EFFECT OF PELVIC ROCKING EXERCISE VERSUS PELVIC BRIDGING EXERCISE WITH FAST KEGEL'S EXERCISE ON PRIMARY DYSMENORRHEA IN UNDERGRADUATE FEMALESTUDENTS.

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ABSTRACT

Introduction: One of the most common symptoms among women of reproductive age during menstruation is dysmenorrhea, which is typified by pain in the lower abdomen. In India prevalence of dysmenorrhea was (79.7%). At age 24, the degree of dysmenorrhea was less severe than at age 19. The most prevalent Pre Menstrual Symptoms in primary dysmenorrhea include irritability, sense of abdominal distension, nausea, breast discomfort, dermatological issues like acne, anxiety, mood swings, and changed appetite, headaches, posterior lumbar or pelvic pain, low quality sleep, diarrhoea, leg pain and headaches. **Methodology:** In this **s**udy126 participants were included based on inclusion criteria. Participants were screened for Intensity of pain in dysmenorrhea which was measured by using Numerical Pain Rating Scale and WaLIDD Scale before commencing the treatment and after the termination of the treatment. Participants were divided into two groups Group A (**Pelvic Rocking Exercise with Fast Kegels Exercise**) and GroupB (**Pelvic Bridging Exercise with Fast Kegels Exercise**) along with the warm- up and cool- down in addition to set treatmentprotocol4 days per week for four weeks. **Result**: The Median of pre and post values were compared using Wilcoxon signed Rank Test for intra group result. The result showed statically significant difference within the group ($p<0.001$) for all parameters and statistically significant between group difference were found. **Conclusion**: This study concluded that Pelvic Bridging with Fast Kegels exercise was more effective than Pelvic Rocking with Fast Kegels exercise in reducing Primary Dysmenorrhea.

KEYWORD: Pelvic Rocking exercise, Pelvic Bridging exercise, NPRS scale, WaLIDD scale.

INTRODUCTION

Lower abdomen discomfort is a hallmark of dysmenorrhea, one of the most common symptoms among women of reproductive age during menstruation.[1] The term dysmenorrhea is derived from the Greek words Dys - refers to difficulty, pain, or abnormality, Meno- relates to the

menstrual cycle or month, and – rrhea signifies flow or discharge. Together, they describe an abnormal, painful, or difficult menstrual flow.[2] Painful menstruation or dysmenorrhea, affects anywhere from 50% to 90% of teenage girls and women who are of reproductive age.[3] One to three percent of cases of absenteeism from work and school are related to dysmenorrhea.[4] It describes intense, excruciating lower abdominal cramping that frequently occurs before or during menstruation and is accompanied by other biological symptoms such as headache, nausea, vomiting, diarrhea, tachycardia, and sweating.[5] The severity of dysmenorrhoea was lower at 24 years of age than at 19 years. The prevalence of dysmenorrhea was lower at 24 years of age than at 19 years of age.[6] A prevalence survey carried out in Morocco in 2020 found that 78% of teenage girls enrolled in school experience dysmenorrhea. The prevalence of primary dysmenorrhea was found to be 84.2% among 310 girls between the ages of 18 and 25.[7] In contrast to Ethiopia (85.1%), Nigeria (83.1%), the United States (85.0%), Australia (88.0%), Japan (15.8%), and India (79.7%), Egypt had a significant prevalence of dysmenorrhea (75.0%). Of the diagnosed instances, 30.0% were categorized as moderate, 14.8% as severe, and 55.3% as mild.[8] Primary and secondary dysmenorrhea are the two forms of dysmenorrhea. In women without pelvic disease, basic primary dysmenorrhea is characterized by menstruation that is extremely painful. Usually, it starts 6 to 12 months following menarche.[9] The most prevalent symptoms of primary dysmenorrhea include irritability, migraines, nausea, breast discomfort, acne or dermatological issues, anxiety, mental changes, altered appetite, low-quality sleep, diarrhea, lower limb pain, migraines, and joint pain, as well as a feeling of distension in the abdomen.[10] Sharp lower abdomen discomfort that is localized in the suprapubic region and may radiate to the upper thighs and lower back is a common symptom of dysmenorrhea.[11] Primary dysmenorrhea encompasses complex symptoms such dizziness, mood swings, backache, headaches, nausea, vomiting, anxiety, fatigue, syncope, lower abdomen cramps, bloating, breast tenderness, and dizziness. Insomnia, vertigo, depression, agitation, and anxiety can all be symptoms of poor sleep quality brought on by severe dysmenorrhea.[12] Pain usually begins a few hours after the menstrual cycle begins and peaks on the first or second day of the period, when the flow is at its highest. Usually beginning just before or during the beginning of menstruation, cramps and pelvic discomfort last for one to three days.[13] Overproduction of prostaglandins, which results in uterine contractions and ischemia and the start of discomfort, is one of the main reasons of dysmenorrhea.[2] When fibroids, adenomyosis, pelvic inflammatory

