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Effectiveness of abdominal and pelvic diaphragm release technique along with hot water fomentation in patients with primary dysmenorrhea using WaLIDD scale and vas-A comparative study

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Abstract

Background: Primary dysmenorrhea (PD) states to painful cramps before and/or during menstruation. There is a need for emphasis on alternative methods of conservative treatment, so as to reduce the dependence on drugs for alleviating the symptoms. Primary dysmenorrhea is also associated with significantly high economic burdens due to absenteeism, and 2-3fold increased healthcare costs. It is seen that myofascial release technique is effective in reducing pain in musculoskeletal pain and muscle relaxation

Objective: The main aim of this clinical study is to determine the effect of Abdominal and Pelvic Diaphragm Release technique along with Hot Water Fomentation in Patients with Primary Dysmenorrhea using WaLIDD Scale and VAS.

Settings and Study Design: study done on students of M.G.M. Allied Health Sciences Institute, MAHSI, Govt, Autonomous M.G.M. Medical College Indore (M.P.)

Material and Methods: N:60 female subjects with participated in the study, underwent treatment after giving their informed consent. They were evaluated for mild and moderate dysmenorrhea through WaLIDD score and VAS and then treatment given. Post-treatment VAS and WaLIIDD were recorded.

Data Analysis: Data were analyzed by SPSS software 25.0 (Trial unpaired t-test version), Mann Whitney U test had been used.

Result: N: 60 females were studied in this present research design. The mean of all respondent (60) found to be 23.80 ± 3.06 years while the range of age was from 18-35 years. There was a gross statistical mean difference in VAS and WaLIDD were found as pre-test was 4.92 ± 1.24 and 5.88 ± 1.12 to post-test was 3.52 ± 1.16 and 4.05 ± 1.05 .

Discussion and Conclusion: Abdominal and pelvic diaphragm release along with Hot Water Fomentation is effective in instant pain reduction in primary dysmenorrhea.

Keywords: Abdominal diaphragm release technique, primary dysmenorrhea, menstrual pain

Introduction

Dysmenorrhea is resulting from a Greek word meno (Month) and rheas (flow) which means problematic menstrual flow. The involvement of pain with menstruation is common for 70–91% of teenagers [1]. Dysmenorrhea is defined as painful Menstruation, discomfort in lower abdomen, thighs or lower back during menstruation and is the most common problem faced by women in their reproductive age. Dysmenorrhea is of 2 types according to its pathophysiology i.e., Primary dysmenorrhea (PD) and secondary dysmenorrhea (SD). PD is pain due to normal ovulatory cycles, absence of any pelvic pathology, commonly seen in young girls and is physiological origin secondary dysmenorrhea is painful menstruation created by pelvic pathological disease like Endometriosis, inflammatory disease or uterine Leiomyoma. Pain begins with the flow or a few hours before it starts and persists for 12 to 72 hours and it is described to be similar to labor pain [4]. Dysmenorrhea is one of the greatest reasons of nonappearance from both school and work resultant in large financial, social, and health expenses. Furthermore, dysmenorrhea has troublesome effects on quality of life, normal activities, and individual, family and school alteration [5].

Prevalence: According to the available data, worldwide dysmenorrhea can affect up to 97% of women. For young women aged 17–24 years, the reported rate is between 67% and 90% [6].

In Rewa, Rural area of central India Prevalence of Menstrual Disorders among Adolescent Girls and Women, the overall prevalence of dysmenorrhea was 102 (59.64%). Dysmenorrhea affected daily activities in 90 (52.63%) participants [7]. Prevalence of dysmenorrhea among adolescent girls studying in government municipal high schools of Tirupati, India was found 67.7% [8].

Need of the Study

During years of adolescence and youth having severe menstruation pains is the main reason for absence of women from work and school, thus it is important to pay attention to its reasons and solutions for reducing it. There is limited studies on myofascial release technique while there is positive effect of various therapeutic and non-therapeutic practices in dysmenorrhea so there is a need to observe the effect of Abdominal and Pelvic diaphragm release along with Hot Water Fomentation in primary dysmenorrhea using WaLIDD and VAS.

