



EFFECTIVENESS OF EXERCISES IN MANAGEMENT OF PAIN IN DYSMENORRHEA: A REVIEW

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ABSTRACT

Introduction: Primary dysmenorrhoea is one of the most common gynaecological problems among young females. Globally, more than half of young women experience dysmenorrhoea, with 10- 20% experiencing severe symptoms. Despite the fact that dysmenorrhoea has a detrimental impact on a woman's life, many women do not seek hospital treatment for dysmenorrhoea. Physical exercise causes endorphins to be released, which may raise the pain threshold and so alleviate pain. **Aim and Objective:** The main aim of the study is to investigate the effectiveness of exercises in management of pain in dysmenorrhoea. **Material and method:** A title and abstract search was undertaken using Google Scholar, Pub Med, the Physiotherapy Evidence Database, and the Cochrane database. The study was double-checked, and the review used only full-text papers. A total of 12 papers were chosen to examine the effectiveness of exercises in the management of pain in dysmenorrhoea. **Result:** According to a data search from roughly 12 free full articles suggest exercises play vital role in managing pain in girls and women in dysmenorrhoea. Therapeutic exercise is another option for reducing the symptomatology of this health problem, with a low cost and the absence of side effects. **Conclusion:** There was evidence that therapeutic exercise can be considered an effective strategy in the treatment of primary dysmenorrhoea in terms of pain intensity decrease. Exercise therapy can be used as a non-pharmacological treatment option for primary dysmenorrhoea discomfort.

KEYWORDS : Dysmenorrhea, physical therapy, exercises, pain, menstruation

Menstrual disorders are highly prevalent among adolescent girls, and commonly feature period pain, fatigue, and mood changes. Dysmenorrhoea (period pain) affects around three quarters of all women during their reproductive life, and is especially common in young women in their teens and early adult life.¹ Dysmenorrhoea is a common condition among women of reproductive age and can affect up to 90% of them.²

Despite the high prevalence of dysmenorrhoea, it is poorly treated and disregarded by health professionals, pain researchers, and the women themselves, who may accept it as a normal part of the menstrual cycle.³ Dysmenorrhoea is commonly divided into two categories based on pathophysiology. Primary dysmenorrhoea is menstrual pain without organic disease, and secondary dysmenorrhoea is menstrual pain associated with an identifiable disease. Common causes of secondary dysmenorrhoea include endometriosis, fibroids (myomas), adenomyosis, endometrial polyps, pelvic inflammatory disease, and the use of an intrauterine contraceptive device.⁴

Dysmenorrhoea can be classified into: Primary and Secondary Dysmenorrhoea

Primary Dysmenorrhoea

Primary dysmenorrhoea (PD) is defined as recurrent, crampy pain occurring with menses in the absence of identifiable pelvic pathology. Affected women experience sharp, intermittent spasmodic pain usually concentrated in the suprapubic area. Pain may radiate to the back of the legs or the lower back. Mood changes, fatigue, headache, nausea and oedema during menstruation are reported with dysmenorrhoea. Negative consequences of dysmenorrhoea may include impaired quality of personal and social life, mood disorders, sleep disturbance and limitation of usual daily activities. Pain usually begins somewhere between several hours before and a few hours after the onset of the menstrual bleeding. Symptoms peak with maximum blood flow and usually last less than one day, but pain may continue up to 2 to 3 days. Symptoms are comparatively reproducible from one menstrual period to the other. Pain intensity may be mild, moderate or severe based the adolescent's description, degree of limitation of activities, and requirement for medication.⁵

Pathophysiology

The pain of primary dysmenorrhoea is caused by excessive E2 and F2a prostaglandin production within secretory endometrial cells. This prostaglandin release, in turn, causes uterine contractions, uterine muscle ischaemia and increased peripheral nerve sensitivity. Coupled with their elevated prostaglandin levels, dysmenorrhoeic women have higher levels of uterine activity during menstruation compared to

asymptomatic women. Menstrual bleeding is triggered by progesterone withdrawal following the demise of the corpus luteum. As progesterone levels drop prior to menstruation, prostaglandin levels increase together with stimulation of the type-C pain fibres and play a big role in pain, inflammation and other physiological processes regulating body temperature and sleep.⁶ Overproduction of prostaglandins is a substantial contributing factor to the painful cramps. Premenstrual syndrome (PMS) is combination of physical and psychological symptoms that some women experience during the late luteal phase of each menstrual cycle (7 to 14 days prior to menstruation).⁷

