

The Effectiveness of Connective Tissue Mobilization and Kinesio Taping to Enhance Quality of Life in Females with Primary Dysmenorrhea

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Abstract: ***Background of the Study:** Primary Dysmenorrhea is a spasmodic pain or cramp during menstruation which occurs without any pelvic disease. It is most commonly seen (50%-70%) in teenage girls and menstruating women which influencing them physically and mentally. Female with PD experiences pain and discomfort during menstruation which affects the quality of life. **Objective of the Study:** To find out and compare the effectiveness of Kinesio Taping and Connective Tissue Mobilization to reduce pain and improve the quality of life in females with Primary Dysmenorrhea. **Methodology:** An experimental study consists of 30 women with Primary Dysmenorrhea, aged between 18 to 35 years, they were randomly allocated into two equal groups according to selection criteria. Group A received Kinesio Taping, one day before menstruation for 2 sessions, 8 weeks and Group B received Connective Tissue Mobilization, one day before menstruation for 5 consecutive days, 8 weeks. Both groups were measured for pain by using pre and post tested by NPRS, MED-Q, WaLIDD scale. **Results:** The subjects who were supervised to attend all the sessions were shown a difference in their NPRS, WaLIDD, MED-Q score and reduce pain and discomfort in women with Primary Dysmenorrhea. The study concluded that Kinesio Taping is more effective than Connective Tissue Mobilization in reducing pain and improving QOL among females with PD.*

Keywords: Primary Dysmenorrhea, Kinesio Taping, Connective Tissue Mobilization and Quality of life

1. Introduction

The term dysmenorrhea is derived from the Greek word, 'dys' which means difficulty, 'meno' means month, 'rrhea' means flow. Dysmenorrhea, typically involves cramps caused by uterine contractions. It is also known as painful periods and menstrual cramps. Primary dysmenorrhea has no apparent structural abnormality or pathology. But it may occur due to an excessive level of prostaglandins, hormones that make uterus contract. It is otherwise known as spasmodic dysmenorrhea. Secondary dysmenorrhea is otherwise known as congestive dysmenorrhea. This is associated with structural abnormality or pathology, e. g. a fibroid, endometriosis, adenomyosis, pelvic inflammatory diseases, intrauterine devices, vaginal anomaly or infection. ⁽²²⁾ **Prevalence,** 50%-70% of women report dysmenorrhea. It starts with ovulatory cycles 6-12 months after menarche. Begins few hours before or with the onset of menstruation usually lasts 48-72hrs. The majority of 70.2% women typically experiences pain for 1-2 days during menstruation, while 23.2% experiences pain for 2-3 days. ^{(6) (7)}

ICF Overview of PD:

- *Body Structures and Functions:* High production of prostaglandin cause hypertonic isthmus in uterus leads to pain
- *Activities Limitations:* Learning and applying knowledge, Executing tasks and reduced physical activities

- *Participation Limitations:* Participation restriction in social, educational and work settings
- *Environmental Factors:* sound and light quality, transportations, workload etc.
- *Personal Factors:* Stressful life events, priorities and goals.

Anatomy: The uterus, or womb is a major female hormone responsive secondary sex organ of the reproductive system. It is a thick-walled hollow muscular pear-shaped organ, flattened anteverted and anteflexed in position. It lies in the pelvic cavity between the urinary bladder and the rectum. Uterus anatomically divides into four regions are Fundus, Body (corpus), Isthmus, Cervix and Cervical canal. An isthmus is a circular constriction between the body and cervix. Uterus has three layers the endometrium, myometrium and perimetrium. Uterus is supplied by both sympathetic and parasympathetic nerves through the inferior hypogastric and ovarian plexus. ⁽²⁰⁾

Kinesio Taping: Kinesio Taping method was discovered in 1979 by the Japanese doctor, chiropractor Kenzo Kase. Kinesio Tape is a cotton elastic fiber, waterproof, breathable, anti-allergic, without medications, with hypoallergic acrylic adhesive glue. Kinesio Taping is used mainly for non-sports (85%) and about (15%) for Athletes. The elasticity of the K-Tape is comparable to the extension capacity of the human muscle. The cotton fabric can only be stretched longitudinally by approximately 30-40%. Contra-indications, Open wounds, Unhealed scars, Dermatitis, Psoriasis, Pregnancy and Allergic