disease, or endometriosis are present, the discomfort is attributed to an underlying pathology and is known as secondary dysmenorrhea. The hormone progesterone in the endometrium releases prostaglandins during the ovulatbhory phase, which is why menstruation hurts. [1] It can happen at any age, but women between the ages of 20 and 45 are the ones who experience it most frequently. [14] Endometriosis, fibroids (myomas), adenomyosis, endometrial polyps, pelvic inflammatory disease (PID), and intrauterine contraceptive device use are common causes of secondary dysmenorrhea. Dysmenorrhea prevalence varies greatly over the world, from 15 to 94%.[15] Primary dysmenorrhea, more common in teens and young adults, is linked to healthy ovulatory cycles and the absence of pelvic disease. After ovulation, progesterone withdrawal leads to a release of arachidonic acid, which helps produce prostaglandins and leukotrienes in the uterus. Estrogens stimulate this pathway, while progesterone inhibits it. Without progesterone, increased estrogen triggers more prostaglandin production, causing inflammation and dysmenorrhea symptoms like bloating, headaches, nausea, and vomiting. The pathogenesis involves vasoconstriction, uterine contraction, and the production of inflammatory mediators that stimulate pain fibres. [12]Increased prostaglandin levels result in pain due to uterine contraction and myometrial tone. Vasopressin (ADH) also contributes to the pathogenesis of primary dysmenorrhea by increasing uterine contraction, which results in ischemia. Dysmenorrhea can be treated using both pharmacologic and non-pharmacologic techniques. Exercising and using alternative approaches have been shown to benefit dysmenorrhea patients. [16]Non-pharmacological treatments are generally safe and low risk. Healthy therapeutic approaches include modifying diet, getting adequate rest and engaging in regular physical activity.[17] Natural remedies for dysmenorrhea include heating the lower back and abdomen, consuming hot water with lemon or ginger tea, chamomile tea for pain relief, taking 30 mg of fennel seeds four times a day for three days, and eating high- fiber foods like avocados that are high in boron. Exercise also improves circulation to the pelvic area and releases endorphins, which neutralize prostaglandins, which are hormone-like substances that cause the uterine muscles to contract during menstruation.[18] Research suggests that home exercise can alleviate menstrual cramps, strengthen abdominal and lower back muscles, reduce stress, enhance mood.[16] For dysmenorrhea, Kegel and pelvic rocking exercises are frequently used to manage dysmenorrhea. Kegel exercises include repeatedly contracting and relaxing the pelvic muscles that support the body. During pelvic rocking exercises, the abdominal and pelvic muscles are deeply contracted,

which causes the uterine muscles to move slightly and get stronger.[17,19] Exercises including pelvic rocking are essential for lowering dysmenorrhea and can help keep the body in good condition. [2] Pelvic rocking exercises involve deep breathing to tense the buttocks and deep abdominal muscles, causing a tiny movement inside the uterus. Exercises that involve pelvic rocking have been shown to reduce the discomfort associated with menstruation, ease back pain, improve flexibility, restore mobility maintain a toned abdomen, soothe stiff back muscles, and improve circulation in the discs and spinal tissues. [18] Therefore, teens need to be taught how to exercise to strengthen their abdominal muscles, help with mental and physical recovery, and lessen discomfort, fatigue, Fragility, and nausea.[16] Pelvic rocking exercises are beneficial for easing back pain, increasing vasodilatation, reducing increased ischemia through the shunting blood away from the viscera, inhibiting prostaglandins, and releasing endogenous opiates (beta endorphins). These actions improve circulation to the pelvis and alleviate dysmenorrhea. These actions improve circulation to the pelvis and alleviate dysmenorrhea. [18]Arnold Kegel played a significant role in popularizing awareness of the pelvic floor and the value of pelvic floor exercises for women by first studying pelvic floor repair following difficult births.[19] Kegel exercises originated in the late 1940s when Arnold Kegel employed the idea of "drawing in the perineum" in an exercise program that involved a kind of vaginal cone. Exercises for the pelvic floor, commonly known as Kegel exercises, consist of a series of repeated movements that involve tightening and relaxing the pelvic floor muscles.[20,21,23] Kegel exercises can reduce the severity and duration of primary dysmenorrhea pain.[22] Since Arnold Kegel developed the idea and his early research showed an 84% improvement, several investigations have confirmed the benefits of Kegel exercises.[21] Another research found that Kegel exercises had satisfaction rates as high as 86% and success rates as low as 27%.[20] Kegel exercises strengthen the muscles that make up the pelvic floor by continuously tightening and releasing them. Kegel exercises are thought to be a crucial part of pelvic floor muscle rehabilitation. The benefits of pelvic floor muscle training include strengthening the connective tissue inside the muscles, boosting the recruitment of active motor neurons, increasing the hypertrophy of the local skeletal muscle, and raising the cortical awareness of the muscle groups. [24] One possible mediator of pain in primary dysmenorrhea is vasopressin, as evidenced by the reduction in pain brought on by limiting its action. It is thought that symptomatic women have less uterine reperfusion than asymptomatic women due to higher basal tone and poorly coordinated contractions, which are linked to a brief

