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Research Article

Tapping for Dysmenorrhea

Connective Tissue Mobilization Vs. Combination of Taping with Pelvic Tilt on Primary Dysmenorrhea.

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Abstract: Primary dysmenorrhea is pain aggravation on menstruation without any pelvic disease. It is perhaps the most widely recognized issue females face, influencing them physically and mentally. Connective tissue mobilization can help venous return by increasing the production of prostaglandin and different substances and preventing their collection in the pelvis, which can be powerful during the period, to reduce the pain aggravation and inconvenience. This study examines the effects of connective tissue mobilization vs. a combination of taping and pelvic tilt on unmarried women with primary dysmenorrhea. This is an experimental design with pre and post-comparative study. This was conducted in the physiotherapy outpatient department at ACS Medical College and Hospital. The study duration was about 3 months. The subjects aged 18 to 25 years female with primary dysmenorrheal were included in this study. The subject with Pelvic inflammatory disease, Uterine/ovarian tumor, Spinal pathology, deformity, and PCOD, were excluded from this study. 30 subjects were selected and divided into 2 groups in which Group-A 15 received connective tissue mobilization for 3-4 minutes with a total of 20 minutes/day a day before menstruation for 3 days for consecutive 3 months, and Group B received taping with pelvic tilt was given 4 days for lower abdomen and lumbar, one day before menstruation taping was applied and pelvic tilt was given 2-3 minutes for 20 minutes/day for 3 consecutive months The outcome measures were a pain. The outcome tools were the Menstrual symptom questionnaire, Numerical rating scale, and WaLIDD score. Comparing the pretest and posttest within Group A and Group B, Group B shows a highly significant difference in Mean values at P <_0.001. Thus this study concludes that a combination of taping and pelvic tilt reduces pain in unmarried women having primary Dysmenorrhea.

Key Words: Dysmenorrhea, Connective tissue mobilization, Taping, Pelvic tilt, WaLIDD, unmarried women

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1. INTRODUCTION

Primary dysmenorrhea is characterized as squeezing pain in the lower mid region of the abdomen happening not long previously or is pretty much as high as 90%.[1] Dysmenorrhea is the main source of intermittent transient school non-attendance in pre-adulthood and a typical issue in women of conceptive age.[1,2] Concerning menarche, 71.3% of school students menstruated between 11 and 13 age.[3] The prevalence of dysmenorrhea was 85%; 42% depicted the menstrual aggravation as serious, 33% as moderate, and 25% as gentle.[3,4] Prevalence of primary dysmenorrhea values from 45 to 95% worldwide. Despite the fault that dysmenorrhea is an extremely normal circumstance in youth.[5] Dietary patterns, smoking, proactive tasks, or way of life have been demonstrated to be indicators of difficult menses.[5] The event and seriousness of menstrual spasms are affected by a possibly modifiable person, including weight, smoking, and liquor consumption.[6] Intermittent cramps and lower abdominal pain during menses can occur during the subject conceptive years. Primary dysmenorrhea commonly starts during pre-adulthood, after ovulatory cycles are laid out. As a general rule in corporate history and actual assessment, search for signs and side effects showing pelvic inflammatory disease (PID), endometriosis, or fibroids.[7] Clinical findings were made in patients who experience intermittent cramps, midline pelvic pain that begins with menstrual bleeding and progressively reduces over 12 to 72 hours, and who have no proof of different problems that could represent that pain aggravation.[7] Primary Dysmenorrhea is a constant repeating condition that influences most young ladies. Investigation of the regular history of this condition is scanty. One longitudinal study in Scandinavia found that primary dysmenorrhea frequently works in the third decade of a woman's reproductive life and is likewise decreased after labor.[8] Blood sugar for Complete Blood Count (CBC), sugar assessment, culture for barring physically communicated infection, assessing intra-uterine abdominal status, presence of Intra Uterine Device (IUD).[9] The ongoing bad quality proof proposes that moderate treatment, like specific physiotherapy methods, may furnish clinically acute side effects decrease with the benefit of no side effects.[10.] Actual work as exercise can become powerful during the period to decrease aggravation and distress. Connective Tissue Mobilization (CTM) strokes assist with assembling connective tissue.[11] (CTM) can be utilized to treat primary dysmenorrhea and menstrual-related side effects.[12] One of the accessible methods is taping; different circumstances can be affected by taping. One of them being a pain. Pain is supposed to decrease when the blood course improves at the site where the tape connects to the skin or when a region contracts. At this point, just a couple of studies have been performed to distinguish the impact of taping on dysmenorrhea. The impact of posterior pelvic tilt on low back pain brought about by dysmenorrhea has not been concentrated proficiently. Also, the impact of lessening dysmenorrhea by giving a pelvic tilt practice in a blend with taping is yet to be investigated. The posterior pelvic tilt and taping together can help in dysmenorrheal pain.[13] Taping guarantees the least limitation in reality and permits everybody to learn.[14] New one to segregate among all clinical understudies, among those with dysmenorrhea or those benefiting from clinical leave secondary to dysmenorrhea. WaLIDD score showed a bigger impact size than the aggravation in the understudies. The WaLIDD instrument was inside a mysterious poll that incorporated every one of the factors assessed. Wa- working ability, L- location, I- intensity, D- days of pain, D-dysmenorrhea.[15] The study intends to compare the effectiveness of connective tissue mobilization vs. a combination of taping with pelvic tilt on women having primary dysmenorrhea before marriage.

