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Effectiveness of Pilates Exercise versus Pressure Biofeedback Exercise on the Dysmenorrhoea

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Abstract
Introduction: Dysmenorrhoea is a painful cramping sensation in the lower abdomen. Dysmenorrhoea is the leading morbidity among gynecological disorders and represents the greatest burden for menstruating women. Pilates and Biofeedback exercises focusing on core and hip muscles could be effective in reducing symptoms of dysmenorrhoea. The purpose of the study is to find out the effectiveness of Pilates VS Biofeedback exercises in reducing dysmenorrhea symptoms.
Materials & Methods: 20 subjects were chosen fulfilling the inclusion & exclusion criteria. Subjects were randomly divided into two groups, Group A received Pilates and Group B received Biofeedback exercises. The pre and post-treatment outcome measures used were the VAS score &WaLLID score.
Data Analysis: Data analysis was done using OriginPro Software and the test used was paired t-test, where a p-value ≤ 0.05 was considered statistically significant.
Result:Compare the Group A to calculate t-statistic to a critical value from a t-distribution table with \(n-1\) degrees of freedom (in this case, 9 degrees of freedom) to determine statistical significance. Similar to the WaLIDD Score, To compare the calculated t-statistics for both WaLIDD Score and VAS with a critical value from a t-distribution table, we need to consider the degrees of freedom. In this case, since there are 10 pairs, the degrees of freedom (\(df\)) would be \(n - 1 = 10 - 1 = 9\). When compared the Group B to calculate t-statistics for both WaLIDD Score and VAS with the critical values from a t-distribution, assuming a significance level (\(\alpha\)) of 0.05 for a two-tailed test (standard practice) and degrees of freedom (\(df\)) equal to \(n - 1 = 9\).
Conclusion: This study has shown statistically non-significant improvement but Group A with Pilates exercises has shown more effective results in dysmenorrhoea symptoms in comparison to Group B who received Biofeedback exercise.

Keywords: Dysmenorrhoea, Pilates Exercise, and Biofeedback Exercise.

INTRODUCTION

Dysmenorrhoea is derived from a Greek word Meno (month) and rrhoeas(flow) which meansdifficult menstrual flow. Dysmenorrhoea is a painful/ cramping sensation in the lower abdomen often accompanied by other biological symptoms including dizziness, fatigue, sweating, backache, headache, nausea, vomiting, and diarrhoea all occurring just before or during the menstruation. Adolescence is the transitional phase of physical and mental development between childhood and adulthood[1]. Dysmenorrhoea, characterized by painful cramps of the uterus during menstruation affects 45-95% of menstruating women. Dysmenorrhoea is the leading morbidity among gynaecological disorders and represents as the greatest burden for menstruating women. Furthermore, dysmenorrhoea affects the economy insofar as it impairs work productivity and almost millions of working hours are lost yearly due to dysmenorrhea[2,3]. Most women begin having dysmenorrhoea during adolescence, usually within 4-5 years of the first menstrual period. Painful periods become less common as women age. Prostaglandins are chemicals that are formed in the lining of the uterus during menstruation. These prostaglandins cause muscle contractions in the uterus, which cause pain and decrease blood flow and oxygen to the uterus[5]. In ovulatory cycles, the drop in progesterone levels prior to flow triggers the release of the prostaglandins that causes menstrual cramps. Also, levels of both estradiol and progesterone decreases before menstruation[4].

Dysmenorrhoea is chronic, cyclical pelvic pain associated with menstruation. Menstrual cycle is an integral part of women's fertility period. Although having a minor pain during menstruation is normal, severe pain could not be considered normal. Dysmenorrhoea is the most common gynaecological disorder in women of reproductive age. Menstruation is a periodic and temporary genital bleeding, lasting from menarche to menopause[1].