Secondary Dysmenorrhoea

Secondary dysmenorrhoea (SD) is menstrual pain associated with an underlying pelvic pathology such as endometriosis, pelvic inflammatory disease, congenital Mullerian anomalies and ovarian cysts. Its onset may be many years after the onset of menarche. A variety of physiological, environmental and behavioural factors might influence secondary dysmenorrhoea.⁵ Early onset of menarche, smoking, higher body mass index (BMI), null parity, longer and heavier menstrual flow and family history of dysmenorrhoea are among these factors. Depression and stress increase the risk of dysmenorrhoea. Physical exercise, fish intake and use of oral contraceptives are protecting.⁵

Non-pharmacological management is safer because it does not cause side effects like drugs.⁸ Exercise interventions have been advocated as a major non-medical intervention for the relief of dysmenorrhoea.⁹

The objective of this narrative review is to explain the current evidence regarding the usefulness of physical therapy in improving and controlling pain in women with dysmenorrhoea, as well as to suggest future study directions.

METHOD

A title and abstract search were undertaken using Google Scholar, Pub Med, the Physiotherapy Evidence Database, and the Cochrane database. The study was double-checked, and the review used only full-text. The search terms used were exercise therapy, exercise intervention, physical activity, 'physiotherapy', 'physical therapy', 'primary dysmenorrhoea' 'quality of life' and 'physical intervention'. A total of 12 papers were chosen to examine the effectiveness of exercises in the management of pain in dysmenorrhoea.

Physical activity decreases the level of serum aldosterone by reducing the level of renin and increasing estrogen and progesterone thus improving physical symptoms. Previous studies have reported significant reduction in sign and symptoms of dysmenorrhoea in

exercise group compare to sedentary group.¹⁰ Several observational studies reported that physical exercise was associated with a reduced prevalence of dysmenorrhoea, although numerous other studies found no significant association between outcomes. Evidence from controlled trials suggests that exercise can reduce dysmenorrhoea and associated symptoms.¹¹

The following are some evidence-based studies that suggest different exercise strategies are useful in management of pain in dysmenorrhea.

Shahnaz Shahr-jerdy, Rahman Sheikh Hosseini et al (2012) studied the effect of stretching exercises on primary dysmenorrhea. 179 single girls aged 15-17 years with moderate-to-severe primary dysmenorrhea from 6 high schools located in 2 different city zones were selected. The participants were randomly divided into 2 groups: group 1 (experimental group, n=124) subjects were assigned stretching exercise for 8 weeks at home and group 2 (controlled group, n=55). In the pre-test, all of subjects were examined for pain intensity (10-point scale), pain duration, and the use of sedative tablets in 2 continuous menstruation cycles. The post-test was examined 8 weeks later. per week, 2 times per day, 10 minutes each time) at home. The result outcome of the study after 8 weeks, was reduction of pain intensity from 7.65 to 4.88, pain duration was decreased from 7.48 to 3.86. the conclusion of the study was that Stretching exercises are effective in reducing pain intensity, pain duration, and the number of painkillers.¹²

Noorbakhsh, Mahvash & Eidy, et.al (2012) conducted this study to examine the effect of 8 weeks physical activity on primary dysmenorrhea of female students. Based on McGill's questionnaire 50 students were selected and divided into experimental (N=25) and control (N=25) groups. The experimental group participated in a physical activity program for 8 weeks, 3 sessions a week and 90 minutes per session. The results revealed that performing a regular physical activity significantly reduced type of drugs consumed (p 0.08), number of drugs consumed (p 0.01), volume of bleeding (p 0.002), rate of bleeding (p 0.005), length of menstruation pain (p 0.001) and total and present pain intensity (p 0.01, p 0.05) in experimental group. The results of this study indicated that participating in physical activity program is likely an approach to reduce the detrimental effect of primary dysmenorrhea symptoms in young females.¹³

Sandeep Kaur, Prabhnoor kaur et al (2014) compared the effect of stretching and core strengthening exercises on primary dysmenorrhea in young females. The study included 105 girls of age 19-25 years with primary dysmenorrhea from lovely professional university and government college, Phagwara. The participants were randomly divided into 3 groups, 2 Experimental group (1st exp group n=35, 2nd exp group, n=35) and control group (n=35). In the Intervention group the subjects completed active stretching and core strengthening protocol for 8 weeks (4 days per week, 2 times a day, 10 min) at home. In the Pre-test & post-test all the subjects were examined for pain intensity (NPRS), pain duration and use of sedatives tablets during menstruation cycle and side bridge test. The study resulted in significant decreased in pain in both experimental groups that is in Gp1 (p=.0001) and Gp2 (p=.0001) with NPRS and PDQ in Gp1 (p=.0001) and in Gp2 (p=.0001). The present result suggested that active stretching and core strengthening both can be safely used as an alternative therapy for pain relief in dysmenorrhoea.¹⁴