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to acrylic. Interventions that can be given to patients with primary dysmenorrhea are by providing Kinesio Taping which is carried out with the aim of Increasing the space between the epidermis and fascia, Relieves the pain, Mechanical correction of underlying tissues, Increasing the range of motion, Increasing the strength of the muscle. Kinesio Taping is very useful to do with the aim of neutralize the muscle tone of the lower abdomen and lower back muscles in females with primary dysmenorrhea. ⁽²⁵⁾

Connective Tissue Mobilization:

Connective Tissue Mobilization (CTM) is a manual reflex therapy that was developed in the late 1930s by Elisabeth Dicke in Germany. Hede Teirich-Luebe and Professor Wolfgang Kohlrausch supported and continued Dicke's work. These manipulative procedures are directed at the superficial connective and subcutaneous tissues and have an effect upon organs distant from the site of local stimulation in a manner. Contra-indications, Malignancy, Acute Inflammation or Closed Abscess, Third Trimester of Pregnancy. Connective Tissue Mobilization aims to obtain generalized and localized mechanical effects by stimulates such reflexes via the nerve endings. Connective Tissue Mobilization can rebalance the autonomic nervous system which improves energy and sleep patterns as well as feelings of relaxation. It improves functions of the tissues and enhance the texture, circulation, muscle tone, visceral functions of the skin and relieves the pain. ⁽²³⁾

2. Methodology

An experimental study with pre and post comparative study. This study consists of 30 women with Primary Dysmenorrhea, aged between 18 to 35 years, they were randomly allocated into two equal groups according to selection criteria. Group A consists of 15 members received Kinesio Taping, one day before menstruation for 2 sessions, 8 weeks and Group B consists of 15 members received Connective Tissue Mobilization, one day before menstruation for 5 consecutive days, 8 weeks. Both groups were measured for pain by using pre and post tested by Numerical Pain Rating Scale (NPRS), Distress by using Menstrual Distress Questionnaire (MEDI-Q), WaLIDD scale for working ability, location, intensity and days of pain in dysmenorrhea.

Treatment Techniques:

Connective Tissue Mobilization:

POSITION OF THE PATIENT: High sitting, Cross sitting, Prone lying.

3. Procedure

The treatment is usually applied with the middle and ring fingers through firm lifting strokes, beginning with a series of short strokes over the sacrum, lumbar spine, and posterolateral pelvis. The strokes get progressively longer and area around the sacrum is targeted first in order to desensitize the skin. The practitioner should aim to create a shear force between the skin and the deeper tissue layers in order to stimulate mechanoreceptors and mast cell activation.

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 5 times.

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.

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.

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.

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.

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.

REPITITION: Each stroke should be performed for 5 repetitions.

KINESIO TAPING:

POSITION OF THE PATIENT: Standing, Supine and Prone lying.

Application: 'I'-strong tape with the biggest effort, the tension is focused directly on the target tissue (therapeutic area).

Part 1: In general, approximately 15 cm of tape are required for the dorsal application over the spine. The patient stands with the trunk flexed. The tape strip is affixed over S1 with maximum tension (30%-60%). The tape ends are affixed without tension.

Part 2: For the ventral application over the symphysis, 10 cm tape vertically and 15 cm horizontally are generally required. The patient is standing with the trunk extended. The vertical tape strip is affixed above the symphysis with maximum tension. The horizontal tape strip is likewise affixed above the symphysis with maximum tension. All tape ends are affixed without tension.

