



COMPARE THE EFFECT OF PILATES EXERCISE VERSUS YOGA ASANAS ON PAIN, STRESS AND PHYSICAL ACTIVITY IN YOUNG FEMALE STUDENTS WITH PRIMARY DYSMENORRHEA

Physiotherapy

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ABSTRACT

Background: Dysmenorrhea, which is characterized as excruciating Uterine Cramps during menstruation, is one of the most prevalent gynecological disorders affecting women who are fertile.⁽¹⁾ **Aims And Objectives:** To find out the effect of Pilates exercise and yoga asanas on pain, stress and physical activity in young female students with primary dysmenorrhea. **Methodology:** The study consist of 30 subjects, who were screened on basis of inclusion and exclusion criteria and randomised into two groups group A = 15 and group B = 15 in each. All subjects in group A were given pilates exercise and group B were given yoga asanas for 8 weeks. Pre and post values of pain were taken before and after the intervention by visual analogue scale, stress by using perceived stress scale, and physical activity by using international physical activity questionnaire. **Result:** The result of present study showcased that there is significant difference in pain and physical activity and no significant difference in stress after 8 weeks of treatment between the groups (pilates exercise and yoga asanas) in females suffering from dysmenorrhea.

KEYWORDS

Primary Dysmenorrhea, Pilates Exercise, Yoga Asanas

INTRODUCTION:

Adolescence represents the phase of life spanning from puberty to psychophysical maturity. The vulnerability of adolescent girls is particularly pronounced in India, a context where the neglect of the female child is a prevalent concern.⁽²⁾

Menstruation is defined as the visible manifestation of cyclic, physiological uterine bleeding, resulting from the shedding of the endometrium approximately every 28±7 days in response to hormonal changes.⁽³⁾

Dysmenorrhea pain has a distinct and cyclical pattern, It usually starts during adolescence and lasts for Six to twenty-four months after menarche, usually, it is severe on the first day of menses and can last up to 72 hours.⁽⁴⁾

Yoga is a mind-body discipline that originated in ancient Indian philosophy. It consists of physical postures called asanas, breathing exercises called pranayamas, and meditations called dhyanas that integrate the harmony and balance of the body and mind⁽⁵⁾

Yoga is a non-pharmacological approach that teaches body posture, breathing exercises, and relaxation techniques to improve strength, balance, and lessen pain⁽⁶⁾

Pilates exercises are classified within the category of body-mind exercises, emphasizing controlled movement, proper posture, and coordinated breathing. This holistic approach contributes to the enhancement of both mental and physical well-being, fostering increased flexibility and muscle strength through precisely controlled movements executed as mat exercises, ultimately promoting overall body strengthening.⁽⁷⁾

METHODOLOGY

- **Study design:** Randomised clinical trail
- **Study setup:** This study will be performed in the college of physiotherapy in SVIMS university, Tirupathi.
- **Sampling method :** simple random sampling (lottery method)
- **Study duration:** 8 weeks
- **Sample size:** 30

Materials:

- Yoga mat
- Pen
- Paper
- Inch tape

Inclusion criteria :

- Age group of 18 -25 years.
- Un married girls with no pelvic pathology.
- Regular menstrual cycle
- Waist hip ratio normal (0.80)

Exclusion criteria:

- Irregular menstrual cycle
- With any pelvic pathology
- Who are not willing to participate
- Subjects with psychological issues

Outcome measure

- Pain is measured by using Visual analogue scale
- Stress is measured by using Perceived stress scale
- Physical activity is measured by using International Physical Activity questionnaire

Study procedure

The study was conducted in the COP, SVIMS and the ethical clearance was obtained from institutional ethics committee (IEC.NO-1548).

- The participants who fulfil the inclusion criteria and are willing to participate in the study were included in the study after they sign an informed consent.
- Participants were randomly (lottery method) assigned into two groups. GROUP-A and GROUP-B.
- Height, weight and waist-hip ratio was evaluated for all the subjects. Pain was assessed through the VAS, the level of physical activity was assessed through the international physical activity questionnaire [IPAQ] and stress was assessed through the perceived stress scale [PSS] at baseline and on completion of 8 weeks of exercises.
- It includes 8 weeks [four days in a week] of pilates and yoga asanas
- A sample of 30 participants with primary dysmenorrhea were screened and included in the study.
- GROUP-A received meditation for 10 minutes and Pilates exercise for a period of 8 weeks.
- GROUP-B received meditation for 10 minutes and yoga asanas for a period of 8 weeks.