It is necessary to find a way to reduce dysmenorrhea by instant technique i.e. Myofascial release technique as dysmenorrhea is very commonly seen in females.

With the help of Myofascial release technique, we want to improve quality of life of females suffering from menstrual pain because dysmenorrhea causes restriction in activity of daily living.

Literature Review

Elaheh Karimi *et al.* (2014) [4] at Shariati Hospital of Bandar Abbas, Iran in their study they compare Kegel exercises and stretching exercises on menstrual pain of females aging 18 to 25 having primary dysmenorrhea found that both Kegel and stretching exercises have an effect on both length and duration of menstrual pain.

Kristina S Gamit *et al.* (2014) [5] in their study “The effect of stretching exercise on primary dysmenorrhea in adult girls” at SBB College of Physiotherapy, Ahmedabad, Gujarat concluded that: Stretching exercises are effective in pain reduction in young females with primary dysmenorrhea.

Lais Rodrigues Gerzson *et al.* (2014) [6] in their study “Physiotherapy in primary dysmenorrhea: literature review” concluded that use of various therapy like thermotherapy, cryotherapy, transcutaneous electric nerve stimulation and connective tissue massage, Pilates and acupuncture with improvement of dysmenorrhea.

M.S. Ajimsha *et al.* (2014) [13] in their study “Find effectiveness of myofascial release: systematic review of randomized controlled trial” showed effectiveness of MFR.

Mario I Ortiz 1 *et al.* (2015) [7] in their study “Effect of a physiotherapy program in women with primary dysmenorrhea” concluded that strengthening, stretching and muscle relaxation techniques, in addition to jogging, are effective for reducing dysmenorrhic symptoms.

Hankyu Park *et al.* (2015) [14] students of S university, Busan, Republic of Korea in their study “The effect of the relation between the contraction of the pelvic floor muscles and diaphragmatic motion during breathing showed that PFM strengthening exercises should be included in respiratory rehabilitation programs because the PFM can affect diaphragmatic motion and pulmonary function.

Taciano Rocha *et al.* (September 2015) at Physiotherapy Department of the Universidad Federal de Pernambuco,

Brazil in their study “The Manual Diaphragm Release Technique improves diaphragmatic mobility, inspiratory capacity and exercise capacity in people with chronic obstructive pulmonary disease: a randomized trial” concluded that The Manual Diaphragm Release Technique improves diaphragmatic mobility, exercise capacity and inspiratory capacity in people with chronic obstructive pulmonary disease.

Methodology

Research Study Design: Comparative study

Study Setup: The study was conducted in M.G.M Allied Health Science Institute, MAHSI, Govt. Autonomous M.G.M. Medical College Indore (M.P.)

Type of Sampling: Purposive Sampling

Study Tools

1. WaLIDD (Working ability, Location, Intensity, Days of pain Dysmenorrhea)
2. VAS (Visual Analog Scale)

Inclusion criteria

1. Women having primary dysmenorrhea.
2. Women having age group of 18-35 years.
3. Women willing to participate.
4. Women who will not take medicine for dysmenorrhea.
5. Women having mild and moderate Visual Analog Score (VAS) and Working ability, Location, Intensity, Duration of Dysmenorrhea (WaLIDD)

Exclusion criteria

1. Women having secondary dysmenorrhea.
2. Women have some other systemic diseases like blood pressure, diabetes, and thyroid.
3. Women whom is taking drugs, alcohol and involved in regular physical activity.
4. Women not willing to participate.
5. Women who will take medicine for dysmenorrhea.
6. Women having severe Visual Analog Scale (VAS) and Working ability, Location, Intensity, Duration of Dysmenorrhea (WaLIDD)
7. Dysmenorrhea (WaLIDD)

Sample Size: N= 60 Subject

Study Duration: 6 Months

- [Preparation, and presentation and submission of thesis proposal to ethical committee (synopsis) - 2 Months.
- Data collection, intervention and analysis – 3 Months
- Report writing and final submission of thesis – 1 Month]

Results

The present study entitled, “Effectiveness of Abdominal and Pelvic Diaphragm Release technique along with Hot Water Fomentation in Patients with Primary Dysmenorrhea using WaLIDD Scale and VAS

-A Comparative Study” is carried out at M.G.M. Allied Health Sciences Institute (MAHSI) Indore.