Pilates exercises are exercises based on progressive movements the body is able to make. Pilates Gymnastics was created by Joseph Pilates since 1920 which consists of movements by combining flexibility, strength, breathing, and relaxation. The main principles of Pilates exercises include precision control in doing movements, isolation of muscles that are routinely trained by using a series of controlled movements and breathing. Movements of Pilates exercises are linked to concentration of the mind and respiration; when performed smoothly but precisely, it leads to paving new, more ergonomic movement behaviours as well as it provides measurable psychological advantages by reducing stress level. Pilates exercises focus on the strength of the abdominal muscles and the muscles of the waist, strengthening the back, around the pelvis, and buttocks (core muscle) so as to reduce the onset of low back pain during menstruation. Physiological studies of dysmenorrhoea that experience menstrual pain will experience muscle cramps especially in the lower abdomen are cyclic caused by strong and long contractions in the uterine wall resulting in muscle fatigue and physical inactivity, so Pilates exercises are exercise that focuses a lot in the hip area can help to get rid of the cramps. Increased abdominal muscle elasticity affects the level of oxygen that supplies to each organ, so that the decrease in pain occurs because the oxygen supply in each organ, especially the abdomen is fulfilled to the maximum and also when the hormone prostaglandin comes out simultaneously during menstruation also results in reduced pain. As Bosu Pilates is a technique aiming at working, Strength, stretching, maintaining physiological body curves with abdomen as the strength centre which constantly works during all Pilates exercise on bosu ball or swiss ball, which will help to reduce pain with challenge your stability, balance and core strength. Pilates can manage primary dysmenorrhoea through stretching and core strengthening exercise[6,7]. A Swiss ball is often incorporated into trunk strengthening programs for injury rehabilitation and performance conditioning. It is often assumed that the use of a Swiss ball increases trunk muscle activity. Differences in trunk muscle activity are seen with the addition of a Swiss ball to bridging exercise. Swiss-ball core strength training exercise protocol showed significant improvements in both the endurance and strength of the lower back and abdominals[8].
Biofeedback exercise offers a means of alleviating the distressing symptomology of dysmenorrhoea by helping one learn to alter one's own bodily responses. This allows one to feel in control of the disorder rather than having the disorder controlled by external techniques like drugs and surgery. The achievement of self-control can have a profound effect on improving one's emotional reaction to a psychological attitude about the symptoms of dysmenorrhoea. Subjects with EMG biofeedback reduced muscle tension more effectively. On a global measure of improvement the Biofeedback hand-temperature training group was found to be significantly more improved[9].Biofeedback-assisted relaxation may offer an effective alternative treatment for primary dysmenorrhoea[10]. Biofeedback (BF) exercise a technique in which physiological activity (neuromuscular and autonomic activity) is monitored, amplified, and conveyed to the patient (feedback) as visual or acoustic signals. As a result, BF gives an individual immediate feedback about normal body processes of which they may not be aware. It provides instantaneous information to the patient about the status of the PFM (Pelvic Floor Muscles). While some consider BF part of complementary therapy, it is also viewed as an adjunct to PFM rehabilitation for persons with lower urinary tract symptoms (LUTS) (e.g., irritating and emptying symptoms) and pelvic floor dysfunction (e.g., pelvic pain)[11,12,13].

AIM AND OBJECTIVES

- **Aim**
  - Identify the effectiveness of Pilates Exercise versusPressure Biofeedback Exercise on the Dysmenorrhoea.
- **Objectives**
  - Determine the effectiveness of Pilates Exercise on the Dysmenorrhoea.
  - Determine the effectiveness of Pressure Biofeedback Exercise on the Dysmenorrhoea.
  - Determine the effectiveness of Pilates Exercise versusPressure Biofeedback Exercise on the Dysmenorrhoea.

NEED OF THE STUDY

Purpose of the study is to provide the benefit to relief the discomfort & pain of those ladies who are suffering with menstrual cramp, and find out the better exercise amongst the Pilates and Pressure Biofeedback Exercise. Mentioned matters are the novelty of the study.

HYPOTHESIS

- **Alternative Hypothesis**
  - Most of the females who are suffering with menstrual cramp, they are getting relief from it by doing Pilates Exercises.
  - Most of the females who are suffering with menstrual cramp, they are getting relief from it by doing Pressure Biofeedback Exercises.
  - Most of the females who are suffering with menstrual cramp, they are getting relief from it by doing both Pilates and Pressure Biofeedback Exercises.
  - There is a significant difference between Pilates Exercise, Pressure Biofeedback Exercise, and Dysmenorrhoea.