2. MATERIALS AND METHODS

The study was an experimental study design with pre and post-type. The study was conducted in the physiotherapy outpatient department of ACS medical college and Hospital for 3 months. This study included 30 subjects.

2.1. Inclusion criteria

The 30 Participants, age group-18 to 25 years, unmarried girls with primary dysmenorrhea, nulliparous, regular periods, menstrual cycle of 28 to 30 days, bleeding for 5-7 days, who can read and write English, minimum NRS 4.

2.2. Exclusion criteria

The females with pathological conditions like PCOD, uterine/ovarian tumor, acute/chronic pelvic pathology PID, endometriosis, spinal pathology and deformity, recent surgery, secondary dysmenorrhea, skin lesions, NRS>8, women with irregular periods and females unwilling to participate.

3. INTERVENTION

Participants were divided into 2 groups. Subjects in group-A performed connective tissue mobilization; the technique was repetitively performed for 3-4 minutes for 20 minutes/day a day before menstruation for 3 days.[11] Subjects in group -B were given taping in addition to posterior pelvic tilts. Taping was given 4 days for the lower abdomen and lumbar; one day before menstruation, taping was applied, and pelvic tilt was given 2-3 minutes for 20 minutes/day.[11,12] Pre and post-test were evaluated by menstrual symptoms questionnaire (MSQ), and Pain was measured using WaLLID Score.[15] The pre and post-comparative tests were performed before and after the intervention.

3.1. Group A

The participants in group A were given connective tissue mobilization for the lower back; 6 unique sets of strokes were used for each intervention. Strokes were short (approx. 3 cm) and long (approx.10 cm).[11]

- ***Stroke 1***

The first set consisted of short strokes completed at the edge of the sacroiliac joint and the iliac crest. It was passed close to the iliac crest, starting at the transverse process of the L5 and pushing toward the anterior superior iliac spine. This set of strokes was repeated 5times.[11]

- ***Stroke 2***

The second set consisted of long strokes diving toward the gluteal cleft. It began at the widest part of the sacrum and passed laterally toward the anterior superior iliac spine. This set of strokes was repeated 5 times.[11]

- ***Stroke 3***

The third set of strokes is considered short, ending at L4-S1, perpendicular to the vertebral column. The third strike began at the gluteal cleft, passed above the greater trochanter, and

ended in the anterior superior iliac spine. This set of strokes was repeated 5 times.[11]

- ***Stroke 4***

The fourth set consisted of 3 long strokes beginning from the sacrum's border and ending towards the anterior superior iliac spine. This set of strokes was repeated 5 times.[11]