loss of perfusion during uterine contractions.[25,26] Exercise alters the reproduction of hormone secretion, suppresses reduces endometrial growth and diverts blood flow away from the uterus by increasing the estrone-estradiol ratio and causing prostaglandin to be released. Additionally, it causes the brain's own analgesics, endogenous opiate peptides, estrogen, dopamine, and natural endorphins, to be released in greater amounts.[27] Exercise's ability to increase endorphin secretion and reduce inflammation has led to a number of studies examining its effectiveness in treating primary dysmenorrhea. Numerous techniques have been looked at, including mixed exercise regimens, strength training, aerobic activities, yoga, progressive muscle relaxation, and the Kegel manoeuvre in addition to relaxation techniques including self-administered massage and progressive muscle relaxation.[28,29,31]Vitamin D is a potentially effective treatment for dysmenorrhea because it lowers inflammation and prostaglandin levels. Research indicates that taking supplements of vitamin D helps reduce discomfort. Vitamin D lowers inflammatory markers and blocks pain-sensing impulses at the dorsal root ganglion. It has been documented that a vitamin D deficiency can cause or worsen the symptoms of dysmenorrhea. [29,30]Numerous techniques, including relaxation exercises, have been studied. Since yoga involves physical breathing exercises, it helps to enhance blood circulation. several yoga positions that can ease cramps and other issues associated with getting your period.[31,32] Dysmenorrhea can be treated with aromatherapy. It has been demonstrated that combining massage with lavender aromatherapy reduces the severity of primary dysmenorrhea pain. [33The WaLIDD score is a great way to find women who have dysmenorrhea or physical inabilities caused by dysmenorrhea. The diagnosis of dysmenorrhea is clinical, and some studies use numerical pain scales that also classify intensity; others include characteristics like the intensity of pain, the inability to perform daily activities, or the need for analgesic management (local or systemic), among others.(28,32) Pain intensity is a visual representation of how much pain a person is experiencing" The Visual Analog Scale (VAS), Numeric Rating Scale (NRS), Verbal Rating Scale (VRS), and Pale Scale-Revised Faces are a few of the methods that may be used to measure a person's level of discomfort. [34] Reduced blood flow, hormonal changes, and increased uterine activity are all linked to menstrual discomfort. Pain can be colicky and located in the lower abdomen or extend to the lower quadrants, lumbar area, or thighs. The lumbopelvic structure, which includes the paraspinal, gluteal, and multifidus muscles, abdominal muscles, diaphragm, and pelvic floor muscles, supports the core region and may affect uterine position

and cause menstrual pain. [35] Treatments for dysmenorrhea include massage, microwave diathermy, hot water bottles, heat wraps, transcutaneous electrical nerve stimulation, and more.[36,37]

METHODOLOGY

Materials: Exercise mat, stop watch, pen, NPRS (numerical pain rating scale), WaLIDD (working ability, location, intensity days of pain, dysmenorrhea).Experimental Study done at Physiotherapy OPD at D. Y. Patil, Hospital and Research Center Kolhapur. Using Consecutive sampling. Study design Randomized clinical trial. Sampling Technique - Envelope Method for duration of 1yearSample size – 126The sample size is calculated by using prevalence Prevalence of Dysmenorrhea is 70.2%Margin of error is 8 %. Participants who fulfilling inclusion and exclusion criteria were considered. Inclusion criteria Females with primary dysmenorrhea, menstrual pain at least 1 – 2 days of menstrual cycle, undergraduate female students, age between 17 - 23 years, females with regular menstrual cycle (25 days- 35 days), females who are willing to participate. Exclusion criteria Females with secondary dysmenorrhea, females using any painkillers, females with any pelvic pathology.

PROCEDURE: Ethical clearance (IEC 296/2023) was obtained from research ethical committee of D.Y. Patil Education society Kolhapur. All the participants met the inclusion and exclusion criteria for screening. The participants were given an explanation of the study's goal. The duration of present randomized controlled study was from JAN 2023 to JUNE 2024 conducted on 126 participants. By convenience sampling participants were included in group A (pelvic rocking with fast Kegel's) and group B (pelvic bridging with fast Kegel's) and each participant provided their written consent. Dysmenorrhea symptoms ranged from mild to severe for every subject. Following a comprehensive history and clinical examination, the participants were chosen based on the diagnosis of primary dysmenorrhea. The D. Y. Patil Education Society, Kolhapur's Research Ethics Committee accepted the study protocol after fully informing the participants about the research course and obtaining their written and verbal informed consents. Two groups—Group A (pelvic rocking) and Group B (pelvic bridging)—were randomly selected from among the participants. Group A subject were asked to pelvic rocking exercise (14 repetitions with 30 sec hold; for 60 sec rest in between) with fast Kegel's exercise (90

contractions withhold time of 5-10 seconds in three sets of 30 with 2 minutes break in between) 4 days/ week for 4 weeks and Group B will be given Pelvic bridging exercises (14 repetitions with 30 sec hold; for 60 sec rest in between) with fast Kegel's exercise (90 contractions withhold time of 5-10 seconds in three sets of 30 with 2 minutes break in between) 4 days / week for 4 weeks. in D.Y. Patil hospital, Physiotherapy OPD. In the Pre-test (5th day of first cycle before doing exercise) and post-test (First day of 2nd cycle after doing exercise) every participant had their level of pain assessed. Pre and Post intervention outcome was assessed which were NPRS and WaLIDD Scale, GROUP A: PELVIC ROCKING + FAST KEGEL'S EXERCISES