- **Null Hypothesis**
  - Most of the females who are suffering with menstrual cramp, they are not getting relief from it by doing Pilates Exercises.
  - Most of the females who are suffering with menstrual cramp, they are not getting relief from it by doing Pressure Biofeedback Exercises.
  - Most of the females who are suffering with menstrual cramp, they are not getting relief from it by doing both Pilates and Pressure Biofeedback Exercises.
  - There is a no significant difference between Pilates Exercise, Pressure Biofeedback Exercise, and Dysmenorrhoea.

METHODOLOGY

Methods

The study was a Quasi-experimental study comparing 2 parallel groups. This study was approved by the Ethics Committee of The Neotia University. All participants gave their informed consent before participationand the participants have been taken from Physiotherapy Department of School of Health Sciences, The Neotia University, Sarisha, West Bengal. After calculating the sample size we have got 20 Collegiate female students (BPT Student and age- In between 18 and 25 years old)with Menstrual Cramp as participants where the target population was 16, Confidence level was 95 % (z-score = 1.96), Population proportion was 0.5 and margin of error was 0.06. Participants were randomly allocated in two equal experimental groups (Group A and Group B) after using the convenient sampling method. Group A has got Pilates Exercise and Group B has gotPressure Biofeedback Exercise. Participants were excluded from this study that hasOvarian Cyst,PCOS, and healthproblem such as serious congenital diseases, history of musculoskeletal issues, history of neurological issues, and history of cardio-respiratory issues.

Outcome Measure

- **VAS**

A Visual Analogue Scale (VAS) is one of the pain rating scales used for the first time in 1921 by Hayes and Patterson. It is often used in epidemiologic and clinical research to measure the intensity or frequency of various symptoms. For example, the amount of pain that a patient feels ranges across a continuum from none to an extreme amount of pain. From the patient's perspective, this spectrum appears continuous ± their pain does not take discrete jumps, as a categorization of none, mild, moderate and severe would suggest[20,21,22].

- **WaLIDD**

WaLIDD is the abbreviation for working ability, Location, Intensity, Days of Pain, Dysmenorrhoea. It was designed to help with the diagnosis of dysmenorrhea, predict the result of activity limitation, and predict the medical leave. It is easy to apply, has a smaller delay time in application, and doesn't require a specialist to do[18,19].

Table 1

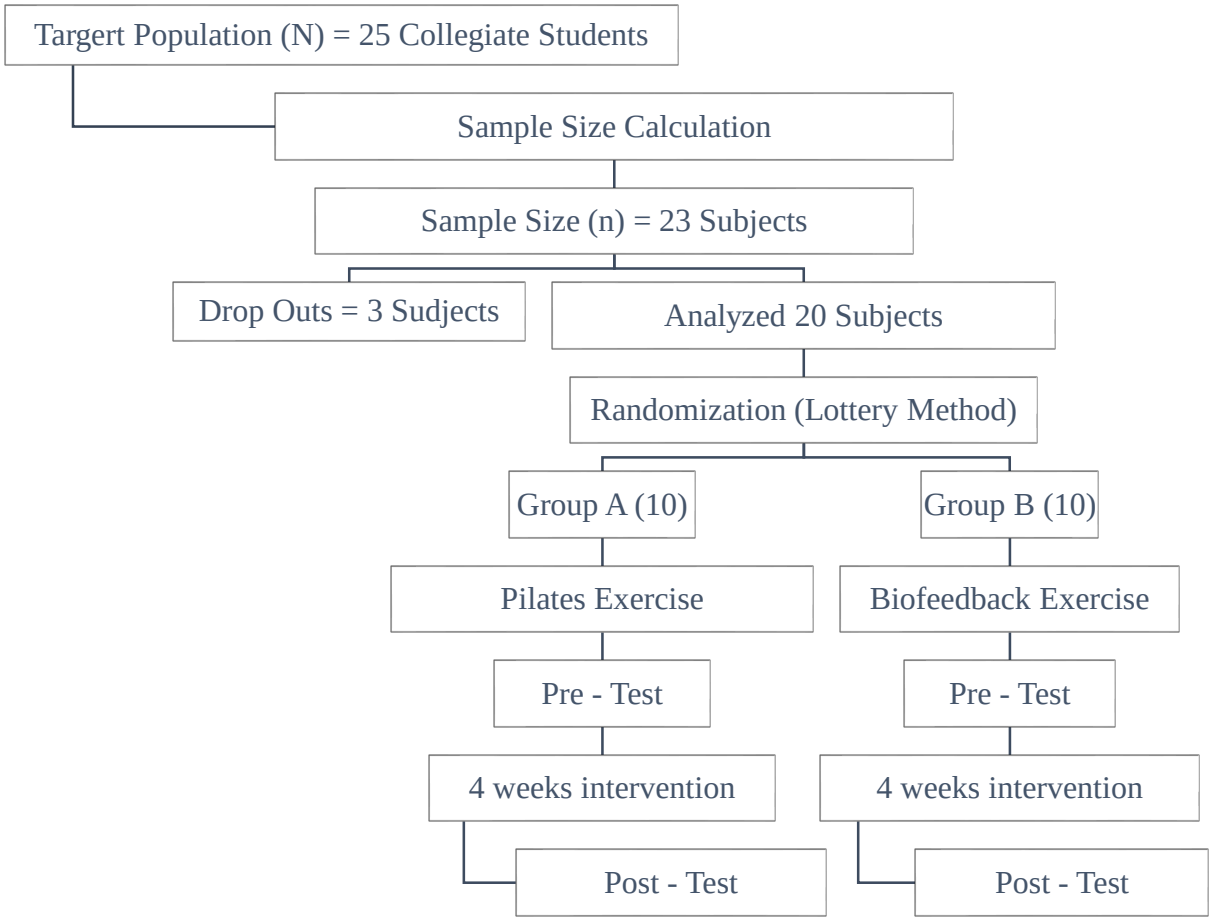
Working ability	location	Intensity (Wong-Baker)	Days of pain
0:None	0: None	0: Doesn't hurt	0:0
1: Almost never	1: 1 site	1: Hurts little bit	1: 1-2
2: Almost always	2: 2-3 sites	2: Hurts a little more- even more	2: 2-3
3: Always	3:sites	3: Hurts a whole a lot- worst	3: 3->