- ***Stroke 5***

The fifth set of strokes consisted of five short strokes, approximately, which moved laterally to the medial over the erector spine area, following the space between the transverse processes of the lumbar vertebrae. This set of strokes was repeated 5 times.[11]

- ***Stroke 6***

The sixth set consisted of one long stroke, moving from medial to lateral following the lower edge of the last rib. This set of strokes was repeated 5 times.[11]

(Short stroke)
Fig:1 Connective tissue mobilization

(Long stroke)
Fig:2 Connective tissue mobilization

3.2. Group B

- The participants of group B were given taping with pelvic tilt.
- Taping is given upward among the umbilicus and the pubis. Tension is 25% 3 cm increase in length.
- The central part of the tape was eliminated and applied to the lower abdomen of the participants, and the anchors fastened the lateral ends. The participants slightly bent backward, extending their backs.
- The rest of the paper was removed, and the rest of the tape was stuck.[11]
- Taping in addition to posterior pelvic tilts. The participants were taken in a quadruped position.
- Posterior pelvic tilts were taught, and 10 repetitions with 5 seconds holds were given.
- Taping along with posterior pelvic tilts were given throughout the menstrual cycle.[12]

Fig:3. Taping on the lower abdomen

Fig:4 Taping on the lower back

Fig:5. Posterior pelvic tilt

Table 1: Physical and Menstrual Characteristics of the Subjects Groups

	CTM Mean± SD	FR Mean± SD	T	p
Age (Year)	20.87 + 2.2	21.73 + 2.38	1.0476	0.3126
Height (M)	1.5633 +0.04	1.5680+0.04	0.3349	0.7427
Weight (Kg)	67.60+10.7	70.13 + 8.55	0.7451	0.4685
Menstrual Cycle (Day)	29.00+1.15	29.00+1.155	0.0000	1.0000
Menstrual Bleeding (Day)	4.20+1.02	4.53+0.91	1.0000	0.3343

4. ETHICAL APPROVAL STATEMENT

The subjects were volunteers in the study and signed a written informed consent form after ethical registration and clearance from the Institutional Ethical Committee Dr. M.G.R. Educational and research institute (deemed a university). Unfortunately, we don't have any Ethical Clearance.

5. DATA ANALYSIS

The collected data were tabulated and analyzed using both descriptive and inferential statistics. All the parameters were assessed using a statistical package for social science (SPSS) version 24, with a significance level of p-value less than 0.05 and a 95% confidence interval set for all analyses. The Shapiro-Wilk test was used to determine the normality of the data. In

this study, the Shapiro-Wilk test showed that the data were normally distributed on the dependent values of NPRS (significance 0.294), WaLIDD score (significance 0.397) & MSQ (significance 0.351) at $P > 0.05$. Hence the parametric test was adopted. In addition, paired t-test was adopted to find the statistical difference within the groups & Independent t-test (Student t-Test) was adopted to find the statistical difference between the groups.

Table 2: Comparison of Numerical Pain Rating Scale Score Between Group– A and Group - B In Pre And Post Test

Test	Group - A		Group - B		t - TEST	df	Significance
	Mean	S.D	Mean	S.D			
Pre-Test	6.20	1.78	6.26	1.16	-.121	28	.904*
Post-Test	4.86	1.50	2.80	.560	4.95	28	.000***

(*- P > 0.05), (- P ≤ 0.001)***

The above table reveals the Mean, Standard Deviation (S.D), t-test, degree of freedom (df), and p-value between (Group A) & (Group B) in the pretest and post-test weeks. This table shows no significant difference in pretest values between Group A & Group B (*P > 0.05). However, this table shows a statistically significant difference in post-test values between Group A & Group B (***- P ≤ 0.001).

