Efficacy of Soft Tissue Manipulation for Primary Dysmenorrhea among Late Adolescent Girls

Showmya SK1, Jagatheesan Alagesan2, Kabilan R3

1Undergraduate, 2Professor, 3Tutor, Saveetha College of Physiotherapy, Saveetha Institute of Medical and Technical Sciences, Chennai, Tamil Nadu, India.

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Abstract

Background: The most prevalent gynecological condition in young girls, dysmenorrhea, is experienced by over 50% of girls. The Myometrium’s hyperactivity and the co-occurrence of uterine ischemia are believed to be the primary causes of pain. Prostaglandins seem to play a major role in the development of myometrial hyperactivity. Soft tissue manipulation, a form of therapeutic tissue massage, may be beneficial for the treatment of dysmenorrhea, according to the scant research on the subject and the personal clinical experience of one of the authors. This has been suggested that therapeutic tissue massage, which involves applying pressure to soft tissues, is effective in relieving menstrual discomfort. The entire process was performed from November 2022 to April 2023.

Purpose: The study aims to determine the efficacy of soft tissue manipulation for primary dysmenorrhea among late-adolescent girls.

Materials and Methods: 62 subjects in total were chosen based on the inclusion and exclusion criteria. The Soft tissue manipulation group (n=31) received treatment over the course of two sessions. The stretching group (n=31) received treatment with 5 stretches in 2 sessions, each stretch lasting for 10 seconds of hold with a 3 seconds rest in between. The material used were Couch, Pillow, Bedsheet, Petroleum Gel, Gloves, Yoga Mat, Sanitizer.

Result: The result showed significant improvement in minimizing symptoms of menstrual cramps among late adolescent girls using soft tissue manipulation.

Conclusion: This study concluded that the effect of soft tissue manipulation was found to be more significant than stretching in reducing primary dysmenorrhea.

Key Words: Primary Dysmenorrhea, menstrual cramps, prostaglandin, stretching, soft tissue manipulation, menstruation.

Introduction

The most prevalent gynecological condition in young girls, dysmenorrhea, is experienced by over 50% of girls. Preventive and supporting actions are required for young girls due to their detrimental effects on their quality of life. These strategies include raising knowledge and promoting a curriculum about healthy lifestyles, which include a proper diet and regular physical activity.1 The term “painful
Menstruation refers to a condition in which the lower abdomen experiences intense, painful cramping and is frequently accompanied by additional symptoms, including sweating, headaches, nausea, vomiting, diarrhea, and trembling, which appear just before or during the menses. A typical monthly problem, dysmenorrhea has a significant negative influence on the quality of life, productivity at work, and use of medical services. While a considerable percentage of girls in their teenage experience dysmenorrhea, less often experience severe discomfort that prevents from going about their everyday lives. When pelvic pathology is absent, primary dysmenorrhea develops. Inflammation causes uterine contractility and cramping pain, which is mediated by increased prostaglandin and leukotriene levels. In primary dysmenorrhea, mechanisms that may be pathophysiological significant are examined. Menstrual Pain is thought to be mostly caused by the myometrium being hyperactive and having uterine ischemia as a co-occurring condition. The growth of myometrial hyperactivity appears to be significantly influenced by prostaglandins. Other pathways with potential clinical significance, including ovarian hormones, cervical factors, vasopressin, nerves, and psychological variables, may function ultimately through prostaglandin release, but they may also act directly on the myometrium and blood flow. The sparse literature on the topic and the individual clinical experience of one of the authors suggest that soft tissue manipulation, a type of therapeutic tissue massage, is helpful for the treatment of dysmenorrhea. Reflex treatment is often referred to as soft tissue manipulation. According to the notion of soft tissue manipulation effect mechanism, it may cause the autonomic nervous system to stimulate the cutaneous-visceral reflexes. It has been claimed that massage treatment is useful for treating menstruation discomfort because it involves manipulating soft tissues with pressure. Soft tissue manipulation (STM) incorporates the majority of mechanical stimuli that have the potential to directly affect the cellular response, molecular pathways, tissue structure, and function, as well as healing, repair, and regeneration. Clinicians regularly employ STM, a non-invasive, affordable, and easily accessible kind of mechanotherapy, to treat a variety of illnesses. Not only does it feel nice, but it also does good.