A maximum of sixty female had mild and moderate Primary Dysmenorrhea were randomly selected and deemed fit into inclusion-exclusion criteria and further used for statistical analysis purposes.

The data was collected before the interventions designated as baseline observations for sampling. The data was

recorded after the intervention and utilized for further scientific statistical analysis as post-intervention observations. The present chapter of data analysis and results is comprised with tabulation graphical presentation of data and statistically analysed and interpretations with inferences.

Main features and characteristics

A total of 60 females were studied in this present research design. The mean of all respondent (60) found to be 23.80±3.06 years while the range of age was from 18-35 years.

There was a gross statistical mean difference in VAS and WaLIDD were found as pre-test was 4.92±1.24 and 5.88±1.12 to post-test was 3.52±1.16 and 4.05±1.05.

Table 1: Mean distribution of age of participants

Age	Frequency	Percentage (%)
<20	11	18.3
21-25	33	55.0
26-30	14	23.3
>31	2	3.3
Total	60	100
Mean±SD	23.80±3.06	

The above table shows the mean age distribution with standard deviation which is 23.80±3.06 years while the range of age was from 18-35 years.

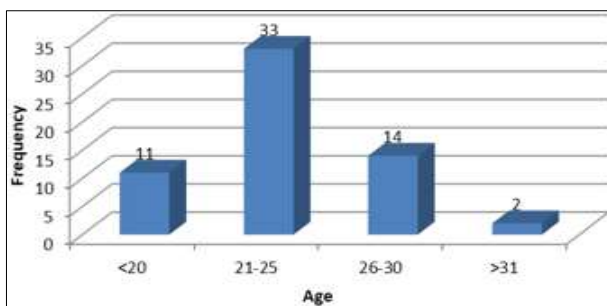


Fig 1: Age-wise distribution of subjects

Table 2: Comparing Mean, Standard deviation and Median of pre and post-WaLIDD

Parameter	Mean±SD	Median (Q1; Q3)	Wilcoxon signed rank test	p-value
WaLIDD Pre	5.88±1.12	6(6;3)	-70.49	<0.0001
WaLIDD	4.05±1.05	4(7;5)		

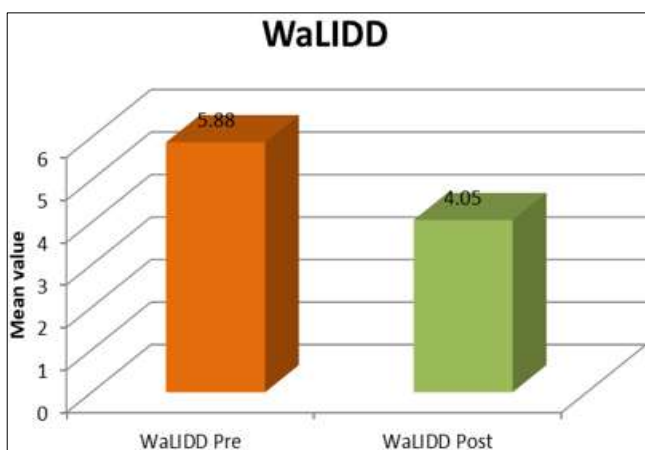


Fig 2: Comparison of the pre and post-WaLIDD score value

Table 3: Comparing Mean, Standard deviation and Median of pre and post-VAS

Parameter	Mean±SD	Median (Q1;Q3)	Wilcoxon Signed Ranktest	p-value
VAS Pre	4.92±1.24	5 (4; 3)	-7.045	<0.0001
VAS Post	3.52±1.16	4 (6; 4)		