Exercise protocol^(8,9,14)

Group-A Pilates	Group-B yoga asanas
Meditation -10 mins	Meditation - 10 mins
+	+
Pilates curl	Navasana - 3 mins
Pilates roll up	Matyasana - 3 mins
Pilates rolling like a ball	Dhanuarsana - 3mins

Group-A Pilates	Group-B yoga asanas
Single straight leg stretch	Vajrasana - 3 mins
Double leg stretch	Paschimostasana - 3 mins
Teaser 1	Padmasana - 3 mins
Pilates push up	Suryanamaskar 2 cycles
Pilates shoulder bridge	Om chanting (18 times) – 6 mins
Pilates single leg kick	Relaxation(shavasana)
10 repetition -3 sets	After every 3 sanas shavasana for relaxation

Statistical Analysis And Results

The results were analyzed using SPSS 21.version for the statistical analysis of the study. In the present study, a total of 30 individuals were included who fulfilled inclusion criteria. Out of 30 individuals 15 were included in pilates group and 15 in yoga asanas group. 3 outcome measures were taken such as VAS for pain, PSS for stress and IPAQ for physical activity. Outcome measures were taken before and after the intervention, and the values were tabulated using MS excel. Chi square test was used to compare the difference between pre and post intervention outcomes.

Table-1 Demographic Data

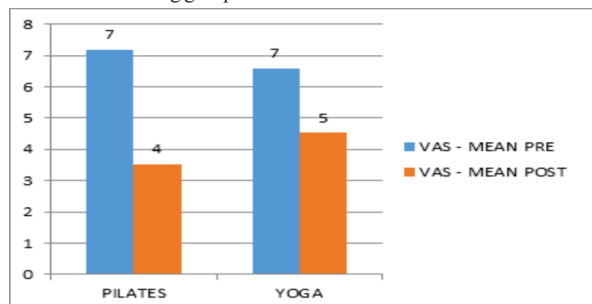
N = 30	Mean	Std. Deviation	
	Statistic	Std. Error	Statistic
Age	22.57	.313	1.716
BMI	21.3733	.30221	1.65528
WHR	.7517	.00866	.04742
VAS.	6.90	.205	1.125
PSS.	13.77	.552	3.025
IPAQ.	793.43	103.538	567.100
Valid N (listwise)			

According to the **table 1**, the **mean and standard deviation value** of BMI is 21.37 1.66, Waist Hip Ratio is 0.76 0.05, VAS is 6.90 1.12 , PSS is 13.8 3.02 and IPAQ is 793.43 567.10 respectively.

Table-2

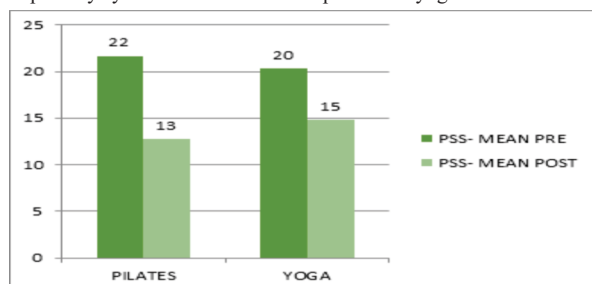
	VAS - MEAN			PSS- MEAN			IPAQ - MEAN	
	PRE	POST		PRE	POST		PRE	POST
PILATES	7	4	PILATES	22	13	PILATES	797	1236
YOGA	7	5	YOGA	20	15	YOGA	790	1048

Table – 2 PRE AND POST MEAN VALUES OF VAS, PSS and IPAQ, OF PD INDIVIDUALS OF YOGASANAS and PILATES EXERCISE training group.