Muscle rigidity, enhanced tone of the muscles, and muscle spasms attributed to acute neurological illnesses are treated with soft tissue manipulation techniques including the neuromuscular treatment and muscle energy technique. The methods can lessen muscle tension, discomfort, and spasms while increasing muscle strength, coordination, and range of motion. A form of manual treatment known as soft tissue manipulation (STM), or therapeutic massage, is delivered solely by the hands or in conjunction with a rigid instrument. Muscle entrapment is released by soft tissue manipulation that employs oblique pressure, a mix of extending and cross-fiber strokes, anchor, and stretch. Exercise is a suitable therapeutic option for dysmenorrhea in adolescents. The endorphin hormone produces a sense of ease and unrestrained enjoyment, which acts as a natural sedative. By stretching your abdominal muscles, you can employ physical activity to lessen dysmenorrhea during your periods. It was shown to be quite useful to perform a sequence of stretching abdominal exercises. According to studies that have focused on this issue in teenagers and young adults, absenteeism from school and job is a detrimental effect of dysmenorrhea. The WaLIDD score entailed three commonly encountered criteria recognized by the definitions of menstrual cramps that exist in the literature: days of pain (D), workability (Wa), and biological part of pain location (L). Increasing rates of dysmenorrhea were found to be related to some psychological characteristics, such as significant emotional disturbance and psychologic symptoms. According to a study, the level of somatic complaints, depression, and anxiety all had a positive correlation with the seriousness of dysmenorrhea. Depression, anxiety, and Stress (DASS-21) is a 21-item self-report questionnaire intended to measure various common symptoms of depression, anxiety, and stress. The estimated prevalence of primary dysmenorrhea varies greatly and can be anywhere between 50% and 90%. In adolescent girls, the disorder is the most frequent reason for absence from work and school.

Aim
The study aims to determine the efficacy of soft tissue manipulation for primary dysmenorrhea among late adolescent girls.
Material and Method

Couch, Pillow, Bedsheet, Petroleum Gel, Gloves, Yoga Mat, Sanitizer.

Inclusion Criteria

• Age from 18 - 25
• Menstrual pain associated with the onset of menses
• Subjects diagnosed with primary dysmenorrhea for the last 6 months
• Regular menstrual cycle +/- 7 days.

Exclusion Criteria

• Known case of Anemic
• Any Gynecological and endocrine disorder
• Recent abdomen surgery
• Urinary tract infection
• Irregular menstrual cycle
• Positive pregnancy test
• Oral contraceptive or antidepressants for the last 6 months
• Hyperemia.

Outcome Measures

• WaLIDD score (Working ability, Location, Intensity, Days of pain, Dysmenorrhea).
• ASS-21 Questionnaire (Depression, Anxiety, Stress Scale -21 questionnaire)

Procedure

The study procedure was held at the Health Science Block of Saveetha Institute of Medical and Technical Sciences (SIMATS). In an Experiment group (n=31) the subjects were given soft tissue manipulation in the lower abdomen, and lumbar (low back) region with soft tissue manipulation with 2 repetitions and 20 strokes of each technique with a rest time of 3 minutes. The technique used is the Broadening technique, circular technique, and longitudinal technique which was given in two sessions before the consumption of food. The treatment started from the onset of menses till the last day of menstruation. The entire process was performed from November 2022 to April 2023.

A) Soft Tissue Manipulation Group:

1) Circular Technique:

For convenience, Subjects were provided with the couch, Pillow, and Bedsheet facilities. asked to lie down on the couch in a supine position, a pillow placed for head support, and exposing the lower abdomen for performing the circular technique with a bedsheet covered in the upper and lower part of the body.

2) Broadening Technique:

The subject was asked to lie down on the couch in a prone position, a pillow placed for head support, and exposure of the lower abdomen for performing the broadening technique with a bedsheet covered in the upper and lower part of the body. The broadening technique was administrated in a direction of perpendicular to the muscle fiber.

3) Longitudinal Technique:

The hand position and the protocol are the same as the broadening technique. The longitudinal technique is performed in such a way the direction of the muscle fiber runs.

B) Stretching Group:

1) Child Pose:

• Subjects were asked to Squat and take a seat on their knees.
• Put the top of your head on the ground while stowing your buttocks firmly on your heels with arms stretched.

2) Cobra Stretch:

• The Subject was asked to lay out their entire body on the mat while lying face down (prone).
• Hands placed below the shoulder blades.
• Elevate your upper body gradually and Lift higher by using your lower back muscles.
• Take a modest upward and forward glance.
• Carefully descend.

3) Mountain Pose:
• Both your hands and your knees should be positioned beneath your shoulders.
• Weight should be properly distributed over your palms and fingers when you straighten your elbows.
• Legs straightened; knees raised off the floor.
• To create a triangle that resembles a mountain top, lift your buttocks and slide your head in between your arms.
• In the ultimate posture, your upper body and legs shouldn’t be bent. Straight in the back.
• Your heels should be on the ground or at least close to it.
• Bring your head and shoulders up to your knee.

