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Effectiveness of Physical Activity and Relaxation Techniques in Primary Dysmenorrhea among College Students

Susan Annie George[1], Goutham Suresh[2], Fathima P M[3], Hridhya Alias[4]

[1]Assistant Professor, Medical Trust Institute of Medical Sciences, Cochin, India

[2, 3, 4]Final year BPT students, Medical Trust Institute of Medical Sciences, Cochin, India

Abstract: ***Dysmenorrhea is the one of the leading cause of the female's recurrent short term absenteeism in school and workplaces. So equipping adolescent girls with adequate information and skills on menstrual care helps in empowering them with knowledge which enhances their self- esteem and positively impacts their academic performance. Objective: To evaluate the effect of physical activity and relaxation techniques in reducing pain intensity and menstruation related depression among adolescent girls. Methodology: 30 students from MTIMS, Ernakulam were selected and divided into two groups: Experimental group and Control group, after fulfilling the inclusion criteria. Each Group consists of 15 students. Experimental group was given physical activities including stretching, core strengthening and relaxation technique and control group was given only relaxation technique. Both groups received intervention for 3 times per week for 4 weeks. The outcome measures are assessed using VAS and Beck Depression Inventory Scale for pain and depression respectively. Results: In this study, while within the group comparison, both groups are showed reduction in pain and depression. While comparing between the groups in case of pain and depression, there is a huge change in mean value but the p value is greater than 0.05 and hence it is not significant and it shows there are no comparable changes between groups. Conclusion: Both physical activity and relaxation techniques are very effective in reducing menstruation related pain and depression. But can't suggest one over another since there is no any difference between both control and exercise group.***

Keywords: Dysmenorrhea, physical activity, relaxation techniques

1. Introduction

Dysmenorrhea refers to painful menstruation in the absence of an identifiable pathological condition. It is one of the leading causes of the female's recurrent short- term absenteeism in schools and workplaces[1]. Primary dysmenorrhea is tough to be caused by excessive levels of prostaglandins, hormones that make uterus contract during menstruation and child birth. The pain results from the release of these hormones when the endometrium is sloughing off during menstrual period. This leads to uterus contraction and decreased blood flow to the uterus. The intensity of menstrual cramps and associated symptoms of dysmenorrhea are directly proportional to the amounts of prostaglandin released. The levels of prostaglandins are especially high during the first two days of menstruation in women with severe primary dysmenorrhea. Vasopressin and leukotriene concentrations have also been found to be higher in women with severe menstrual pain than in women who experience mild or no menstrual pain. Vasopressin may involve in myometrial hypersensitivity, reduced uterine blood, flow and in primary dysmenorrhea[2,3].

Emotional and behavioral problems might also exacerbate the symptoms of menstruation and dysmenorrhea. Depression is resulting from misunderstanding of the problems, which experience them in the life[4]. Due to the negative effects of dysmenorrhea on an individual's psychological status, health- related quality of life (HRQoL) may be disrupted among adolescent women[3]. Severe dysmenorrhea pain is associated with restriction of activity and absence from school/ college / workplace. Participation in usual activities is adversely affected in 5-20% of the women [5]. Most females experience the degree of pain and discomfort during menstrual period which can impact on their daily activities, and disturb their productivity at home or at their workplace [2].

Self- care practices as well as menstrual hygiene are basic requirements for promoting as satisfied life and personal esteem in women. It is essential for the health and dignity of girls. So equipping adolescent girls with adequate information and skills on menstrual care helps in empowering them with knowledge which enhances their self- esteem and positively impacts their academic performance. Added to that, exercise can reduce the primary dysmenorrhea and associated symptoms. It has an analgesic effect. Exercise also stimulates the production of endorphins, which act as the body' s natural painkillers. Generally stretching the abdominal muscle can help to ease the period cramps. Relaxation techniques are easy and very effective method to reduce pain and depression among these peoples. A number of studies have proved that relaxation technique can bring a very big change in dysmenorrhea and mood disorders in adolescent female students. So current study focuses on the effectiveness of physical activities and relaxation techniques in primary dysmenorrhea and related depression among college students [3].

2. Methodology

Aims

To evaluate the effect of physical activity and relaxation techniques in reducing pain intensity and menstruation related depression among adolescent girls.

Objectives

- To find out the effectiveness of physical activities in reducing menstrual pain among college students.
- To find out the effectiveness of physical activities in menstrual phase depression among college students.
- To find out the effectiveness of relaxation techniques in reducing menstrual pain among college students.
- To find out the effectiveness of relaxation technique in menstrual phase depression among college students.

Study Design

Pre-test- Post-test experimental design

Source of data

Medical Trust Institute of Medical Sciences (Dept.of BPT, Dept. of Radiology)

Sampling Method

Convenient Sampling.

Sample Size:

N = 30
15 in each group

Outcome Measure:

- Pain – VAS
- Depression - Beck Depression Inventory Scale

Inclusion Criteria

Adolescent girl who**:**

- Were in the age group of 18 to 23 years
- Had moderate or severe premenstrual pain as measured by WaLLID score
- Had moderate or severe depression as measured by Beck Depression inventory scale
- Who had menarche at or after 12 years of age
- Who had BMI at a range of 18 to 25
- Who have a regular cycle of menstruation(25-30 days)
- Who have regular menstruation phase(5-8 days)
- Who didn't take analgesic or taking a maximum of 1 drug
- Had been having regular menstrual cycles around 28-35 days for the past six months

Exclusion criteria

Adolescent girls who:

- Were already practicing another exercise
- Were unable to participate in the study due to health deviations
- Were diagnosed to have PMS and on treatment
- Were physically challenged

Materials Used: Cot, Pillow, Bed

Procedure

Collected a demographic data including name, age, BMI, age on menarche, length of menstruation cycle, length of menstruation phase, drug consumption, number of days of pain, rate of bleeding to the students of Dept. of BPT and Dept. of Radiology of Medical Trust Institute of Medical Sciences. WaLLID Score for dysmenorrhea were also given along with that. 30 students were selected according to the inclusion criteria and randomly selected 15 students to exercise group and the remaining 15 students to control group. As a pretest to the exercise, pain was scored by VAS and depression by Beck Depression Inventory Scale.