Warm up – Joint mobility exercise, for bilateral UL and LL for 10 minutes. Participants in group (A) were instructed to perform a warm-up before doing pelvic rocking with fast Kegel's exercise. During the menstrual cycle, Group A was instructed not to engage in any stretching activities.

The following were the exercises that were recommended: Maintain a straight posture while rotating your right hand ten times in a clockwise manner and then ten times in an anticlockwise direction. Do the same with your left hand. Lift the right leg, rotate it ten times in a clockwise manner, and then rotate it counterclockwise ten times. Repeat with the left leg.

Holding your hands at your hips, spin your neck ten times in a clockwise manner and ten times in an anticlockwise way. For ten repetitions, simultaneously rotate the hip and wings of your left and right hands. Exercise for Pelvic Rocking (14 repetitions with 30 sec hold; for 60 sec rest in between). Before performing the pelvic rocking exercise, the following guidelines are provided: Empty your bladder before beginning the activity. Calm down. It is best to practice it an hour after eating or on an empty stomach. Avoid wearing gowns that are too tight. The abdominal and buttock muscles must be simultaneously contracted throughout the counts 1-2-3-4 in order to take a deep breath. Feel the flattening of the back curve with the bottom hand as you exhale for a count of 4-3-2-1. Do this exercise ten times. You should perform this exercise twice a day, in the morning and the evening. Do not perform this workout when you are menstruating. Actions to take: With a cushion supporting your head, lie on your back. Knees should be bent. Keep your foot flat on the ground. Put one hand beneath the back's curvature.

Put a second hand over the abdomen. Inhale, hold, and simultaneously tighten your abdominal and buttock muscles (1-2- 3-4). Feel your back flat on the underside as you release the 4-3-2-1

breath and relax your muscles. For three weeks, repeat the last 2 steps around ten repetation, two times a day.

Fast kegel's exercise (90 contractions withhold time of 5-10 seconds in three sets of 30 with 2 minutes break in between)lie on your back, bent the knees. Push your feet firmly into the ground, applying pressure through your heels. Contract pelvic floor muscle as well as abdominal muscle and release slowly (90 contractions withhold time of 5-10 seconds in three sets of 30 with 2 minutes break in between).Cool Down begins with Put both legs up to begin. Without letting the back or pelvis shake, alternately lower each leg toward the floor. After thirty seconds, return to your starting location. Do this ten times. Start flat on your back with your legs slightly bent to lift the shoulder blades off the floor. Then give it a little crunch. After thirty seconds, return to your starting location. Do this ten times.

GROUP B: PELVIC BRIGDING EXERCISES + FAST KEGEL'S EXERCISES

Warm up – Joint mobility exercise, for bilateral UL and LL for 10 minutes. Participants in group (A) were instructed to perform a warm-up before doing pelvic rocking with fast Kegel's exercise. During the menstrual cycle, Group A was instructed not to engage in any stretching activities.

The following were the exercises that were recommended: Maintain a straight posture while rotating your right hand ten times in a clockwise manner and then ten times in an anticlockwise direction. Do the same with your left hand.

Lift the right leg, rotate it ten times in a clockwise manner, and then rotate it counterclockwise ten times. Repeat with the left leg. Holding your hands at your hips, spin your neck ten times in a clockwise manner and ten times in an anticlockwise way. For ten repetitions, simultaneously rotate the hip and wings of your left and right hands. Exercise for the Pelvic Bridge (14 repetitions with 30 sec hold; for 60 sec rest in between). Position your feet flat on the floor, spaced hip-width apart, and bend your knees while lying on your back. Pull your navel toward your spine to activate your core. Press your feet into the ground, driving through your heels Squeeze your glutes and lift your hips off the ground, aiming to create a straight line from your knees to your shoulders. For stability, keep your core active during the whole action. After you

have reached the top position, pause for a moment and squeeze your glutes to maximize the activation of the posterior chain. Make sure your knees do not spread outward or cave inward. Maintain alignment with your hips and ankles. Ensure your knees stay aligned with your hips and ankles. Avoid forcefully dropping your lower back onto the floor. Focus on lowering yourself smoothly and with control. Avoid forcefully hitting the floor with your lower back. Instead, focus on a gradual and controlled lowering. Fast kegel's exercise (90 contractions withhold time of 5-10 seconds in three sets of 30 with 2 minutes break in between)lie on your back, bent the knees. Push your feet firmly against the ground, emphasizing pressure through your heels. Contract pelvic floor muscle as well as abdominal muscle and release slowly (90 contractions withhold time of 5-10 seconds in three sets of 30 with 2 minutes break in between).