4) Cat Pose:
• Subjects were asked to Start in the quadruple position (hands and knees), with their wrists just below their shoulders and their knees just below their hips.
• Make an effort to align your hip, spine, and shoulder.
• The spine should remain neutral at all times.
• Lie on the ground with your back to it.
• Your neck is then raised to the ceiling.
• With your spine, strive to form an arch.

5) Camel Pose:
• Subjects were asked to Start in the quadruple position (hands and knees), with their wrists just below their shoulders and their knees just below their hips.
• Make an effort to align your hip, spine, and shoulder.
• The spine should remain neutral at all times.
• Lift your spine upward. Then, hunch your chin and tailbone in.
• Make a hunch over your spine if you can.

Data Analysis

Graph-1 Pre-value based on a WaLIDD scale of the soft tissue manipulation group & the stretching group.

Graph-2 Pre-value based on a DASS-21 scale of the soft tissue manipulation group & the stretching group.

Graph-3 Post-value based on a WaLI+DD score of the soft tissue manipulation group & the stretching group.
Graph-4 Post-value based on a DASS-21 scale of the soft tissue manipulation group & the stretching group.

Result

The result shows significant improvement in minimizing symptoms of menstrual cramps among late adolescent girls using soft tissue manipulation. The post-value using WaLIDD score for the soft tissue manipulation group is 2.06 as the Mean value, and the post-value of the stretching group shows a mean value of 6.42. Post-value using the DASS-21 scale showed for the soft tissue manipulation group is 14.55 (depression), 10.74 (anxiety), and 19.32 (stress) as the Mean value. the post-value of the stretching group shows the mean value is 17.10 (depression), 12.45 (anxiety), and 25.35 (stress).

Discussion

The purpose of the present study was to compare the efficacy of soft tissue manipulation for primary dysmenorrhea among late adolescent girls. The outcome measured used was WaLIDD score and the DASS-21 scale before and after the treatment. Significantly soft tissue manipulation group shows in minimizing menstrual cramps. The stretches workout was done based on the subjects’ menstrual cycle, plus or minus seven days. The pelvic bridge, which is comprised of the muscles of the gluteus maximus, hamstrings, and hip abductors, is stretched during this exercise. The muscles addressed by the cat and camel stretches include the trapezius, supraspinatus, latissimus dorsi, and erector spinae. The calf muscles, back, hamstring muscles, and forearms are all covered in the mountain position. The child pose performs a gluteus, hip flexor, and internal and external oblique stance. The Pectoral muscle, Pyramidalis, Rectus abdominis, Transversus abdominis, External and Internal obliques, Trapezius muscles, and Erector spinae are also damaged by the cobra stretch. In the meantime, the soft tissue manipulation group performed soft tissue manipulation and the technique used is the Broadening technique, circular technique, and longitudinal technique. Yağcı N et al concluded Patients with persistent non-specific low back pain can benefit from soft tissue mobilization in addition to conventional physiotherapy by experiencing a decrease in pain intensity and level of disability. Pramanik et al concluded that the results of the current study revealed that dysmenorrhea is linked to psychological discomforts, such as worry, melancholy, irritability, and mood swings. To minimize the severity of menstruation discomfort, psychological therapies, and counseling are crucial for young girls with primary dysmenorrhea. Omidvar S et al concluded that adolescent girls are more likely to encounter dysmenorrhea and irregular menstruation. Restlessness, rage, and back pain are common signs of dysmenorrhea; the discomfort associated with the condition is variable in degree. Girls who had intense discomfort also had cramping in their stomachs, nausea, and loss of appetite, along with immobility. Dysmenorrhea looks to be becoming more common among people; such suffering would reduce female output. On the basis of this, it can be said that a thorough school education program on menarche and menstruation challenges may aid girls in coping better and seeking appropriate medical care.

Conclusion

This study concluded that the effect of both soft tissue manipulation and stretching reduces the menstrual cramp among late adolescent girls with increased working ability and suffering from pain for a number of days are been reduced and minimized symptoms along with decreases in depression, anxiety, and stress during menses. Hence, among the two interventions, the effect of soft tissue manipulation was found to be more significant than stretching.
Ethical Clearance: The ISRB committee of a private hospital and institution in Chennai has provided its clearance for the conduct of human research that complies with all applicable national laws, and institutional regulations. (Application Number 03/081/2022/ISRB/SR/SCPT).

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Conflict of Interest: Nil

References