Group A – Experimental Group

This group received an exercise programme including 10 minute of warm up and cool down exercise and 35 minutes of physical activities including stretching exercise, core strengthening exercises.

Warm Up Exercises include Walking, Jogging, Each walking and jogging are given for two minutes
Cool Down Exercises include Deep breathing exercise, Jacobson's progressive muscle relaxation exercise, Laura Mitchell relaxation technique.

Core Strengthening Exercises

- Crunches
- Bicycle Crunches
- Bridging
- Plank
- Sit Ups

Stretching Exercises

- Iliopsoas
- Hamstring
- Calf

Group B-Control Group

This group received Progressive relaxation technique and deep breathing exercise such as

- Deep Breathing Exercise
- Diaphragmatic Breathing
- Jacobson Progressive Muscle Relaxation
- Mitchell Relaxation Technique

3. Results

Students 't' test was used for the statistical analysis. Paired 't' test was used for the intra group comparison of pre and post test results. Independent 't' test was used for the inter group comparison.In this study, the mean value of pain was reduced from 6.93,SD .9612 to 3.46,SD .639 in experimental group and in control group the mean value of pain reduced from 7.00,SD 1.0 to 3.0,SD 1.25 which shows significant difference in both experimental and control groups. Likewise, the mean value of depression was reduced from 11.267, SD 6.702 to 6.733, SD 2.987 in the experimental group and in control group the mean value of depression reduced from 12.867, SD 7.17 to 8.267, SD 4.182,which shows significant difference in both experimental and control groups. While comparing between the groups in case of pain, there is a huge change in mean value but the p value is greater than 0.05 and hence it is not significant and it shows there are no comparable changes between groups. And while comparing the pre and post value depression of two groups p value greater than 0.05 and hence not significant. That shows the homogenicity of both groups in the case of pain and depression. So, there is significant reduction in pain and depression in both experimental and control group. But there is no significant difference between the experimental and controlled group.

Table 1: Paired 'T' Test values
Paired 'T' Test (Comparison within Group)

Paired T Test		*Experimental Group*		*Control Group*	
Outcomes		*Pain*	*Depression*	*Pain*	*Depression*
Mean	Pre test	6.93	11.26	7.00	12.86
	Post test	3.46	6.73	4.00	8.26
S.D	Pre test	0.96	6.70	1.00	7.17
	Post test	0.63	2.98	1.25	4.18
Calculated t value		11.30	3.26	7.68	2.98
p Value		p < 0.05	p < 0.05	p < 0.05	p < 0.05

Table 2: Independent 'T' Test values
Independent 'T' Test (Between Groups)

Independent T Test		*Pre test pain*	*Post test pain*	*Pre test depression*	*Post test depression*
Mean	Experimental Group	6.93	3.46	11.26	6.73
	Control Group	7.00	4.00	12.86	8.26
S.D	Experimental Group	0.96	0.63	6.70	2.98
	Control Group	1.00	1.25	7.17	4.18
Calculated t value		0.18	1.46	0.63	1.15
p Value		p>0.05	p>0.05	p>0.05	p>0.05

4. Discussion

The study was to find out the effectiveness of physical activity in reducing primary dysmenorrhea among college students. The experimental group was given stretching and core strengthening exercise and control group was given the relaxation technique. And the exercise session was conducted in 3 days/week for 4 weeks. The core strengthening exercise includes crunches, plank, bridging, and sit-up, and the stretching was compromised of iliopsoas, calf and hamstring. Relaxation techniques include deep breathing exercise, Jacobson's progressive muscle relaxation and Laura Mitchell's relaxation technique. After giving exercise session of one month, the mean pain outcome changes from 6.933 to 3.467 in experimental group and P < 0.05, hence there is significance. Thus it showed that physical activity helps in reducing primary dysmenorrhea and the mean of pain changes from 7.000 to 4.000 in controlled group and that too shows the decrease in pain value among control group. While comparing pre and post test between the group P<0.798 so that it is not significant and proved the homogenicity of both groups.

After giving exercise session of one month the mean depression outcome changes from 11.267 to 6.733 in experimental group and P < .006. Hence there is significance and that shows physical activity help in reducing depression and in the controlled group the mean depression changes from 12.867 to 8.267 and the p<.010 and hence there is reduce of depression in control group also. While comparing pre and posttest group p<533 so that it is not significant a proved homogenecity of both group. There is significant change in pain and depression in experimental and control group. But there is no significant change among both groups.

5. Conclusion

Through this study, conclude that both physical activity and relaxation techniques are very effective in reducing menstruation related pain and depression. But can't suggest one over another since there is no any difference between both control and exercise group.

6. Future Scope

- A follow-up study could ensure the long-term effect of the treatment program.
- Another outcome measuring tools can be used.
- The duration of study should be increased.
- A large sample size should be taken to improve the consistency of result.
- Blinding could improve the reliability of the outcome.

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Author Profile

Susan Annie George is Assistant Professor, Medical Trust Institute of Medical Sciences

Goutham Suresh, Fathima P M, Hridhya Alias are Final Year BPT Students, Medical Trust Institute of Medical Sciences