

Effects of Yogasanas Along with Pranayama on Pain and Severity in Primary Dysmenorrhea in Adult Young Females: Interventional Study

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ABSTRACT

Background - Primary Dysmenorrhea is the commonest problem experienced by adolescent girls. Pain begins just prior to or with the onset of menstrual flow and resolves with end of menstruation. The pain may be experienced in the pelvis, abdomen, and lower back or upper legs. Yoga provides benefits that prove extremely useful for people to lead a healthy life. Anuloma Villoma is one of the pranayama which balances both sides of the brain. This study is undertaken to find the effects of yogasanas along with pranayama on pain and severity in primary dysmenorrhea in adult young females.

Objective- The aim of the study is to evaluate the effects of yogasanas along with the pranayama to reduce the pain in adult young females with primary dysmenorrhea.

Material and Methodology – The study was conducted at Nanded Physiotherapy College and Research Centre. A random sampling was taken consisting of 31 participants, based on inclusion and exclusion criteria. Where they have performed the yogasanas Bhujangasana, Matsyasana, Dhanurasana, Marjarasana, Vajrasana, Setu Bhandha Sarvangasana, Malasana, Apanasana, Supta Baddha Konasana along with Anuloma villoma techniques. The subjects were assessed at the baseline and after 4 weeks which included the subjects having presence of primary dysmenorrhea on the basis of Visual Analogue Scale and Verbal Multidimensional Scoring System for pain and severity. The intervention consisted for a period of 4 weeks.

Result - For VAS and VMSS the p -value was <0.0001. Hence there was statistical significance of treatment in the pre and post within the Experimental group. The study supports that Yogasanas along with Pranayama techniques are more effective than using a single intervention protocol either of yogasanas or pranayama in primary dysmenorrhea. Whereas it showed a significant improvement in pain and severity of the subjects with primary dysmenorrhea

Keywords: Yogasanas, Pranayama, Pain, Severity, Primary dysmenorrhea.

INTRODUCTION

Shedding of endometrium is called a menstrual periods or menstruation. It is caused due to the interplay of hormones occurring in hypothalamus pituitary ovarian axis(1) . The age group of 11-15 years marks

the beginning of menstruation and the average age is considered as 15 years. Menstrual cycle is called as the period starting from the beginning of one menstrual cycle to another menstrual cycle. It is often considered as a painful syndrome. This

syndrome called as Dysmenorrhea (1). Dysmenorrhea or lower abdominal pain is a condition that affects women throughout the menstrual cycles. The pathogenesis of dysmenorrhea stems from increased myometrial hyperactivity, uterine tissue ischemia, and discomfort can be brought on by an increase in vasoactive prostaglandin synthesis in the endometrium (2). Dysmenorrhea are of two types Primary and Secondary dysmenorrhea (3). Primary dysmenorrhea is a cramping sensation of the lower abdomen that periodically appears with menstruation, and it is one of the most common gynecologic problems occurring in 55.4% to 72.7% of young women (3), while secondary dysmenorrhea is a menstrual cramp associated with underlying pathology and its onset may be after menarche. It is associated with pathogenic disorders such as endometriosis, pelvic inflammatory disease, intra uterine devices, irregular cycles or infertility problems, ovarian cysts, polyps, intra uterine adhesion or cervical stenosis (4). Yoga the word is derived from the word yuj which means to join. They provide benefit that prove extremely useful for people to lead a healthy life (1). Yoga is a non pharmacological techniques that teaches about a combination of relaxation techniques, breathing and body position to increase strength and balance and reduce pain (5). Yoga has been found to be an alternative medicine with low cost and little risk and thus it is worth considering in the management of primary dysmenorrhea (6). There are a lot of evidences supporting the belief that yoga causes physical as well as mental benefits. It causes the regulation of the hypothalamo-pituitary adrenal axis (7). Several treatment modalities like medication and home remedies being used by primary dysmenorrhea are either not effective or produce side effects for long term. Simple lifestyle modification such as yoga Anuloma villoma may help in alleviating pain during menstruation (5). Anuloma villoma is one of the eight varieties of pranayama. Anuloma means cyclic and villoma means acyclic. anulomaviloma balances both sides of the

brain. It has EEG evidences supporting it calmness and alertness are achieved through this pranayama (8). 9 Yoga seems to suppress menstrual pain by reducing the level of prostaglandin production and myometrial ischemia via the down regulation the hypothalamic -pituitary-adrenal axis and the sympathetic nervous system (9). Yoga can gently stretch cramping muscles and have an overall calming effect on the nervous system. Yoga also reduces stress, improves flexibility, and strengthens muscles (10). Hence this purpose of this study is to offer understanding of effects of yogasanas along with pranayama on pain and severity in primary dysmenorrhea in adult young females.