Cool Down begins with Put both legs up to begin. Without letting the back or pelvis shake, alternately lower each leg toward the floor. After thirty seconds, return to your starting location. Do this ten times. To raise the shoulder blades off the floor, Start with your knees slightly bent and flat on your back. Then give it a little crunch. After 30 seconds, go back to where you were before. Do this ten times.

RESULT

There were 126 female participants in this research. Group A's 63 and Group B's 63. First Group A consist 63 females who performed Pelvic rocking exercise with fast Kegel's with warmup and cool down for 4 weeks, at physiotherapy OPD at D. Y. Patil hospital. (4 days per week 45to 50 minutes per day for 4 weeks). Second Group B consist 63 females who performed Pelvic bridging exercise with fast Kegel's with warmup and cool down for 4 weeks, at physiotherapy OPD at D.Y.Patil hospital. (4 days per week 45 to 50 minutes per day for 4 weeks). Prior to the intervention, there was no discernible variation in the median level of pain across the subjects. Following the intervention, there was a notable difference in the median level of discomfort between these two groups. Age Comparison

Group	Mean	S.D.
PelvicRocking	19.90	1.77
PelvicBridging	20.06	1.81

Table 1 shows comparison between Group A (Pelvic Rocking with fast Kegels exercise) and Group B (Pelvic Bridging with fast Kegels exercise).The mean age for Group A is 19.90 years with a standard deviation (S.D.) of 1.77, and for Group B it is 20.06years with an S.D. of 8.18. Ages, showing similar distributions. This suggests that age is evenly distributed between participants using Pelvic Bridging with Fast Kegels exercise and Pelvic Rocking with fast Kegels exercise, as depicted in the graphical comparison of mean ages.

Comparison of Pre-Post NPRS and WALIDD in Group A (Pelvic rocking with Fast Kegels exercise) (by using Wilcoxon signed Rank Test)

Pelvic Rocking				
Statistical Measures	NPRS		WaLIDD	
	PreValues	PostValues	PreValues	PostValues
Quartile_ 1	8	4	9	5

Median	9	4	10	5
Quartile_ 3	9	5	11	6
IQR	1	1	2	1
P-values	1.13E-12*		1.75E-12*	

Table 2 represents pre and post intervention comparisons for group A pelvic rocking exercise with fast Kegel's exercise shows significant improvement in NPRS score from 9 -4 (median) with p value 1.13E-12*. the WALLID scores demonstrated a significant decrease in pain intensity with median score decreasing from 10 – 5 and p value 1.75 E-12*.

Comparison of Pre-Post NPRS and WALIDD in Group B (Pelvic Bridging with Fast Kegels exercise)

(by using Wilcoxon signed Rank Test)

	Group B (PelvicBridging)			
	NPRS		**WaLIDD**	
	PreValues	**PostValues**	**PreValues**	**PostValues**
Quartile_1	8	1	9	0
Median	8	1	10	1
	9	2	11	3

Quartile_3				
IQR	1	1	2	3
P-values	8.07E-13		1.34E-12	

Table 3 represents comparison of pre and post intervention for group B (pelvic bridging with fast Kegel's exercise) the NPRS scores shows decrease in median score from 8-1 and WALLID score from 10- 1 which depicts significant decrease in pain intensity with P value 1.34E-12*.

Group wise post-post Comparison of NPRS and WALIDD for Group A and Group B. (Wilcoxon signed Rank Test).

	Groupwise Comparison			
	PostNPRS		**PostWaLIDD**	
	Pelvic Rocking	**Pelvic Bridging**	**Pelvic Rocking**	**Pelvic Bridging**
Quartile_1	4	1	5	0
Median	4	1	5	1
Quartile_3	5	2	6	3
IQR	1	1	1	3
P-values	1.15E-12		1.84E-12	

Table 4 shows post - post median values of NPRS and WaLIDD scale of group A and groupB. Group B (pelvic bridging with fast Kegel's exercise) had significantly better postintervention score with median values 1 for NPRS and WALLID as compared to group A which had median 4 and 5 for NPRS and WALLID. Improvement, in Group A and Group B but showing higher post- intervention scores for Group B pelvic bridging exercise with fast Kegel's exercise than Group A for NPRS and WALIDD. Comparative analysis by using Wilcoxon signed Rank Test revealed that group B (pelvic bridging with fast Kegel's exercise) is more significant than Group A (pelvic rocking with fast kegels exercise). The pre and post intervention comparisons for group A pelvic rocking exercise with fast Kegel's exercise shows significant improvement in NPRS score from 9 -4 (median) with p value 1.13E-12*. the WALLID scores demonstrated a significant decrease in pain intensity with median score decreasing from 10 – 5 and p value 1.75 E-12*.