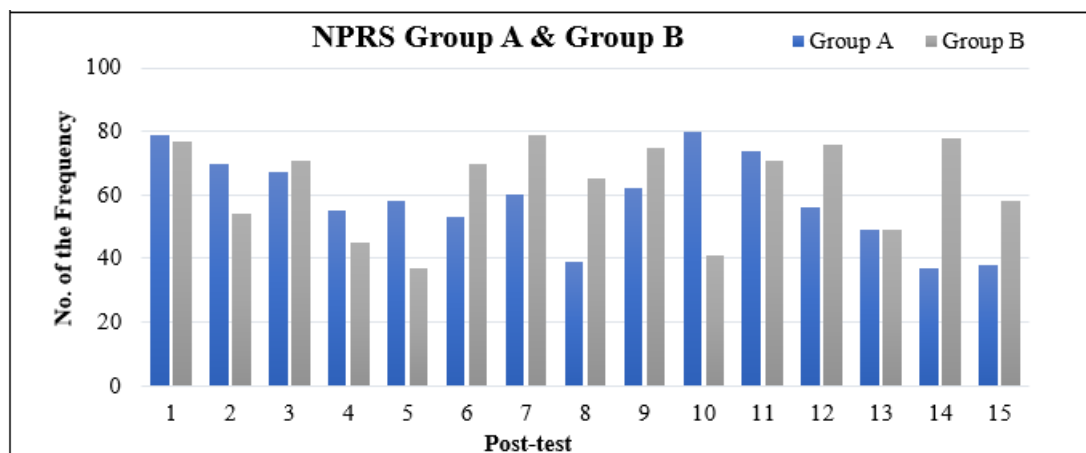
DURATION: The tape should be carried for 3-5 days along with the body tissue.

4. Statistical Analysis and Result

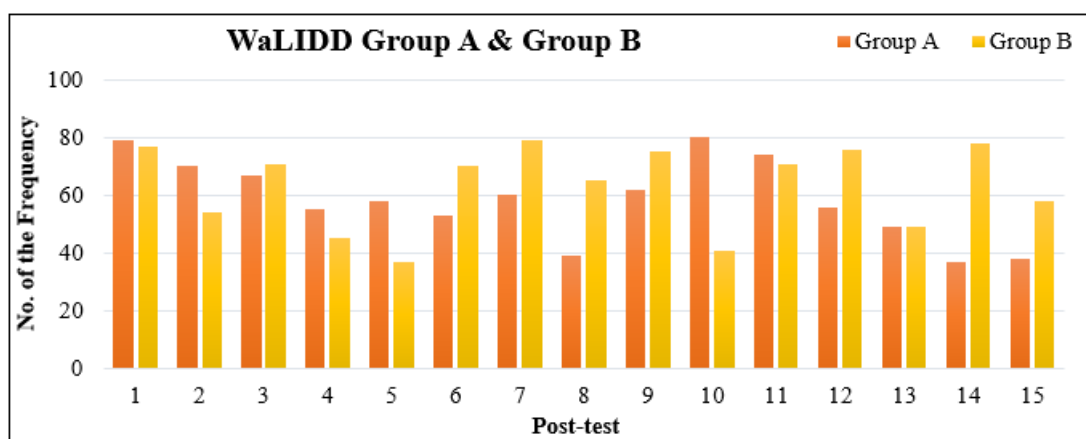
The study was conducted on 30 women were diagnosed with Primary Dysmenorrhea. To find out the effectiveness of

Connective Tissue Mobilization and Kinesio Taping techniques. Paired test was used to calculate and detect the significant difference between the groups. SPSS software 29th Edition was used to analyze the data. The mean and standard

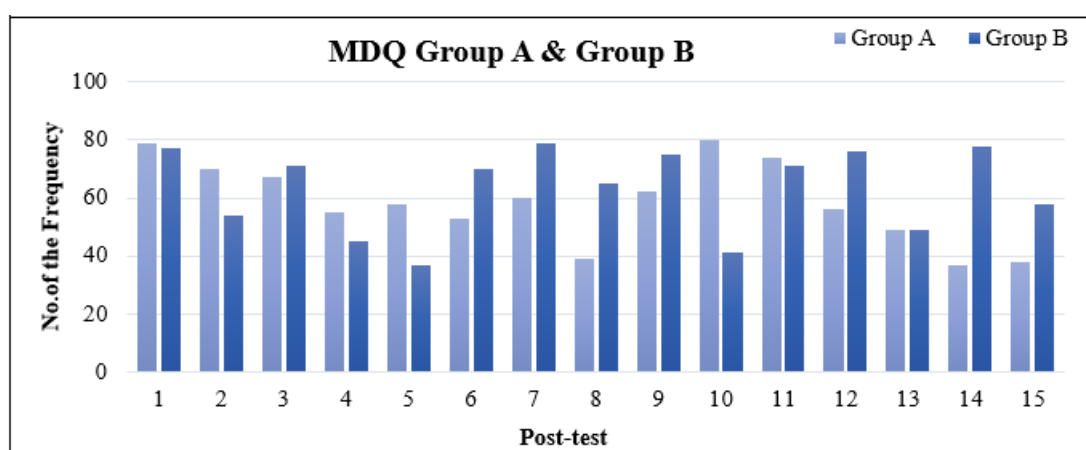
deviation was calculated using the below formula and effectiveness between and with the group was identified using Paired sample test and Independent 't' test.