Table 3: Comparison Of Walidd Score Between Group – A And Group - B In Pre And Post Test

Test	Group - A		Group - B		t - TEST	df	Significance
	Mean	S.D	Mean	S.D			
Pre-Test	7.33	1.44	7.13	1.50	.371	28	.714*
Post-Test	5.06	1.03	3.60	1.12	3.72	28	.000***

(*- P > 0.05), (- P ≤ 0.001)***

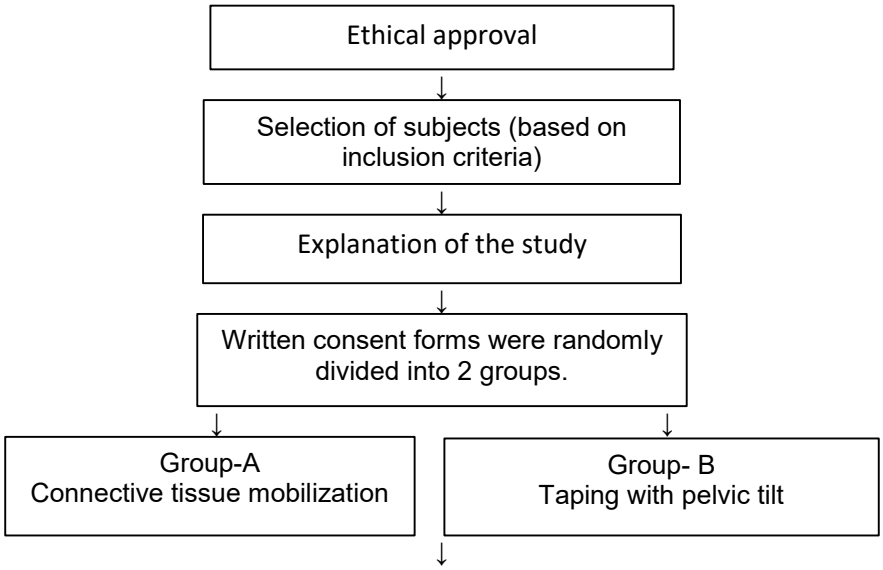
The above table reveals the Mean, Standard Deviation (S.D), t-test, degree of freedom (df), and p-value between (Group A) & (Group B) in the pretest and post-test weeks. This table shows no significant difference in pretest values between Group A & Group B (*P > 0.05). However, this table shows a statistically significant difference in post-test values between Group A & Group B (***- P ≤ 0.001).

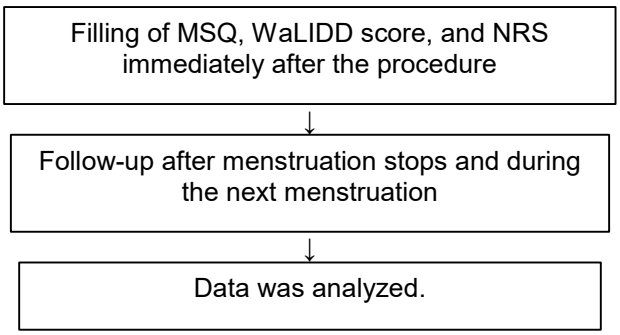
Table 4: Comparison of Menstrual Symptoms Questionnaire Score Between Group-A and Group-B in Pre and Post Test

Test	Group - A		Group - B		t - TEST	df	Significance
	Mean	S.D	Mean	S.D			
Pre-Test	68.53	16.26	68.66	14.61	-.024	28	.981*
Post-Test	52.80	14.71	36.73	10.22	3.47	28	.000***

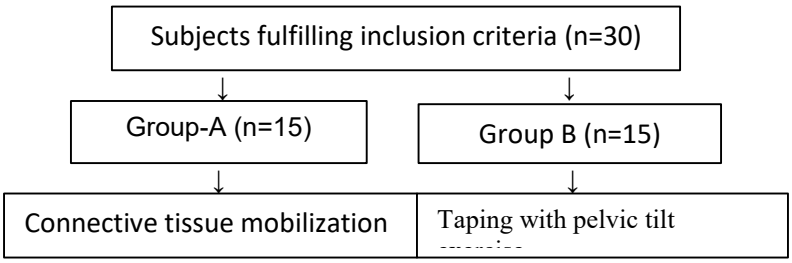
(*- P > 0.05), (- P ≤ 0.001)***

The above table reveals the Mean, Standard Deviation (S.D), t-test, degree of freedom (df), and p-value between (Group A) & (Group B) in pre-test and post-test weeks. This table shows no significant difference in pre-test values between Group A & Group B (*P > 0.05). This table shows that statistically highly significant difference in post-test values between Group A & Group B (***- P ≤ 0.00