1-4 Mild Dysmenorrhoea
5-7 Moderate Dysmenorrhoea
7-12 Sever Dysmenorrhoea

PROCEDURE

The ethical approval for data collection has been received from the Institute and participants were individually interviewed by the researcher. Group A has got Pilates Exercise with Swiss Ball Bridging and Group B has got Pressure Biofeedback Exercise with Sphygmomanometer which is mentioned below.

Flow Chart 1: Randomization



Pilates exercise
The subject was instructed to lie down on her back and look straight up toward the ceiling. The arms were instructed to keep by sides so that the palms are flat against the floor to help stabilize the body during the exercise. Now legs were asked to lift up and roll the Swiss ball underneath them. Position the middle of the calves on top of the ball so that you are bending at the hips. Make sure to keep the lower back flat against the floor. Now take a deep breath in, tighten core muscles and gluteus Muscles. Press the legs into the Swiss ball and slowly lift the hips off the floor. Keep head, arms and shoulder blades against the floor. When the back makes a straight line with the thighs, stop and maintain the position for 10 seconds and then relax. Repeat the procedure for 10 repetitions[23,24,25].

Pressure Biofeedback Exercise

Pressure biofeedback exercises have shown some efficiency as well as improvement in the treatment of back pain. With this technique, the patient can be guided to learn precise isometric contraction of deep trunk muscles like transverse abdominis and multifidus muscles[14, 15, 16, 17].

Table 2

Region	Movements and baseline/target pressure (mmHg)	Descriptions of test posture, location of cuff center, and test movement
Lumber	Flexion	Test posture: supine with pillows support under knees (approximately 130° hip flexion)
	40 / 50 +/- 0.5 mmHg	Cuff center: 3th vertebrae of the lumbar spine
		Test movement: lower trunk (lumbar spine) slightly downward push against pressure cuff
	Extension	Test posture: supine with pillows support under knees (approximately 130° hip flexion)
	40 / 30 +/- 0.5 mmHg	Cuff center: 3th vertebrae of lumbar spine
		Test movement: lower trunk (lumbar spine) slightly away from pressure cuff
	Side-shift to right / left	Test posture: side-lying with both lower extremities flexed
	40 / 50 +/- 0.5 mmHg	Cuff center: vertical line through 3th vertebrae of lumbar spine
		Test movement: lower trunk (lumbar spine) slightly downward push against pressure cuff
	Rotation to right / left	Test posture: supine with pillows support under knees (approximately 130° hip flexion)
	40 / 50 +/- 0.5mmHg	Cuff center: 3th vertebrae of lumbar spine
		Test movement: right/left side of lower trunk (lumbar spine) slightly downward push against pressure cuff

DATA ANALYSIS

All statistical tests were applied using OriginPro Software. Data were tested for normality using the paired t-test and were presented as mean and standard deviation. We compared intra-group data between the 2 moments (before and after the intervention) and compared the inter-group (same outcome measures in different groups), using paired t test for normally distributed independent variables.

