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THE EFFECTS OF PELVIC FLOOR MUSCLE EXERCISES ON PRIMARY DYSMENORRHEA: A REVIEW

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Abstract

Primary dysmenorrhea (PD) is described as painful cramping that returns with each menstrual cycle in the absence of any evident pelvic pathology. Women, as well as pain experts, may neglect or undertreat dysmenorrhea due to its excessive frequency, perceiving it as a normal part of the monthly cycle. The goal of this study is to determine the relationship between pelvic floor strengthening activities and primary dysmenorrhea, as well as how prevalent primary dysmenorrhea is among young adults.

Aim and Objective: The primary purpose of the study was to look into the efficacy of pelvic floor strengthening exercises to manage discomfort in dysmenorrhea.

Introduction:

Pain is an unpleasant sensation that, depending on its severity, location, nature, and duration, can have a negative impact on the person experiencing it.[1] Primary dysmenorrhea is a painful syndrome that develops during the menstrual flow phase of ovulatory cycles.[2] It usually begins six to twelve months after menarche, at the same time as normal ovulatory cycles.[2]

The term dysmenorrhea refers to unpleasant cramps that occur during menstruation.[3] The phrase dysmenorrhea is derived from the Greek words "dys" (difficult, painful, abnormal), "meno" (month), and "rrhea" (flow).[3-4] In addition to lowering women's quality of life, dysmenorrhea is the biggest cause of absenteeism, which costs money and limits work hours.[3] Dysmenorrhea is characterised by recurring, persistent pelvic pain during menstruation.70-91% of teenagers report feeling uncomfortable during their menstrual period.[4] Mild discomfort is normal during the menstrual cycle, but extreme pain is not.4 There has been debate on the cause of primary dysmenorrhea.[5] Primary dysmenorrhea usually appears at or shortly after the

onset of ovulatory cycles, which takes place 6 to 12 months after menarche.[5] Menstrual pain often lasts between eight to seventy-two hours. Considering its prevalence, dysmenorrhea is undertreated and neglected by medical professionals, pain researchers, and even women who accept it as a normal part of the monthly cycle. As a result, dysmenorrhea has been designated as a public health issue due to its high frequency, the amount of discomfort experienced by individuals who have it, and the reduction in the quality of life experienced by female students.[6] Exercise can be defined as any physical activity that requires effort, particularly one performed to develop or maintain fitness.[7] Physical exercise has been suggested as a non-medical approach of symptom management.[7] Exercise is commonly thought to reduce the severity and/or frequency of dysmenorrhoeal syndrome.[7] The decrease in dysmenorrhea could be attributable to an increase in endorphin levels or the effects of hormonal changes on uterine epithelial tissues.[7] Exercise appears to have nonspecific analgesic benefits.

Key Words: Dysmenorrhea, physical therapy, pelvic floor strengthening, exercises, pain, mensuration.

Physiology of dysmenorrhea

Dysmenorrhea is often classified into two types based on its pathophysiology: primary and secondary dysmenorrhea. Multiple hypotheses have been offered over time to explain the causes of primary dysmenorrhea.[8] Experimental and clinical studies have shown that uterine prostaglandin release has a major influence on the development of primary dysmenorrhea.[8] Endometrial loss causes the release of prostaglandins during menstruation, along with the blood.[8] This is followed by the release of more enzymes that breakdown cell membranes.[8] Prostaglandin production stimulates myometrial contraction and constricts small endometrial blood vessels, resulting in tissue ischaemia, disintegration, bleeding, and discomfort.[9] Prostaglandins cause ischaemia and myometrial contractions. Prostaglandin levels found in menstrual fluid are greater in women with severe dysmenorrhea, and they peak during the first two days of menstruation.[10]

Dysmenorrhea is most typically characterised by lower abdominal pains, but other symptoms may include headaches, backaches, nausea, and vertigo during the menstrual cycle.[11] Although mild discomfort are more common and may suggest a normal menstrual cycle, severe symptoms might interfere with daily activities.[11] Untreated acute pain can have detrimental

effects on the gastrointestinal, endocrine, immunological, respiratory, and cardiovascular systems.[1] Persistent pain might cause illness, unhappiness, incapacity, wrath, or tiredness.[1]