Flow chart: 1



Flow chart: 2

6. RESULTS

On comparing the mean values of Group A & Group B on Numerical Pain Rating Scale Score in terms of pain intensity, it shows a significant decrease in the post-test mean values in both groups, but (Group B – Taping with Pelvic Tilt) shows 2.80, which has the lower mean value is more effective than (Group A - Connective Tissue Mobilization) 4.86 at P ≤ 0.001. Hence the null hypothesis is rejected.

Table 5: Comparison of Numerical Pain Rating Scale Score Within Group-A and Group-B Between Pre Test and Post Test

#Group	Pre-Test		Post-Test		t - TEST	Significance
	Mean	S.D	Mean	S.D		
Group- A	6.20	1.78	4.86	1.50	10.58	.000***
Group- B	6.26	1.16	2.80	.560	14.66	.000***

(- P ≤ 0.001)***

The above table reveals the Mean, Standard Deviation (S.D), t-value, and p-value between the pre-test and post-test within Group – A & Group – B. A statistically significant difference exists between the pre-test and post-test values within Group A and Group B (***- P ≤ 0.001). On comparing the mean values of Group A & Group B on WaLIDD Score, it shows a significant decrease in the post-test mean values in both groups, but (Group B – Taping with Pelvic Tilt) shows 3.60 which has a lower mean value is more effectiveness than (Group A - Connective Tissue Mobilization) 5.06 at P ≤ 0.001. Hence the null hypothesis is rejected.

Table 6: Comparison of Walidd Score Within Group – A & Group – B Between Pre & Post Test Values

#Group	Pre-Test		Post-Test		t – test	Significance
	Mean	S.D	Mean	S.D		
Group- A	7.33	1.44	5.06	1.03	9.93	.000***
Group- B	7.13	1.50	3.60	1.12	12.90	.000***

(- P ≤ 0.001)***

The above table reveals the Mean, Standard Deviation (S.D), t-value, and p-value between the pre-test and post-test within Group – A & Group – B. A statistically significant difference exists between the pretest and posttest values within Group A and Group B (***- P ≤ 0.001). On comparing the mean values of Group A & Group B on the Menstrual Symptoms Questionnaire Score, it shows a significant decrease in the post-test mean values in both groups, but (Group B - Taping with Pelvic Tilt) shows 36.73, which has the lower mean value is more effective than (Group A - Connective Tissue Mobilization) 52.80 at P ≤ 0.001. Hence the null hypothesis is rejected.

Table 7: Comparison of Menstrual Symptoms Questionnaire Score Within Group – A & Group – B Between Pre & Post Test Values

Group	Pre-Test		Post-Test		t – Test	Significance
	Mean	S.D	Mean	S.D		
Group- A	68.53	16.26	52.80	16.26	17.33	.000***
Group- B	68.66	14.61	36.73	3.47	14.91	.000***

(- P ≤ 0.001)***

The above table reveals the Mean, Standard Deviation (S.D), t-value, and p-value between the pre-test and post-test within Group – A & Group – B. A statistically significant difference exists between the pre-test and post-test values within Group A and Group B (***- P ≤ 0.001). Comparing Pre-test and Post-test within Group A & B on NPRS, WaLIDD, and Menstrual Symptoms, the Questionnaire score shows a highly significant difference in mean values at P ≤ 0.001.