RESULT

Table 3: Paired t-test for both WaLIDD Score and VAS differences for Group A:

WaLIDD Score Differences:	**VAS Differences:**
1. Calculate the mean difference (\(\bar{D}\)): \[\bar{D}=\frac{\sumD}{n} \] Where \(D\) is the set of differences and\(n\) is the number of pairs. \[\bar{D}=\frac{(-3)+0+(-2)+(-1)+(-4)+(-3)+(-5)+(-2)+(-3)+(-4)}{10}\] \[\bar{D}=\frac{-27}{10}=-2.7\] 2. Calculate the standard deviation of differences (\(s_D\)): \[s_D=\sqrt{\frac{\sum(D-\bar{D})^2}{n-1}}\] \[s_D=\sqrt{\frac{(-3+2.7)^2+(0+2.7)^2+(-2+2.7)^2+(-1+2.7)^2+(-4+2.7)^2+(-3+2.7)^2+(-5+2.7)^2+(-2+2.7)^2+(-3+2.7)^2+(-4+2.7)^2}{9}}\] \[s_D=\sqrt{\frac{0.09+7.29+0.49+3.61+3.61+0.09+6.25+0.49+0.09+3.61}{9}}\] \[s_D=\sqrt{\frac{25.43}{9}}\] \[s_D\approx\sqrt{2.825}\approx1.681\] 3. Calculate the t-statistic(\(t\)): \[t=\frac{\bar{D}}{\frac{s_D}{\sqrt{n}}}\] \[t=\frac{-2.7}{\frac{1.681}{\sqrt{10}}}\] \[t=\frac{-2.7}{\frac{1.681}{\sqrt{10}}}\approx\frac{-2.7}{0.532}\approx-5.08\]	1. Calculate the mean difference (\(\bar{D}\)): \[\bar{D}=\frac{\sumD}{n} \] where\ (D\) is the set of differences and\ (n\) is the number of pairs. \[\bar{D}=\frac{(-3.1)+(-4.1)+(-2.2)+(-0.9)+(-8)+(-4)+(-5)+(-4)+(-3)+(-5)}{10}\] \[\bar{D}=\frac{-39.8}{10}=-3.98 \] 2. Calculate the standard deviation of differences (\(s_D\)): \[s_D=\sqrt{\frac{\sum(D-\bar{D})^2}{n-1}}\] \[s_D=\sqrt{\frac{(-3.1+3.98)^2+(-4.1+3.98)^2+(-2.2+3.98)^2+(-0.9+3.98)^2+(-8+3.98)^2+(-4+3.98)^2+(-5+3.98)^2+(-4+3.98)^2+(-3+3.98)^2+(-5+3.98)^2}{9}}\] \[s_D=\sqrt{\frac{35.61+4.41+11.56+12.01+50.44+0.04+16.09+0.04+7.84+1.44}{9}}\] \[s_D=\sqrt{\frac{139.48}{9}}\] \[s_D\approx\sqrt{15.498}\approx3.94\] 3. Calculate the t-statistic(\(t\)): \[t=\frac{\bar{D}}{\frac{s_D}{\sqrt{n}}}\] \[t=\frac{-3.98}{\frac{3.94}{\sqrt{10}}}\]\[t=\frac{-3.98}{\frac{3.94}{\sqrt{10}}}\approx\frac{-3.98}{1.246}\approx-3.2\]

We could compare the calculated t-statistic to a critical value from a t-distribution table with \(n-1\) degrees of freedom (in this case, 9 degrees of freedom) to determine statistical significance.
Similar to the WaLIDD Score, we can compare the calculated t-statistic to a critical value from a t-distribution table with \(n-1\) degrees of freedom (in this case, 9 degrees of freedom) to determine statistical significance.