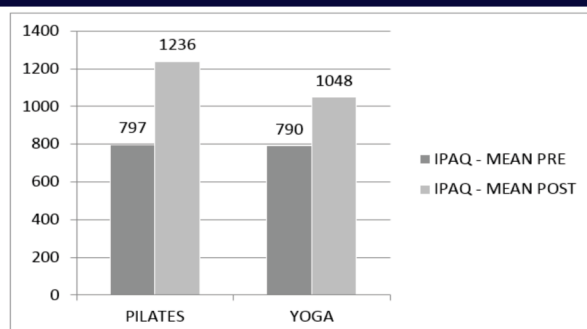


Graph 1

Graph-1 Graphical representation of pre and post mean values of VAS of primary dysmenorrhea students of pilates and yoga asanas



Graph -2 –graphical representation of pre and post mean values of PSS of primary dysmenorrhea students of pilates and yoga asanas



Graph 3 –graphical representation of pre and post mean values of IPAQ of primary dysmenorrhea students of pilates and yoga asanas

DISCUSSION

The aim of the present study is to compare the effect of pilates exercise and yoga asanas on pain, stress and physical activity in young female students with primary dysmenorrhea.

As per the inclusion criteria, 30 primary dysmenorrhea individuals were taken for the study, they are randomly allocated into two groups. Group-1 with 15 PD individuals underwent training of pilates exercise and Group- 2 with 15 individuals underwent training of yoga asanas for 2 months.

The result of present study showcased that there is significant decrease in the pain and stress levels in the PD individuals with in groups of pilates & yoga asanas. But there is significant difference in pain levels but no significant difference seen in stress levels after eight weeks of treatment between groups. (pilates & yoga asanas) in PD Individuals.

There are some studies which were Conducted to Reduce pain & symptoms of primary dysmenorrhea.

BO-Hwa song⁽¹⁰⁾ et.al conducted a study on effect of pilates on pain, Physical function, Sleep quality and psychological factors in young women with Dysmenorrhea. They have given 12-weeks of pilates Intervention, there was a decrease in menstrual pain Intensity. These finding are consisted with previous Studies that have reported a reduction in menstrual pain Intensity following conventional exercises & yoga. This study supports our study in reducing pain levels in PD Individuals.

Shalini G. Nayak⁽¹¹⁾ et.al Conducted a study on meditation and yoga Impact on dysmenorrhea: They collected data in two phases. They have given 12 weeks of meditation & yoga program, and concluded that the yoga & meditation among young adolescents would be beneficial for reducing dysmenorrhea-related symptoms.

Dr. Shachi M paithankar⁽¹²⁾ et-al studied effects of pilates and conventional physiotherapy in primary dysmenorrhea on pain and quality of life. They found similar effects as this present study.

most study results are similar to those obtained in our study with pilates intervention & yoga Intervention in relieving Pain & Stress levels with in groups.

There these paucity of studies were found on Comparision between the effects of these two & Interventions (pilates & yogaasanas) on the primary dysmenorrhea

The result of present study showcased that there is Significant difference in the physical activity levels after 8 weeks treatment between groups (pilates and yoga). priyanka, sethi⁽¹³⁾ et al. conducted a study on effect of pilates & yoga on primary Dysmenorrhea. Among women with fibromyalgia.

In our study there were only primary dysmenorrhea Individual with no pelvic pathology. The Above mentioned study Included primary dysmenorrhea Individuals with fibromyalgia. They have given 4 weeks of pilates & yoga Interventions. They included 90 Subject, divided into 3 groups Pilates, yoga & control group.

Their study demonstrated that pilates is Slightly more efficacious in comparision to yoga and no treatment.

DR. S. SARADHA⁽¹⁴⁾ et al Conducted a study on efficacy of Aerobics & yoga asanas on pain, menstrual distress, physical activity in Subjects with primary dysmenorrhea.

In our study, the results showcased that Pilates are more effective in improving physical activity than yoga asanas.

The Above mentioned study has given 8 weeks of yoga asanas & aerobics Intervention. 64 subjects Included.

This study concluded that Aerobics are more effective in Improving Physical activity than yoga asanas.

Limitaton And Recommendations

Limitations

- Not used any electrotherapy modality
- Sample size is small
- Study duration is small
- There was no long term follow up

Recommendations :

- Study can be done with large sample size
- The future research can be carried out with increased duration of treatment protocol

CONCLUSION

Pilates exercise is one of the effective, inexpensive and non-pharmacological measures to reduce the primary dysmenorrhea symptoms among adolescent girls. The study concludes that pilates exercise is a physical activity that has effect in reducing the symptoms of primary dysmenorrhea during menstruation among adolescent girls. The findings of the present study showed that both types of pilates exercise and yoga asanas were effective in reducing the intensity of primary dysmenorrhea. But pilates exercises are more effective when compared to the yogasanas in reducing pain and enhancing physical activity levels.

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