Pelvic Floor strengthening exercise as a complementary therapy

Although primary dysmenorrhea is not considered live-threatening and is not associated with impairment, it can reduce a woman's quality of life and, in severe cases, cause incapacity and inefficiency, resulting in missed work or school.[12] Physical activity has been advised as a non-medical way to alleviate symptoms.[4] Exercise lowers dysmenorrhea symptoms by releasing endorphins, also known as "feel good hormones."[13] Exercise can be defined as any physical activity that requires effort, particularly one performed to develop or maintain fitness.[4]

Kegel exercises, which entail frequently tightening and relaxing the pelvic floor muscles, can help strengthen it. Kegel exercises are considered an important aspect of pelvic floor muscle rehabilitation. [14] Regular Kegel exercises and stretching improve the function of the pelvic floor muscles. As a result, it is considered that women with primary dysmenorrhea may have a lower quality of life due to increased functioning.[15] There is a need to explore whether PFM exercises relieve discomfort throughout the menstrual cycle in women, as well as their impact on women's quality of life.

This study was ethically approved by ethical committee (BMU/FTP/204). A search was conducted to locate all studies that assessed the efficacy of core strengthening exercises on dysmenorrhea between the years 2000 and September 2023. These trials were indexed in several databases, including Scopus, Google Scholar, and PubMed. The keywords "pelvic strengthening exercises," "menstrual pain," and "dysmenorrhea" were chosen. There were 125 papers identified, which comprised observational and comparative studies, systematic reviews, Cochrane reviews, clinical trials, and other types of reviews. Studies that used "core strengthening" as an intervention and "dysmenorrhea" as a problem satisfied the review selection criteria. Any studies that dealt with menstrual difficulties other than dysmenorrhea or did not employ core strengthening as an intervention were excluded. Every paper was subjected to a more rigorous critical evaluation, taking into account the suitability of the purpose, the methodology used, the degree of detail and interpretation of the data gathered, and the results' application to the study issue.

Association between Dysmenorrhea and Pelvic Floor Strengthening

Pelvic floor strengthening exercises have been shown to be an effective intervention for reducing discomfort in dysmenorrhea. Physical activity and exercise are considered safe and effective therapy for the treatment of dysmenorrhea.[13] It is commonly acknowledged that improved circulation, hormonal alterations, and an increase in endorphin levels caused by various exercise regimens raise the dysmenorrhea pain threshold.[14] Nidhi Agarwal et al. investigated the efficacy of pelvic floor muscle exercise and stretching in reducing pain and improving quality of life in young women with primary dysmenorrhea, and discovered that pelvic floor muscle exercise and stretching can help reduce pain and improve quality of life.[15]

Also, Manuela Deodato and Giulia Grosso investigate the value of offering physiotherapy treatments to females with primary dysmenorrhea in order to alleviate symptoms, with manual therapy mixed with active pelvic floor exercise producing the best results, including an improvement in lumbar pain thresholds.[16] Primary dysmenorrhea is also linked to large economic consequences due to absenteeism, as well as 2-to-3-fold increases in healthcare costs. There is a pressing need to highlight all possible alternative techniques of conservative approaches to PD treatment as a non-invasive, non-pharmacological, simple, and safe way to relieve dysmenorrhea. Hamid, Muhammad investigated the effects of myofascial release versus pelvic floor muscle exercises in women with primary dysmenorrhea and concluded that both myofascial release and pelvic floor muscle exercises are effective treatments for primary dysmenorrhea.[17]

Nasri, M., Barati, A., & Ramezani, A.R. conducted a semi-experimental study in which 45 adolescent females with average to severe primary dysmenorrhea were freely allocated into three groups of 15: aerobic training, Kegel training, and control groups. The exercise plan included three sessions per week at 65% of maximal heart rate for 45 minutes, as well as three sessions per day for 15 minutes for the pelvic floor muscle group. Two groups have done the workouts for eight weeks. The control group did not engage in any physical activity during this time period. Data were collected using primary dysmenorrhea measurement questionnaires, and a mile-run test was utilised to homogenise the patients' aerobic fitness. The findings indicated that aerobic activity and Kegel exercises could help to improve primary dysmenorrhea. As a result, such activities are likely to be effective in the treatment of primary dysmenorrhea.[18]

Many adolescent females suffer from dysmenorrhea, which causes them to miss school and college and to avoid other activities. Menstrual discomfort is more common among adolescent

girls. Dr. Bhavani B. B et al. investigated the effect of pelvic rocking exercise on dysmenorrhea and reported that the intervention was considerably helpful in reducing dysmenorrhea among adolescent females.[19] Thus, it is necessary to teach exercise to adolescent girls in order to reduce dysmenorrhea, weariness, weakness, and nausea, develop abdominal muscles, aid in physical and emotional recovery, and maintain a healthy reproductive life.