Certainly! To compare the calculated t-statistics for both WaLIDD Score and VAS with a critical value from a t-distribution table, we need to consider the degrees of freedom. In this case, since there are 10 pairs, the degrees of freedom (\(df\)) would be \(n - 1 = 10 - 1 = 9\).

When we assumed a significance level (\ (\alpha\)) of 0.05 for a two-tailed test (standard practice):

1. ****Critical value for WaLIDDScore:****
- Look up the critical t-value for a two-tailed test with 9 degrees of freedom and \(\alpha/2= 0.025\).
- From a t-distribution table, the critical t-value is approximately\(\pm2.262 \).

2. ****Critical value for VAS:****
- Look up the critical t-value for a two-tailed test with 9 degrees of freedom and \(\alpha/2= 0.025\).
- From a t-distribution table, the critical t-value is approximately\(\pm2.262 \).

Table 4: Paired t-test for both WaLIDD Score and VAS differences for Group B:

****WaLIDD Score Differences:****	****VAS Differences:****
1. Calculate the mean difference (\(\bar{D}\)): \[\bar{D}=\frac{\sumD}{n} \] Where \(D\) is the set of differences and \(n\) is the number of pairs. \[\bar{D}=\frac{(6-10)+(5-8)+(7-7)+(7-7)+(6-7)+(5-8)+(6-9)+(5-7)+(6-10) +(6-8)}{10}\] \[\bar{D}=\frac{-4-300-1-3-3-2-4-2}{10}=-2\] 2. Calculate the standard deviation of differences (\(s_D\)): \[s_D=\sqrt{\frac{\sum(D-\bar{D})^2}{n-1}}\] \[s_D=\sqrt{\frac{(-4+2)^2+(-3+2)^2+(0+2)^2+(0+2)^2+(-1+2)^2+(-3+2)^2+(-3 +2)^2+(-2+2)^2+(-4+2)^2+(-2+2)^2}{9}}\] \[s_D=\sqrt{\frac{4+1+4+4+1+1+1+0+4+0}{9}}\] \[s_D=\sqrt{\frac{20}{9}}\approx\sqrt{2.22}\approx1.49\] 3. Calculate the t-statistic (\(t\)): \[t=\frac{\bar{D}}{\frac{s_D}{\sqrt{n}}}\] \[t=\frac{-2}{\frac{1.49}{\sqrt{10}}}\] \[t\approx\frac{-2}{\frac{1.49}{\sqrt{10}}}\approx\frac{-2}{0.471}\approx-4.24\]	1. Calculate the mean difference(\(\bar{D}\)): \[\bar{D}=\frac{\sumD}{n} \] \[\bar{D}=\frac{(6.4-9)+(5-8)+(7-7)+(6.5-5)+(5-8)+(4-7)+(6-9)+(6-8)+(6- 8)+(5-6)}{10}\] \[\bar{D}=\frac{-2.6-30.51.5-3-31-2-2-1}{10}=-1.1\] 2. Calculate the standard deviation of differences (\(s_D\)): \[s_D=\sqrt{\frac{\sum(D-\bar{D})^2}{n-1}}\] \[s_D=\sqrt{\frac{(-2.6+1.1)^2+(-3+1.1)^2+(0.5+1.1)^2+(1.5+1.1)^2+(-3+1.1)^2+ (-3+1.1)^2+(1+1.1)^2+(-2+1.1)^2+(-2+1.1)^2+(-1+1.1)^2}{9}}\] \[s_D=\sqrt{\frac{3.61+7.84+2.56+0.16+7.84+7.84+0.01+ 2.89+2.89+0.01}{9}}\] \[s_D=\sqrt{\frac{35.81}{9}}\] \[s_D\approx\sqrt{3.98}\approx1.99 \] 3. Calculate the t-statistic (\(t\)): \[t=\frac{\bar{D}}{\frac{s_D}{\sqrt{n}}}\] \[t=\frac{-1.1}{\frac{1.99}{\sqrt{10}}}\] \[t\approx\frac{-1.1}{\frac{1.99}{\sqrt{10}}}\approx\frac{-1.1}{0.63}\approx-1.75\]

Certainly! When we compared the calculated t-statistics for both WaLIDD Score and VAS with the critical values from a t-distribution table, assuming a significance level (\(\alpha\)) of 0.05 for a two-tailed test (standard practice) and degrees of freedom (\(df\)) equal to \(n - 1 = 9\).