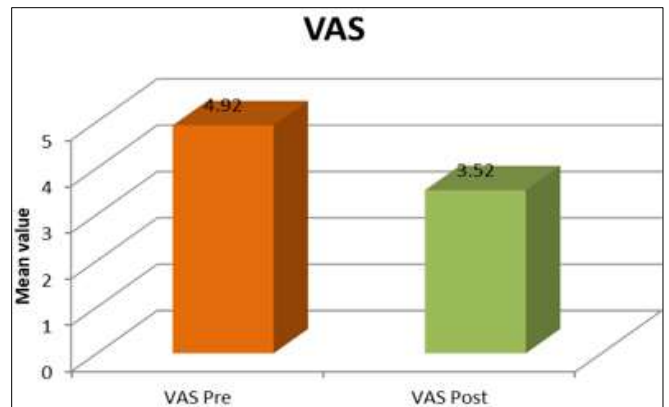


Fig 3: Comparison of pre and post VAS value

Discussion

The aim of the study was to find out effectiveness of Abdominal and Pelvic diaphragm release technique along with hot water fomentation in primary dysmenorrhea using VAS and WaLIDD. In our study intervention was implemented on 60 participants with primary dysmenorrhea. In this study VAS and WaLIDD used as an assessment tool which is used in various studies for female menstrual health assessment regarding their menstrual symptoms like pelvic pain, low back pain, lower abdominal pain. Assessment was taken on basis of VAS and WaLIDD score for Mild and Moderate Dysmenorrhea. Abdominal and pelvic diaphragm release technique were applied and post-intervention was recorded and interpretation done with statistical tools. Statistical analysis shows significant difference in primary dysmenorrhea, results shows significant changes in WaLIDD from 5.88 to 4.05 respectively with mean difference of 1.83 and in VAS from 4.92 to 3.52 respectively with mean difference of 1.4. This indicate that Abdominal and Pelvic diaphragm Release technique along with Hot Water Fomentation is effective in reducing menstrual symptoms. The physiology behind menstrual pain is according to the theory of prostaglandins (PG), Prostaglandins cause tapering of the blood vessels supplying the uterus, irregular contractile activity of the uterus, which leads to ischemia, hypoxia of the uterus and increased sensitivity of the nerve endings 8. The theory behind this manual therapy treatment is by stimulation of the vagus nerve, provoking responses from the parasympathetic nervous system. As a result, vasodilation of the blood vessels within the pelvic organs occurs, increasing oxygen perfusion and thus, decreasing pain caused by ischemia [14]. Previous literature showed Myofascial release is very effective for PD a similar study was done by Jingyun Xu *et al.*, that adding myofascial release ($p \leq 0.01$) with biofeedback & electrical stimulation showed superior outcomes when compared with those biofeedback & electrical stimulation alone in women with Myofascial Pelvic Pain [24]. Sadia Khan *et al.* (2022) [3] in their study they compare effect of Effects of Myofascial Release and Pelvic Floor Muscle Exercises in Women with Primary Dysmenorrhea

and showed that both the techniques had significant results but myofascial release technique had more relieving symptoms in primary dysmenorrhea [3].

Zofia Barcikowska *et al.* (2022) [2] in their study they compare the effect of manual therapy and ibuprofen on primary dysmenorrhea showed similar effect of these two but in manual therapy treatment less muscles dysfunction were detected in patients with primary dysmenorrhea were free from side effects [4].

Laís Rodrigues Gerzson *et al.* (2014) [6] in their metanalysis showed that the use of thermotherapy, cryotherapy, transcutaneous electric nerve stimulation and connective tissue massage, Pilates and acupuncture with improvement of Dysmenorrhea [36].

This study provides addition of myofascial release into the dysmenorrhea management process, It seems that including physiotherapy as an additional method for treating patients with dysmenorrhea, aimed at decreasing pain, is an innovative, non-pharmacological and effective solution. Finally, it is essential to note that physiotherapy procedures used in manual therapy are non-invasive, thus, their implementation is safe and the risk associated with manual therapy is lower than for ibuprofen or other pharmacotherapies.

Conclusion

In this study alternative hypothesis is accepted so concluded that Abdominal and Pelvic diaphragm release along with Hot Water Fomentation are effective in primary dysmenorrhea. Statistical analysis shows significant difference in primary dysmenorrhea, results shows significant changes in WaLIDD from 5.88 ± 1.12 to 4.05 ± 1.05 and in VAS from 4.92 ± 1.24 to 3.52 ± 1.16 so it shows that abdominal and pelvic diaphragm release along with hot water fomentation is effective treatment in females having primary dysmenorrhea alternative to pharmacological treatment to avoid side effects.

Conflict of Interest

Not available

Financial Support

Not available

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