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# Benefits of core stability exercise and relaxation technique for primary dysmenorrhea in an unmarried girl: A case report

Radhika Gopal S<sup>1</sup>, Premkumar M<sup>1</sup>, Kavitha S<sup>1,2</sup>, Shipnu P<sup>1</sup>

## Abstract:

Primary dysmenorrhea denotes the onset of recurrent lower abdominal pain and uterine contractions throughout the bleeding phase of menstruation in the absence of any underlying pelvic pathology. Core stability exercise is considered a beneficial exercise program for managing several health problems. Various relaxation techniques can be used in womanhood with primary dysmenorrhea for relief of pain and improving their quality of life (QOL). The aim of this study was to learn and understand the benefits of core stabilization exercise along with relaxation techniques for primary dysmenorrhea in an unmarried girl. This single-case study was planned to analyze the effect of core stability exercise along with relaxation techniques in the management of primary dysmenorrhea symptoms. Relaxation exercises along with core stability exercises were given to subjects with primary dysmenorrhea for 20 sessions of 30 minutes spanned for 5 weeks, four sessions a week. Along with the demographic profile, pre- and post-intervention value of pain in the visual analog scale (VAS) and Working Ability, Location, Intensity, Days of Pain, Dysmenorrhea (WaLIDD) score was obtained, recorded, and analyzed. This single-case study results showed significant improvement in the outcome of pain in the VAS and WaLIDD score after the intervention of core stability exercise along with relaxation exercise for the primary dysmenorrhea patients. Pre- and post-intervention of core stability exercise along with Mitchell's relaxation exercises, measurements of VAS, and dysmenorrhea severity in WaLIDD scores revealed an effective reduction in pain and severity using core stability training and relaxation training in an unmarried girl diagnosed with primary dysmenorrhea.

## Keywords:

Core stability exercise, primary dysmenorrhea, relaxation exercises, WaLIDD score

## Introduction

Dysmenorrhea, also called painful menstruation, is a cyclic lower abdominal pain and pelvic region, which also radiates to the posterior aspect of the thighs, usually occurring before or during menstruation or even throughout.<sup>[1]</sup> Menstrual cramps and pain are usually felt in the abdominal region after consistent ovulation and arise soon after attaining menarche.<sup>[2]</sup> Dysmenorrhea is considered one of the most commonly seen gynecological

concerns among adolescent and adult females.<sup>[3]</sup>

Primary dysmenorrhea denotes the onset of recurrent lower abdominal pain and uterine contractions throughout the bleeding phase of menstruation in the absence of any underlying pelvic pathology.<sup>[4]</sup>

Physical activity and exercise are also found to be effective and safe interventions for managing dysmenorrhea.<sup>[5]</sup> Many studies have given evidence of increased blood circulation, balanced hormonal changes, and the boost of endorphin levels in response to

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<sup>1</sup>Institute of Physiotherapy, Srinivas University, City Campus, Pandeshwar, Mangalore, Karnataka, India, <sup>2</sup>Department of Outpatient, Santosh of Physiotherapy, Madurai, Tamil Nadu, India

### Address for correspondence:

Mr. Premkumar M, Institute of Physiotherapy, Srinivas University, City Campus, Pandeshwar, Mangalore - 575 001, Karnataka, India. E-mail: 80pk2009@gmail.com

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various exercise regimens, which is ultimately increasing the pain threshold of dysmenorrhea patients.<sup>[6]</sup>

Core stability exercise is considered a beneficial exercise program for managing several health problems. Core stabilization exercise strengthens and organizes the muscles around the abdomen and the lumbar and pelvic regions. For the reason that core stability exercise may have a prime influence on the lumbosacral structure,<sup>[7,8]</sup> it is hypothesized that stability training for core muscles might be an effective way to condense the warning signs of primary dysmenorrhea as well. In contrast, to our knowledge, the effects of core stability training on dysmenorrhea have not been estimated yet.

Various relaxation techniques can be used in womanhood with primary dysmenorrhea for relief of pain and improving their quality of life (QOL). In Laura Mitchell's relaxation technique, contracting a muscle or body as a whole and relaxing can relieve stress and muscle tension.<sup>[9]</sup>

There were very limited resources available to assess the effectiveness of core stability training and relaxation techniques in managing primary dysmenorrhea in an unmarried girl and to conclude the effects of the post-training program. Thus, this case study outcome will give a view of treatment approaches to the benefit of dysmenorrhea among unmarried girls, which will be of greater significance in the physiotherapy treatment aspects.