7. DISCUSSION

This study relieved pain during menstruation without any pathology to the pelvis; the condition is primary dysmenorrhea. It is very common nowadays to be in the early twenties. To control pain, many treatments have evolved. Pharmacological therapy is widely used but has many side effects, whereas physical therapies like exercise, TENS, and massage are very effective without side effects. Here the study is to find the effectiveness of connective tissue mobilization and taping with pelvic tilt exercise on unmarried women aged between 18 to 25 years with primary dysmenorrhea. In this study, 30 subjects were used under 18-25 years. They were selected based on inclusion criteria and divided into 2 groups, group(A) connective tissue mobilization (15) and group(B) taping with pelvic tilt exercise (15). These two technique gives good result in controlling menstrual pain. By physically stimulating the muscles and fascia under the skin, taping is a treatment that maximizes the body's natural recovery capacity and corrects the human body's equilibrium. According to this study's methodology, there are three benefits:1) To restore muscle balance, 2) To improve vascular and lymphatic flow, and 3) to decrease pain.[12] Connective tissue mobilization is more successful than lifestyle counseling alone when treating dysmenorrhea women's menstrual pain and symptoms.[16] The initial examination of our data revealed that a large percentage of women with primary dysmenorrhea might benefit from connective tissue mobilization, which is the potential ability to reduce menstrual discomfort.[17] Kinesio-taping relieves the pressure built upon the underlying tissue due to inflammation. Because inflammation aggravates the nociceptors, pain is felt. The proper use of kinesio-taping tape helps to elevate the skin microscopically, which results in skin deformation. This expands the skin's interstitial space, aids lymphatic fluid drainage, and lessens inflammatory reactions.[11,18] Connective tissue can be moved by the mechanical deformation caused by connective tissue mobilization strokes. Histamine is released from the mast cells. As a result, they are causing arteriolar dilation and localized edema. By doing so, the area will receive more blood flow, lessening inflammation. By removing the oncogenic substances from the tissues, the inflammation is decreased, which also decreases pain.[11,19] Physical function and overall health scores, which are quality of life subscales, were improved with kinesio-taping and lifestyle adjustments.[20] The pain during dysmenorrhea is majorly caused due to strong uterine contraction, interruption of blood supply, and release of hormone prostaglandin. The pain results from ischemia of vigorously contracting uterine muscles or due to hypertonicity of the uterine isthmus. This leads to the temporary retention of menstrual debris, causing pressure on a highly innervated uterus zone. Prostaglandins cause myometrium contractility that, if excessive, leads to uterine ischemia and pain.[21-24] Posterior pelvic tilts could reduce strain on the lumbar spine, decreasing sympathetic activity and providing pain relief. This exercise was also performed for the study period, which could have led to the conditioning of these muscles, hence improving their function and reducing pain in the subsequent menstrual cycle.[25] A possible explanation for the imbalance of the pelvis is the change in the position of the uterus, brought about by an excessive amount of prostaglandin secreted.[26] The pain felt in the low back during dysmenorrhea, referred from the abdominal region, may be due to traction on or inflammation of the pelvic peritoneum and because of the release of hormone prostaglandin and strong contraction of uterine musculature.[27,28] Pelvic tilts are particularly effective in relieving lumbar pain and taping augmented with pelvic tilting exercises effectively treats low back pain during pregnancy.[29] Limitations of the study: The sample size for the study was small, the age inclusion for the study in only between 18-25 years, the Intervention was only for 12 weeks, the study duration was only for 3 months, and the people who were married were only included in the study.

8. CONCLUSION

From the result and statistical analysis, the pain aggravation was reduced in both groups, but the effectiveness was a little more increased in the group who got taping and pelvic tilt intervention; hence they concluded that taping with pelvic tilt is more effective than connective tissue mobilization among the patient with primary dysmenorrhea. Because the subjects can perform the taping and pelvic tilt exercises once they have been taught so they can practice regularly, the connective tissue mobilization technique needs a therapist to be performed so that it can be done only at time intervals. So the effectiveness of treatment gets varied. Hence taping with pelvic tilt exercises can be added to treat dysmenorrheal patients for better pain management.

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10. AUTHORS CONTRIBUTION STATEMENT

K.Muthu Lakshmi & Rakshana. V.S. conceptualized, designed, and gathered data D.Monesh & Srilakshmi Moses analyzed these data. Inputs were given J.Arunselvi, Bernard Ebenezer

Cyrus & Thirulogachandar discussed the methodology and results and contributed to the final manuscript.

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11. CONFLICT OF INTEREST

Conflict of interest declared none.