For group B (pelvic bridging with fast Kegel's exercise) the NPRS scores shows decrease in median score from 8-1 and WALLID score from 10- 1 which depicts significant decrease in pain intensity with P value 1.34E-12*.Comparative analysis by using Wilcoxon signed Rank Test revealed that group B (pelvic bridging with fast Kegel's exercise) had significantly better post intervention score with median values 1 for NPRS and WALLID as compared to group A which had median 4 and 5 for NPRS and WALLID.

DISCUSSION

In recent years many studies have establishes the effect of Therapeutic exercises reduces pain intensity in patients with primary dysmenorrhea and improving their quality of life. [2,21,32]Yet, based on what we know, there is no such study conducted to find the effect of Effect of Pelvic Rocking Exercise versus Pelvic Bridging Exercise with Fast Kegel's Exercise on primary dysmenorrhea.The present study aims to find the effect of Pelvic Rocking Exercise versus Pelvic Bridging Exercise with Fast Kegel's Exercise on primary dysmenorrhea in undergraduate female student.In all, 126 participants between the ages of 17 and 23 were gathered for the study, divided into two groups with 63 in each group. Group A was given pelvic rocking exercise (14 repetitions with 30 sec holds; for 60 sec rest in between) with fast Kegel's exercise (90 contractions withhold time of 5-10 seconds in three sets of 30 with 2 minutes break in between) 4 days/ week for 4 weeks. Group B will be given Pelvic bridging exercises (14 repetitions with

30 sec hold; for 60 sec rest in between) with fast Kegel's exercise (90 contractions withhold time of 5-10 seconds in three sets of 30 with 2 minutes break in between) 4 days / week for 4 weeks.

Dysmenorrhea was measured using NPRS scales and WALLID scales intensity were measured before commencing the treatment and after the termination of the treatment Wilcoxon signed Rank Test was used for data analysis.. Data analysis using Wilcoxon signed Rank Test shows that there was more significant difference in group B (Pelvic bridging exercises with fast Kegel's exercise) than Group A (pelvic rocking exercise) at 4th week or 1st day of second menstrual cycle. The Median of pre and post values were compared using Wilcoxon signed Rank Test for intra group result. The result showed statically significant difference within the group ($p<0.001$) for all parameters and statistically significant between group difference were found. Pain is significantly decrease in Group (B) by using NPRS median value from 8 to 1 than Group i.e NPRS median value from 9 to 4. For WaLIDD score is decrease in group (B) i.e. median value from 10 to 1 than Group (A) median value decrease from 10 to 5 which means pain is significantly reduce Group B than Group A. Previous study was done by Mrs. S. POONGUZHALI M.Sc in 2016 that Pelvic bridge exercises' efficacy in treating adolescent girls' dysmenorrhea. Exercises for pelvic bridging that build muscle mass in the paraspinal region, the quadriceps at the top of the legs, the gluteal muscles, the abdominal muscles, and the hamstrings in the back of the thighs. By taking deep breaths and contracting the deep abdominal muscles and buttocks, the exercise helps to treat dysmenorrhea by causing a little movement inside the uterus. According to the research findings, the adolescent girls' degree of dysmenorrhea was considerably decreased by pelvic bridge exercise. (5) In 2017, Hoda Abedel Azim Mohamed conducted a second research on the effect of pelvic rocking movements on adolescent females' primary dysmenorrhea. Current study revealed that, pain intensity scores, pain duration and menstrual flow duration decreased significantly in the experimental group as compared to control group during the first and second cycle after intervention. Rocking exercise reduces pelvic congestion by increasing vasodilatation, releasing endogenous hormones, including beta endorphins, suppressing prostaglandins, and stopping blood flow from viscera and relieving pain in addition physical activity lead to a better hormonal balance so reduce menstrual flow duration.[16]

Kaur Amreen found that the fast Kegel's exercise was more effective than slow Kegel's exercise in reducing pain in primary dysmenorrhea.[6] A study was done by Noha Mohamed Mahmoud Hassan, on Effect of Kegel versus Pelvic Rocking Exercise on Primary Dysmenorrhea Intensity among Adolescents. The results of this study showed that, in terms of work ability, location, severity, and duration of discomfort, the Kegel exercise group experienced considerably less primary dysmenorrhea than the Pelvic Rocking exercise group. These findings were explained by the fact that Kegel exercise improved blood flow to the pelvic floor muscles, which aid in energy production and speed up nerve signal transmission, hence reducing discomfort and muscular tension. The most popular exercises for dysmenorrhea are Kegel and pelvic rocking. Kegel exercises include regularly tightening and releasing the pelvic muscles that support the body. Deep contractions of the abdominal and pelvic muscles during pelvic rocking exercises lead the uterine muscles to slightly move, strengthening them. [17] In general, Pelvic Rocking Exercise and Pelvic Bridging Exercise with quick Kegel exercises both work well to lessen the severity of discomfort in primary dysmenorrhea. However, our data supported the alternative hypothesis that Pelvic Rocking Exercise with Fast Kegel's exercise is more effective than Pelvic Rocking Exercise with fast Kegel's in reducing pain intensity in primary dysmenorrhea.