Mario I. Ortiz, Sandra Kristal Cortés-Márquez et al (2015) did an experimental study on 160 female patients with primary dysmenorrhea, with inclusion criteria of age of 18-22 years; pain intensity from 4 to 10cm on a Visual Analogue Scale (VAS); and sedentary lifestyle. The patients were then randomized to physiotherapy group (n= 83) or to no intervention program (n=77). The physiotherapy program consisted of overall stretching, specific stretches, Kegel exercises, jogging, and relaxation exercises. Patient evaluations of symptomatology and pain intensity were recorded basally and throughout for three menstrual periods. When comparing the treatment group to the control group, the participant evaluations of pain on the VAS during the second and third menstrual cycles showed a substantial decrease (p<0.05). The results showed that strengthening, stretching and muscle relaxation technique are effective for reducing dysmenorrhea symptoms when they are regularly performed.¹⁵

Anuradha Sutar, Sayli Paldhikar, et al (2016) investigated the effect of aerobic exercises on primary dysmenorrhea in college students. The

study included 100 female college students who were divided in "exercise" and "control" groups. The "exercise group" was given Aerobic exercises and results of three cycles were registered. Outcome measures were VAS for Pain and SF36 for Quality of life. Paired t test, chi square test and z test were used for analysis of data the result showed significant decline in VAS scores. The results showed that pain (VAS scores) in the exercise group declined significantly just after the beginning of the exercise intervention and continued to decrease in the subsequent three visits and was statistically significant (p<0.05). They concluded that aerobic exercises can help to reduce pain and improve physical symptoms in primary dysmenorrhoeal girls.¹⁶

Hend S Saleh*, Hala E Mowafy et al (2016) conducted a study to prove and compare that physical exercises can manage primary dysmenorrhoeal through using two types (stretching and core strengthening exercises). the study was conducted on 150 females who were randomly assigned to two exercises (stretching and core strengthening) and one control groups. The Visual Analogue Scale was used to measure the level of pain in each group during the pre-test and the two post-tests (VAS). and the length of suffering in hours. The data were analysed using the independent t-test, repeated measures ANOVA, mean, and Bonferroni Post hoc test after being imported into SPSS statistical software (version 20). P<0.05 was also regarded as statistically significant. Intensity and duration of pain were significantly reduced in exercise groups (P<0.001) as comparing to control group but no significant differences between readings of post-test in both intervention groups. It was concluded that active stretching or core strengthening exercises seem to be an easy, non-pharmacological method for managing primary dysmenorrhea.¹⁷

Shreeya Dilip Berde et.al (2019) conducted this study to compare effectiveness of core strengthening exercises and chair aerobic exercises in primary dysmenorrhoea. 50 participants were split into two groups: Group B received chair aerobic activities while Group A received core strengthening exercises. Pre- and post-test assessments of the VAS and VMSS were compared in order to evaluate the results of the study. The findings of the intragroup comparison indicated that both groups' VAS and VMSS scales were statistically significant (p<0.0001). In contrast, the findings of the intergroup comparison revealed that, among females with primary dysmenorrhea, core strengthening activities were statistically significantly more effective than chair aerobics in decreasing the VAS score (p=0.0004) and VMSS score (p=0.031). The study concluded that the core strengthening exercises were significantly effective than chair aerobics in reducing the quality of pain and improving the quality of life in females suffering from primary dysmenorrhoea.¹⁸

K Anand Babu et.al (2020) conducted a study to observe the effect of structured exercise protocol on pain intensity and pain coping strategy for the subjects with dysmenorrhea. A ten-week organised exercise programme consisting of cognitive behavioural therapy, aerobic exercise, and pelvic floor muscle strengthening exercises was administered to fifteen girls aged 17 to 23. The pain intensity was measured using the Wong Baker Faces Pain Rating Scale, the pain coping strategy was measured using pain coping strategy questionnaires, and the quality of life for dysmenorrhea was measured using the Modified Moos Menstrual Distress Questionnaires. The study's conclusion was that a structured exercise programme greatly enhanced pain coping mechanisms and decreased the severity of pain; statistical analysis demonstrates the significance of the structured exercise programme with a probability value less than 0.001. According to the study's findings, a planned exercise programme can help people cope better with their pain and reduce the severity of their suffering.¹⁹

Chua Hui Ning, Rajkumar Krishnan Vasanthi et.al (2020) conducted a study to find out the relationship between physical activity and primary dysmenorrhea. 165 participants between the ages of 18 and 30 (22.8 ± 3.0) were recruited. A self-administered questionnaire about menstrual features and dysmenorrhea was given out. The global physical activity questionnaire (GPAQ) was used to measure the degree of physical activity. Primary dysmenorrhea was found in 144 subjects (87.3%). Pain severity and primary dysmenorrhea have a moderately negative connection (r=-0.42, p<0.035). This finding implies that preserving an appropriate level of physical exercise is crucial for mitigating dysmenorrhoeal symptoms. Study suggests that primary dysmenorrhea requires correction and prevention.²⁰