1. ****Critical value for WaLIDDScore:****
- Look up the critical t-value for a two-tailed test with 9 degrees of freedom and \(\alpha/2= 0.025\).
- From a t-distribution table, the critical t-value is approximately \ (\pm2.262 \).

2. ****Critical value for VAS:****
- Look up the critical t-value for a two-tailed test with 9 degrees of freedom and \(\alpha/2= 0.025\).
- From a t-distribution table, the critical t-value is approximately \(\pm2.262 \).

DISCUSSION

Since the calculated t-statistic for WaLIDD Score is -5.08, which is less than - 2.262, we would reject the null hypothesis. This suggests that there is a significant difference in WaLIDD Scores before and after the intervention for Group A. For the VAS value of calculated t-statistic is - 3.2, which is less than - 2.262, we would reject the null hypothesis. This suggests that there is a significant difference in VAS scores before and after the intervention Group A. In both cases, the t-statistics are significantly beyond the critical values, indicating statistical significance.

Since the calculated t-statistic for WaLIDD Score is - 4.24, which is less than - 2.262, we would reject the null hypothesis. This suggests that there is a significant difference in WaLIDD Scores before and after the intervention for Group B. For the VAS value of calculated t-statistic is - 1.75, which is greater (in absolute value) than - 2.262, we would fail to reject the null hypothesis. This suggests that there may not be a significant difference in VAS scores before and after the intervention for Group B

Pilates Exercise has gained its popularity since the decades several studies have found a pain reduction in Dysmenorrhoea after doing this on swiss ball after performing the bridging and (Farideh Salehi et al 2012, Wahyuni et al 2016, EMAN M. EL-BABLY et al 2019) studies suggest that the Pilates Exercise could play a major role during that the menstrual pain which result in the effect on muscle performance and reduce the abdominal cramps. There is huge literature available to prove the effectiveness of Pilates Exercise in reducing the various irritating symptoms of menstruationin normal as well as the dysmenorrhoeal population[23, 25].

A Comparative Study Of Stretching Exercises Versus Core Strengthening Exercises On Primary Dysmenorrhea In Young Sedentary Females (Ronika Agrawal et al, 2021) shows that stretching exercises and core strengthening exercise to girls suffering from primary dysmenorrhoea can reduce pain and menstrual symptoms and number of tablets consumed during menstruation. Thus it could be performed as an effective treatment method for girls suffering from primary dysmenorrhoea[26].

The Relationship Between Pelvic Alignment And Dysmenorrhea (Moon Jeong Kim et al, 2015) shows that the results of this suggest that there is a relationship between menstrual pain and pelvic torsion and THE EFFECT OF PELVIC FLOOR MUSCLES EXERCISE ON QUALITY OF LIFE IN FEMALES WITH PRIMARY DYSMENORRHEA (DR. M. Sandhiya et al, 2021) suggested that Both the combined training of the Pelvic floor muscle and the stretching exercises improve the QoL of women with primary dysmennorhea. Effect Of Pelvic Floor Muscle Training Using Pressure Biofeedback On Pelvic Floor Muscle Contraction And Trunk Muscle Activity In Sitting In Healthy Women (Min-Joo Ko et al, 2022) suggested that The bladder base displacement may have elevated more in the Pressure Biofeedback Unit (PBU) group than in the verbal feedback group due to decreased TrA/IO activity. These findings indicate that Pressure Biofeedback Unit Training (PBUT) is a better method than verbal feedback training[27,28,29].

Our study gives a good result that both the groups have benefited by the Pilates Exercise and Pressure Biofeedback Exercise respectively. But, study could be done in largepopulation, long duration, Multi-centric and Different age group.

CONCLUSION

Our study shows that the use of Pilates Exercise is very beneficial for women who are suffering with Dysmenorrhoea and the Pressure Biofeedback Exercise also gave the similar effect like Pilates Exercise. Our study supports the Alternative Hypothesis, suggesting that there is some significant difference between Pilates Exercise, Pressure Biofeedback Exercise, and Dysmenorrhoea and both exercises are very helpful to reduce the symptoms of Menstrual Cramps. But Pilates Exercise shows the better result than the Pressure Biofeedback Exercise.

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