### Materials and Methods

An introductory class was conducted about dysmenorrhea and its symptoms for the female students in the Santosh College of Physiotherapy, and the nature of the study and interventions were explained to the subjects and those willing to participate. Based on the criteria, each subject was selected for the study. Before proceeding with the intervention, written consent was obtained from the subject. Pretreatment outcome measures of the level of pain on the visual analog scale (VAS)<sup>[8]</sup> and the severity of primary dysmenorrhea with the WaLIDD score were recorded. Selected subjects took part in a 45-minute session along with demonstrations of the importance of "planned exercise program with core stability exercise along with relaxation exercise to care primary dysmenorrhea symptoms." The subject was encouraged to chart the exercise program for 30 minutes per session at least four times a week on a regular basis. After 5 weeks of spanning the next menstrual cycle, 20 sessions of intervention of treatment outcome measures of pain and severity of primary dysmenorrhea with the WaLIDD score<sup>[10]</sup> were recorded again. Data were documented and reported for analysis.

### Case presentation

Name: M Abhirami, aged 19 years, with chief complaints of pain, severe discomfort during monthly cycles, and fatigue. (History: age of menarche: 12 years, history of menstruation: no. of days or cycles: 6 days, regular or irregular: irregular, and painful or pain free: pain in VAS—9). Onset of pain: duration of pain preceding monthly cycle: 3 days before. Location of pain: lower back and lower abdomen, events associated with pain: emotional outbreaks, pattern of pain: aching and pin pricking, amount of bleeding: abnormal and unusual, variables: pre-intervention: rate of pain due to dysmenorrhea—9 (VAS), Dysmenorrhea Severity Scale Working Ability, Location, Intensity, Days of Pain, Dysmenorrhea (WaLIDD) score—9, and pain-relieving elements: hot packs, supine lying, and gentle abdominal massage. Diagnosis: primary dysmenorrhea, physiotherapy interventions: core stabilization exercises [Figure 1] and Mitchell's relaxation exercises [Figure 2], post-intervention: rate of pain due to dysmenorrhea—3 (VAS), and Dysmenorrhea Severity Scale WaLIDD score—4 [Table 1].

### Data Analysis and Discussion

In this case study, a reduction in pain was noticed significantly in the pre-post-scores using VAS and severity of dysmenorrhea by the WaLIDD score in this unmarried young girl. This change was noticed because of the physiological benefits of the core stability exercise and Mitchell's relaxation techniques, which physiologically reduce the endometrial tension and eventually relax the musculature of the uterus. Core stability exercise gives the desirable strength in the uterus muscles, whereas relaxation exercise proves the psychological status of subjects and reduces emotional outbursts and tension during the menstruation period.



Figure 1: Core stability exercise with the Swiss Ball (Source: Author)



Figure 2: Mitchell's relaxation exercise (Source: Author)

Table 1: Outcome measures (Source: Author)

Intervention	Pain in VAS	WaLIDD score
Pre-intervention	9	9
After 2 weeks (after the next immediate cycle of menstruation)	7	8
Post-intervention (after 5 weeks—second cycle of menstruation)	3	4

## Outcome Measures

Pain in VAS

Dysmenorrhea Severity by WaLIDD Score

This study result showed the conceptual outcome of a previous study (Hend S Saleh *et al.* 2015), wherein performing exercises, such as stretching and core muscle training, effectively reduced the amount and extent of pain in primary dysmenorrhea.<sup>[8,9]</sup> This study reinforced the importance of relaxation exercises in treating dysmenorrhea symptoms, which has already been mentioned in a previous study by Rasoulzadeh *et al.*,<sup>[9]</sup> 2007 where they stated that symptoms of primary dysmenorrhea were effectively managed using various relaxation techniques in young women.

Although core stabilization exercises and relaxation techniques are immensely beneficial in the treatment intervention of dysmenorrhea patients, this study result contributes more to the treatment of dysmenorrhea symptoms.

Nevertheless, this study is a single-case study, which is the main limitation of the study. This study can be performed with an advanced study design by involving more number of subjects. This concept can be extended to different age groups of primary dysmenorrhea subjects also. If it can be done like that, then there will be proper progression in the treatment of dysmenorrhea symptoms with good functional outcomes.

## Conclusion

Pre- and post-intervention of core stability exercise along with Mitchell's relaxation exercises, measurements of VAS, and dysmenorrhea severity in WaLIDD scores revealed an effective reduction in pain and severity using core stability training and relaxation training in an unmarried girl diagnosed with primary dysmenorrhea.

### CRedit authorship contribution statement

**Author a** conceptualized the study, involved in formal analysis, designed methodology, wrote the original draft, and administered the project.

**Author b** conceptualized the study; investigated the study; wrote the original draft; wrote, reviewed, and edited the manuscript; and supervised the project.

**Author c** involved in formal analysis, collected data, designed methodology, and investigated the data.

**Author d** involved in formal analysis, collected data, designed methodology, and investigated the data.

All authors read and approved the final version of the manuscript.

### Ethical committee approval

Reg.No: SCP/UG02/101/2022.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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