In a study of college hostel ladies suffering from dysmenorrhea, Gokulakrishnan.J. and Rokime.S. Mominto found that kegel exercises effectively reduced pain and menstrual cramps. A total of 15 girls aged 18 to 25 with dysmenorrhea participate in the trial. The subjects were selected based on inclusion and exclusion criteria. The Kegel exercises were assigned to the subjects at random (n = 15). The findings revealed a substantial statistical difference in pre-posttest values for the supplied samples. Kegel exercises were demonstrated to significantly reduce pain and menstrual cramps.[20] Noha Mohamed Mahmoud Hassan et al. investigated the effect of Kegel versus pelvic rocking exercise on primary dysmenorrhea intensity in adolescents attending secondary female schools in al-Mafraq, Jordan. A suitable sample of 216 students with dysmenorrhea was gathered. They are randomly assigned to two groups: Kegel 1 and Pelvic rocking exercise 2. The study found that exercise greatly reduced the intensity of primary dysmenorrhea. Kegel exercises are an effective non-pharmacological treatment for primary dysmenorrhea.[21]

In adolescence, dysmenorrhea is frequently associated with a loss in academic performance, a decrease in physical and social activities, and illness absence. Most girls do not seek medical attention for dysmenorrhea because they believe it is a normal part of the menstrual cycle, despite the condition's severity and frequency. Elaheh Karimi and Behnam Ghasemithe investigated the impact of 12-week Kegel and stretching exercises on pain and quality of life in girls aged 18 to 25 suffering from primary dysmenorrhea. In this quasi-experimental study, 60 single girls from Bandar Abbas (20.21 years±1.85) who visited clinics for severe menstrual pain from 2012 to 2013 were randomly divided into two groups: experimental (Kegel exercises and stretching exercises) and control. The results of repeating the measures revealed that Kegel and stretching exercises are useful in reducing the severity and duration of menstruation pain. In addition, the data showed that Kegel exercises had a greater effect on reducing the severity and duration of menstruation pain than stretching exercises. Kegel and stretching exercises were found to reduce the severity and duration of discomfort in primary dysmenorrhea. Thus, Kegel and stretching exercises may be useful in the treatment of primary dysmenorrhea.[22]

Sandhiya M, Kumari Priya et al. investigated the impact of pelvic floor muscle workouts on quality of life in females with primary dysmenorrhea. An experimental investigation was conducted among females aged 18 to 25 years old with primary dysmenorrhea, with a total of 60 patients divided into two groups. Group A is given pelvic floor muscle strengthening exercises, whereas group B is given an additional round of stretching exercises. The study's findings revealed statistically significant improvement in both groups (group A and group B) when pre- and post-test results were compared. Group A conducting pelvic floor exercises together with stretching exercises were found to be more significant in lowering pain and enhancing the quality of life among primary dysmenorrhea females (t-value 5.5806 and p-value less than 0.0001). Both combined training of the pelvic floor muscle and stretching exercises increase the quality of life of women.[4]

Material and method: The Physiotherapy Evidence Database, Pub Med, Google Scholar, and the Cochrane database were all searched for titles and abstracts. In order to investigate the efficacy of workouts in the treatment of pain in dysmenorrhea, 08 papers were reviewed. **Result:** A data search of 08 free full articles found that activities are essential for assisting girls and women with dysmenorrhea in managing their pain. Pelvic floor strengthening exercises are another low-cost, side-effect-free way to alleviate the symptoms of this health concern. **Conclusion:** There is evidence that pelvic floor strengthening exercises can be used to treat primary dysmenorrhea by reducing discomfort severity. Exercises that strengthen the pelvic floor reduce the severity of discomfort in people with primary dysmenorrhea. Based on the currently available evidence, Pelvic Floor Strengthening Therapy is a non-invasive, inexpensive alternative therapy option for females suffering from primary dysmenorrhea. Continuous physical activity is an effective and secure means to manage Parkinson's symptoms. Consistent practice will provide long-term advantages, reducing these symptoms and improving the individual's general health. Exercise appears to be the most effective training approach for dysmenorrhea symptoms. Another crucial element of this PD treatment is that it has no negative physiological side effects.

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