CONCLUSION

Based on the data analysis of this study, Pelvic rocking and pelvic bridging with fast Kegel's exercises can help to reduces pain intensity and primary dysmenorrhea.The recent study concluded that both groups are significant but the pelvic bridging exercise with fast Kegel's exercise is more significant than the pelvic rocking exercise with fast Kegel's exercise.

REFERENCES:

1. Sharma S, Augustina SJ. Efficacy of Core Muscle Strengthening in Women with Dysmen-orrhea.International Journal of Physiotherapy and Research.2022;10(2):4204-8.
2. Carroquino-Garcia P, Jiménez-Rejano JJ, Medrano-Sanchez E, De La Casa-Almeida M, Diaz-MohedoE, Suarez-SerranoC. Therapeutic exercise in the treatment of primary dysmenorrhea : a systematic review and meta-analysis.

Physicaltherapy.2019Oct;99(10):1371-80.

3. MCKENNA, Kathryn A.; FOGLEMAN, Corey D. Dysmenorrhea. American family physician,2021, 104.2: 164-170.
4. Sharghi M, Mansurkhani SM, Larky DA, Kooti W, Niksefat M, Firoozbakht M,Behzadifar M, Azami M, Servatyari K, Jouybari L. An update and systematic review on the treatment b of primary dysmenorrhea. JBR Aassisted reproduction. 2019Jan;23(1):51.
5. Rexcilin FS, Velammal P. Effectiveness of pelvic bridge exercise on dysmenorrhea among adolescent girls. TNNMC Journal of Obstetrics and Gynaecological Nursing.2020;8(1):18-22.
6. AmreenK, GauravS, Dhakshinamoorty P.Comparison of effect of fast and slow Kegels exercises in reducing pain in primary dysmenorrhea: experimental design. Physiotherapy and Occupational Therapy Journal.2013Jul 1;6(3):135.
7. Rathi R, Mahishale A. "Determining Correlation between Severity of Primary Dysmenorrhea and Resting Metabolic Rate in College-Going Girls of 18–25 Years of Age:" An Observational Study. Journal of the Scientific Society. 2023May1;50(2):201-5.
8. A Mohamed H, M Habib F, A Gamal R, Abu Setta S. Comparison between the Effect of Rocking, Stretching, and Kegel Exercises on Pain Intensity of Primary Dysmenorrhea among University Female Students. Egyptian Journal of Health Care.2024Jun1;15(2):735-52.
9. Tharani G, Dharshini E, Rajalaxmi V, Kamatchi K,Vaishnavi G. To compare the effects of stretching exercise versus aerobic dance in primary dysmenorrhea among collegiates. Drug Invention Today. 2018Sep2;10(1):2844-8.
10. Barbosa-Silva J, Avila MA, de Oliveira RF, Dedicação AC, Godoy AG, Rodrigues JC, Driusso P. Prevalence, pain intensity and symptom sassociated with primary dysmenorrhea: across-sectionalstudy. BMC Women's Health. 2024Feb4;24(1):92.
11. Saleh HS, Mowafy HE, El Hameid A. Stretching or core strengthening exercises form anaging primary dysmenorrhea. J Women's Health Care. 2016;5(295):2167-0420.
12. Francavilla R, Petraroli M, Messina G, Stanyevic B, Bellani AM, Esposito SM, StreetME. Dysmenorrhea: Epidemiology, Causes and Current State of the Art for Treatment. Clinical and Experimental Obstetrics & Gynecology. 2023Dec29;50(12):274.

13. Sutar A, Paldhikar S, Shikalgar N, Ghodey S. Effect of aerobic exercises on primary dysmenorrhea in collegestudents. J Nurs Health Sci.2016 Oct;5(5):20-4.
14. Nizy John, Rajitha SR.Effectiveness of pelvic rocking exercise on dysmenorrhea among adolescent girls, International Journal of Medical and Health Research, Volume5, Nov2019;11:61-71
15. Ameade E P ,Amalba A, Mohammed B S. Prevalence of dysmenorrhea among University students in Northern Ghana; its impact and management strategies. BMC Women's Health. 2018 Dec;18:1-9.
16. Abedel Azim Mohamed H, Mohamed Hafez A. Effect of practicing pelvic rocking exercises on primary dysmenorrhea among adolescent girls: A randomized control ledtrial. Egyptian Journal of Health Care. 2017Jun1;8(2):241-55.
17. Hasaan NM, Al-Olaimat KA, Zaki NH, Al-Shdayfat N, Shokhba NS. Effect of Kegel versus Pelvic Rocking Exercise on Primary Dysmenorrhea Intensity among Adolescents at Secondary Female's Schools in al-Mafraq Jordanian city. Alexandria Scientific Nursing Journal. 2022 Dec1;24(4):64-78.
18. Saikia B, Bhavani B B, Logambal K, Karpagam S. Impact of pelvic rocking exercise on dysmenorrhea among adolescent girls. IntJ Reprod Contracept ObstetGynecol2024;13:1228-33.
19. Jiji C. Effectiveness of pelvic rocking exercise on dysmenorrhoea among adolescentgirlsaged15-20years residing in selected villages at Kanyakumari District.The Tamil Nadu Dr.M.G.R. Medical University,2012.Available from:
20. Cross D. Kegel exercises, pelvic floor muscle strength and resistance training: anexploratorypre-postinterventionstudyofwomenexperiencingstressurinaryincontinence.
21. Cross D, Kirshbaum MN, Wikander L, Tan JY, Moss S, Gahreman D. Does a Kegel exercise program priortores is tance training reduce the risk of stress urinary incontinence. International journal of environmental research and public health. 2023Jan13;20(2):1481.
22. Karimi E, Kamali A, GHasemi B. The effect of Kegel exercises on pain and quality of life in girls aged 18 to 25 years with primary dysmenorrhea. journal of motor and behavioral sciences. 2021 Dec 22;4(4):299-307.
23. Bernal Jorquera M. Propuesta de intervención educativa en mujeres con incontinencia

