mean	28.16	27.15	1.01	0.163
		Standard Deviation	2.635	2.815	0.187	

Table 3: Unpaired 't' test for PCOS

Sl. No	Parameters	Groups	Mean	Mean Difference	Standard deviation	Un paired 't' test
1	Beck's depression inventory	A	5.75	2.5	14.14	0.257
		B	3.25			
2	Beck's anxiety inventory	A	5	2.1	19.11	0.347
		B	2.9			
3	BMI	A	2.41	1.40	26.4	0.167

Discussion

Taking a look at Beck's sadness in the goal of this study was to see how physical and emotional problems in PCOS college women were influenced by aerobic exercise, resistive exercise, and the Progressive Muscle Relaxation Technique. Depression, a poor body picture and personality, and a lower health-related quality of life are all symptoms of PCOS. PCOS and mental health difficulties are interwoven illnesses. Some specialists feel that PCOS is caused by psychological reasons. Anxiety and sadness levels are much higher in PCOS women, according to many prior studies. BMI has been linked to anxiety and depression, according to Ferrell et al. They also reported that BMI had a minor impact on the anxiety and despair of PCOS teenagers [26]. Inventory variables those are dependent. Depression is a prevalent and dangerous, even life-threatening condition in women with PCOS, according to Blay SL et al. Several studies have looked at the health benefits of exercise as part of wider lifestyle modification programs, but few have looked at its impact on PCOS reproductive outcomes [8]. According to Clark A.M. et al., regular exercise has been shown to help women with PCOS lose weight and manage metabolic and reproductive issues. When it comes to lifestyle changes for PCOS, exercise is the most popular and successful treatment [32].

Khademi, Afsaneh, and others are among them. A three-month structured exercise program paired with the Progressive Muscle Relaxation Technique improved physical and emotional outcomes in women with PCOS while also managing menstrual cycles, according to one study. Exercise training increases cardiopulmonary functional capacity and parameters in obese PCOS patients, according to several researches, which is consistent with our findings. Although earlier research has looked at the role of diet in the management of PCOS, this study is the first to look at the role of nutrition in the treatment of PCOS, this study found that a structured exercise program combined with Progressive Muscle Relaxation Technique is beneficial in decreasing BMI and the Beck Anxiety and Depression Inventory, at least for the time being. Women with PCOS may benefit from lengthy daily activity to enhance their metabolic markers and quality of life. Non-obese PCOS patients may benefit from exercise more quickly than obese PCOS patients [22]. Aerobic exercise is a type of physical activity that is performed

on a regular basis with the goal of improving or maintaining physical fitness. By enhancing insulin sensitivity and body composition, resistance exercise can help you lose weight while keeping lean tissue. In obese people, combining aerobic and resistance training has been proven to enhance insulin sensitivity and glycemic control while also decreasing belly fat when compared to either form of exercise alone. According to Leanne M. et al., aerobic exercise boosted ovulation by 40% and lowered fasting insulin and insulin resistance.

Modifications in excess fat and ectopic lipid in non-fatty tissues are thought to aid exercise-induced fat reduction [23]. Aerobic exercise enhances body composition and a number of cardiovascular disease risk variables in overweight and obese persons without requiring weight loss, according to R.L. Thomson et al. [11]. Regular walking, according to Randeva et al., lowers the waist-to-hip ratio in overweight PCOS women, which is a marker for diabetes and other morbidities, as well as cardiovascular risk [33]. According to Vigor et al., 60 percent of ovulatory women with PCOS who participated in an aerobic exercise program were able to restore normal menstrual cyclicity [24]. Weight control and cardiovascular activity improved menstrual cyclicity and ovulation in overweight adults with PCOS, according to Polamba et al [25]. According to Volkan Turan et al., exercise training increased maximal oxygen consumption (Vo_2 Max), weight, and waist circumference in PCOS patients [27]. The researchers hypothesized that improved insulin sensitivity was indeed the main element in restoring ovarian function, and they discovered that 49 percent of women with PCOS improved their ovulation and menstrual cycles after the intervention period of energy-restricted diet alone or in pairing with Aerobic Exercise or aerobic resistance exercise. The exercise reveals that to improve menstrual cyclicity and ovulation in 50% of PCOS patients, according to research. Improvements in insulin and hormonal profiles appear to be critical in improving reproductive function. Orio et al., on the other hand, argue that once a training program is ended, the results are gone. They observed that if you don't exercise, you'll lose all of the benefits you've got from your activity. It may be required to continue exercising throughout life to maintain the benefits of exercise [28].

In this study, a structured exercise program was designed, along with progressive muscle relaxation

exercises, to train the primary muscles in order to reduce obesity and physical and mental suffering. The program's motive is to create an organized and precise fitness plan for college women with PCOS. This study discovered that Group A, who were given an organized fitness program, performed better than Group B.

Conclusion

A structured exercise program combined with progressive muscle relaxation exercise (group - A) has a significant difference from progressive muscle relaxation exercise alone (group - B), according to the statistical data. When the mean values of Groups A and B are compared, Group A has a greater difference than Group B. As a result, integrating the Progressive Muscle Relaxation Technique with a scheduled exercise regimen is more beneficial than simply practicing the Progressive Muscle Relaxation Technique.

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