Khan, S., Ihsan, S., et al (2022). studied the effects of myofascial

release versus pelvic floor muscle exercises in women with primary dysmenorrhea. The research included 24 females with primary dysmenorrhea aged 17 to 30. Working ability, location, intensity, days of pain, and dysmenorrhea (WaLIDD) Score were utilised as tools, along with the Visual Analogue Scale (VAS). Myofascial release and pelvic floor muscle workouts were used to assess the effects between and between groups using parametric testing, paired sample t-tests, and independent samples t-tests. Between two groups, the WaLIDD and VAS total scores were assessed both before and after a 12-week intervention. For the myofascial release group, the mean difference was 5.82, whereas for the pelvic floor muscle exercises group, it was 4.3. After therapy, both groups' WaLIDD scores significantly decreased, however the myofascial release group outperformed the pelvic floor exercise group.³¹

Djupri, D.R., et al (2022) conducted a quantitative study with a quasi-experimental design, pre-test and post-test designs on the effect of pelvic rocking exercise and Buteyko Exercise on reducing pain in primary dysmenorrhea. The amount of the sample are 58 people by using purposive sampling technique. The research instrument used a standard operating procedure sheet for pelvic rocking exercise and Buteyko Exercise, a monitoring sheet, a stop watch and a numeric rating scale pain measurement sheet. The result of the study was that there is an effect of Pelvic Rocking Exercise and Buteyko Exercise in reducing the level of primary dysmenorrhea pain.²²

Muhammad Faizan Hamid et.al (2022) conducted a study to find the effectiveness of high intensity aerobics and pelvic clock exercises in primary dysmenorrhea. Girls aged 17–24 years with regular menstrual cycle and unmarried girls were included. Athletes, married women with gynaecological abnormalities were excluded. A structured 8 weeks' program (3 days in a week, 1 hour per day) was given to Group A including set of London bridges (8 mins), Jumping lunges (8 mins), Mountain climbers (8 mins), Quadruped bent knee hip extension (8 mins), Warm up 10 minutes, 25 minutes for high intensity aerobics. Group B were assigned 25 minutes for Pelvic clock exercises (gradually increased during with weeks) performed from 12 to 6 o'clock, as instructed to move from 3 o'clock to 9 o'clock. Then movement in a clockwise manner from 12 to 3 to 6 to 9 and then back to 12 o'clock. Outcome measures were calculated by visual analog scale VAS, DASS 21 and self-administered questionnaire for dysmenorrhea symptoms. Result of the study was that patients who were treated with high intensity aerobics exercise showed more significant result as compared to another group with p-value < 0.05. The study concluded that both exercise program are effective but high intensity aerobics had given more efficient results.²³

DISCUSSION:

This study evaluated the available data supporting the use of exercise therapy to treat pain in women with primary dysmenorrhea. This review's objective was to analyse how exercise helps women's discomfort and quality of life. The review's findings demonstrated the use of therapeutic exercises in the treatment of dysmenorrhea symptoms. Every study that was part of this evaluation looked into how exercise therapy may help manage pain. Hend S Saleh et al. (2016) study showed that active stretching or core strengthening exercises can be an easy, non-pharmacological method for managing primary dysmenorrhea. Intensity and duration of pain were significantly reduced in exercise groups. Shreeya Dilip Berde et.al (2019) showed that core strengthening exercises can significantly improve the quality of pain and thus improve the quality of life in female suffering from primary dysmenorrhea. Also, Muhammad Faizan Hamid et.al (2022) also said that patients who perform high intensity exercise are likely to have less pain and discomfort. Regular exercise and physical activity increase blood flow and improved metabolism in uterus so that leads to good menstruation without pain. In other words, increasing blood flow to uterus helps a lot in reduction of dysmenorrhea and its associated menstrual symptoms. Overall, the majority of included studies demonstrated that exercise therapy significantly reduces the pain and discomfort in females.

CONCLUSION:

According to current evidence, exercise therapy is a low-cost, non-invasive alternative treatment designed specifically for females with primary dysmenorrhea. Engaging in regular physical activity is a secure and efficient way to lessen PD symptoms. Long-term positive benefits from consistent practice will also help to further reduce these symptoms and enhance the person's general health. The best training strategy for dysmenorrhea symptoms seems to be physical activities.

The fact that this PD therapy has no negative physiological consequences is also a crucial component.

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