Graph 1: NPRS Group A & Group B



Graph 2: WaLIDD Group A & Group B



Graph 3: MDQ Group A & Group B

5. Results

Changes in NPRS of the participants: The mean \pm standard deviation of Group A in pre-test is $6.6000^a \pm 1.18322$, in post-test is $5.6000^a \pm 1.18322$ and paired difference is 0. The mean \pm standard deviation of Group B in pre-test is 6.666 ± 1.290 , in post-test is 4.733 ± 1.437 and paired difference is 1.679 ± 2.186 . The mean \pm standard deviation of Group A and B pre-

test in independent sample test is 6.6000 ± 1.18322 and 6.6667 ± 1.29099 , then post-test is 5.6000 ± 1.18322 and 4.7333 ± 1.43759 .

Changes in WaLIDD of the participants: The mean \pm standard deviation of Group A in pre-test is 6.5333 ± 0.7322 , in post-test is 5.0000 ± 1.00000 and paired difference is 1.24736 ± 1.81930 . The mean \pm standard deviation of Group B in pre-test is 6.0000 ± 1.06904 , in post-test is $4.7333 \pm$

1.09978 and paired difference is 1.01318 ± 1.52015 . The mean \pm standard deviation of Group A and B pre-test in independent sample test is 6.5333 ± 0.7322 and 6.0000 ± 1.06904 , then post-test is 5.0000 ± 1.00000 and 4.7333 ± 1.09978 .

Changes in MEDI-Q of the participants: The mean \pm standard deviation of Group A in pre-test is 61.6000 ± 13.89142 , in post-test is 58.4667 ± 13.99932 and paired difference is 2.72175 ± 3.54492 . The mean \pm standard deviation of Group B in pre-test is 66.2667 ± 14.58212 , in post-test is 63.0667 ± 14.53305 and paired difference is 2.77104 ± 3.62896 . The mean \pm standard deviation of Group A and B pre-test in independent sample test is 61.6000 ± 13.89142 and 66.2667 ± 14.58212 , then post-test is 58.4667 ± 13.99932 and 63.0667 ± 14.53305 .

6. Discussion

The purpose of this study is to analyze the effects of Kinesio Taping and Connective Tissue Mobilization to reduce pain among PD women. This study has done the treatment technique for 8 weeks. 30 samples were divided into 2 groups each consists of 15 participants. Group A connective tissue mobilization and Group B kinesio taping. These two techniques give good result in controlling menstrual pain. This study had no restriction to the diet and medication of the subjects. The independent variables in this study are Connective Tissue Mobilization and Kinesio Taping. The dependent variables in the study are NPRS, WaLIDD and MEDI-Q. According to this study's methodology, there are three benefits: To improve vascular and lymphatic flow, and to decrease pain. Connective tissue mobilization is successful and effective along with abdominal exercises when treating dysmenorrhea women's menstrual pain and symptoms ⁽¹¹⁾. Kinesio-taping is effective in relieves the pain and pressure built upon the underlying tissue due to inflammation. The proper use of kinesio taping 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 ⁽⁹⁾. Physical function and overall health scores, which are quality of life subscales, were improved with kinesio taping and lifestyle adjustments.

7. Conclusion

From the results and statistical analysis, this study concluded that Kinesio Taping is more effective than Connective Tissue Mobilization in pain reduction and improves the quality of life among the women with Primary Dysmenorrhea.

8. Limitations of the Study

This study was limited in the age group between 18-35 years. The sample size in this study was small. Long term effects of treatment were not assessed due to short duration of time. Outcome measurement WaLIDD and MEDI-Q were used. The Adolescent Dysmenorrhea Self-Care Scale (ADSCS), Dysmenorrhea Symptom Interference Scale (DSIS) and Dysmenorrhea Daily Dairy can also be used.

9. Recommendations of the Study

The sample of this study design was small and it can be done on bigger samples. The study duration can be extended and monitor the long-term effects. The study group can be categorized into many groups such as with and without medication, with and without dietary approach, etc.

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