urinaria de esfuerzo mediante técnicas de entrenamiento muscular de suelo pélvico en atención primaria.

24. Celiker Tosun O, Kaya Mutlu E, Ergenoglu AM, Yeniel AO, Tosun G, Malkoc M, Askar N, Itil IM. Does pelvic floor muscle training abolish symptoms of urinary incontinence? A randomized controlled trial. Clin Rehabil. 2015 Jun;29(6):525-37. doi: 10.1177/0269215514546768. Epub 2014 Aug 20. PMID: 25142280.
25. SANDHIYA DM, KUMARI DP, Arulya A, SELVAM DP, ABRAHAM DM, PALEKAR DT. The effect of pelvic floor muscles exercise on quality of life in females with primary dysmenorrhea. Annals of the Romanian Society for Cell Biology. 2021 May 22;25(6):3111-7.
26. Sutar A, Paldhikar S, Shikalgar N, Ghodey S. Effect of aerobic exercises on primary dysmenorrhoea in college students. J Nurs Health Sci. 2016 Oct;5(5):20-4.
27. Ferries-Rowe E, Corey E, Archer JS. Primary dysmenorrhea: diagnosis and therapy. Obstetrics & Gynecology. 2020 Nov 1;136(5):1047-58.
28. Teherán AA, Piñeros LG, Pulido F, Mejía Guatibonza MC. WaLIDD score, a new tool to diagnose dysmenorrhea and predict medical leave in university students. International journal of women's health. 2018 Jan 17:35-45.
29. Wal P, Gupta D, Wal A, Pandey SS, Krishnan K. A Wholistic Approach to Non-Pharmacological Intervention for Primary Dysmenorrhea. Current Women's Health Reviews. 2024 Feb 1;20(1):21-34.
30. Lin KC, Huang KJ, Lin MN, Wang CY, Tsai TY. Vitamin D Supplementation for Patients with Dysmenorrhoea: A Meta-Analysis with Trial Sequential Analysis of Randomised Controlled Trials. Nutrients. 2024 Apr 8;16(7):1089.
31. Tsai IC, Hsu CW, Chang CH, Lei WT, Tseng PT, Chang KV. Comparative Effectiveness of Different Exercises for Reducing Pain Intensity in Primary Dysmenorrhea: A Systematic Review and Network Meta-analysis of Randomized Controlled Trials. Sports Med Open. 2024 May 30;10(1):63. doi: 10.1186/s40798-024-00718-4. PMID: 38816591; PMCID: PMC11139836.
32. Kanchibhotla D, Subramanian S, Singh D. Management of dysmenorrhea through yoga: A narrative review. Frontiers in Pain Research. 2023 Mar 30;4:1107669.

33. Lakhan SE, Sheafer H, Tepper D. The effectiveness of aromatherapy in reducing pain: A systematic review and meta-analysis. Pain research and treatment. 2016;2016(1):8158693.

34. Bustan MN, Seweng A. Abdominal stretching exercise in decreasing pain of dysmenorrhea among nursing students. InJournal of Physics: Conference Series 2018 Jun 1 (Vol. 1028, No. 1, p. 012103). IOP Publishing.
35. Karakus A, Balaban M, Kaya DO, Celenay ST. Lumbopelvic muscle endurance, morphology, alignment, and mobility in women with primary dysmenorrhea: A case-control study. Clinical Biomechanics. 2022 Feb 1;92:105582.
36. Oladosu FA, Tu FF, Farhan S, Garrison EF, Steiner ND, Roth GE, Hellman KM. Abdominal skeletal muscle activity precedes spontaneous menstrual cramping pain in primary dysmenorrhea. American journal of obstetrics and gynecology. 2018 Jul 1;219(1):91-e1.
37. Huang QM, Liu L. Wet needling of myofascial trigger points in abdominal muscles for treatment of primary dysmenorrhoea. Acupuncture in Medicine. 2014 Aug;32(4):346- 9.