MATERIALS & METHODS

Approval of the study was given by the institution ethical committee of Nanded Physiotherapy College and Research Centre. Prior to starting the study, a written consent form was taken from all the adult young females gathered by Random sampling method in languages best understood by them. This group underwent yogasanas along with pranayama. Total sample size 31. Each subject was interviewed for her demographic data with the help of Verbal Multidimensional Scoring System. Verbal multidimensional scoring system (VMSS) is used to assess the severity of pain grade to those subjects having primary dysmenorrhea. Whereas VMSS was taken before and after completing 4 weeks of intervention. Visual Analogue Scale (VAS) Scale was administered to those subjects having dysmenorrhea: scoring of the same was explained to each subject before filling up the scale. VAS was taken before and after completing 4 weeks of pranayama and yogasanas intervention. The pranayama session (alternate nostril breathing) consisting of puraka (inspiration) rechaka (expiration) at a ratio of 8:8 sec of inspiration with 8 sec of expiration. In the third & fourth week the inhalation for 4 counts via the left nostril retention for 16 counts by closing both nostril and exhalation for 8 counts via

the right nostril by removing the thumb was performed. Again, inhalation for 4 counts via the right nostril, retention for 16 counts and exhalation for 8 counts via the left nostril was performed. The yogasanas done by the

subject: Bhujangasana, Matsyasana, Dhanurasana, Marjarasana, Vajrasana, Setu Bandha Sarvangasana, Malasana, Apanasana, Supta Baddha Konasana.

1) BHUJANGASANA:



Fig 1

2) MATSYASANA:



Fig 2

3) DHANURASANAS:



Fig 3

4) MARJARASANA:



Fig :4

5) VAJRASANA:



Fig: 5

6) SETU BANDHA SARVANGASANA:



Fig: 6

7) MALASANA:



Fig: 7

8) APANASANA:



Fig: 8

9) SUPTA BADHA KONASANA:



Fig: 9

Table 1: Verbal multidimensional scoring system (VMSS) for assessment of dysmenorrhoea severity. SEVERITY GRADING WORKING ABILITY SYSTEMIC SYMPTOMS ANALGECIS:

SEVERITY GRADING	WORKING ABILITY	SYSTEMIC SYMPTOMS	ANALGECIS
Grade 0: Menstruation is not painful and daily activity is unaffected.	Unaffected	None	None required
Mild (Grade 1): Menstruation is painful but seldom inhibits normal activity; analgesics are seldom required; mild pain	Rarely affected	None	Rarely required
Moderate (Grade 2): Daily activity is affected; analgesics required and give sufficient relief so that absence from school is unusual; moderate pain.	Moderately affected	Few	Required
Severe (Grade 3): Activity clearly inhibited; poor effect of analgesics; vegetative symptoms (headache, fatigue, vomiting, and diarrhoea); severe pain.	Clearly inhibited	Apparent	Poor effect

STATISTICAL ANALYSIS

The data collected, analysed and Statistical analysis was done using the Statistical Package for Social Sciences (SPSS version 21). Basic descriptions were presented in the form of mean and Standard deviation.

Paired ‘T’ test was used to compare pre intervention and post intervention to find out the significance.

P-value <0.0001 is considered as statistically significant.

In Paired sample t-test pre-intervention mean and standard deviation of Visual Analogue Scale (VAS) was 2.93 ± 1.20 , whereas in post intervention mean and standard deviation of Visual Analogue Scale (VAS) was 1.80 ± 0.90 .

Pre-intervention mean and standard deviation of Verbal Multidimensional Scoring System (VMSS) was 2.19 ± 0.70 whereas in post intervention mean and standard deviation of Verbal Multidimensional Scoring System (VMSS) was 0.90 ± 0.59 .

RESULT

Results of this study were analysed in terms of to reduce pain and severity. Paired ‘T’ test were used to analyse the pre and post differences for VAS and VMSS.

For VAS and VMSS the p -value was <0.0001. Hence there was statistical significance of treatment in the pre and post within the Experimental group.

Table1: Comparison between pre and post intervention VAS score

Sr.no	Outcome variable	Pre mean \pm SD	Post mean \pm SD	T- value	P-value
1)	VAS	2.93 ± 1.20	1.80 ± 0.90	4.15	0.0001

Graph 1: Comparison of pre and post intervention VAS within group.

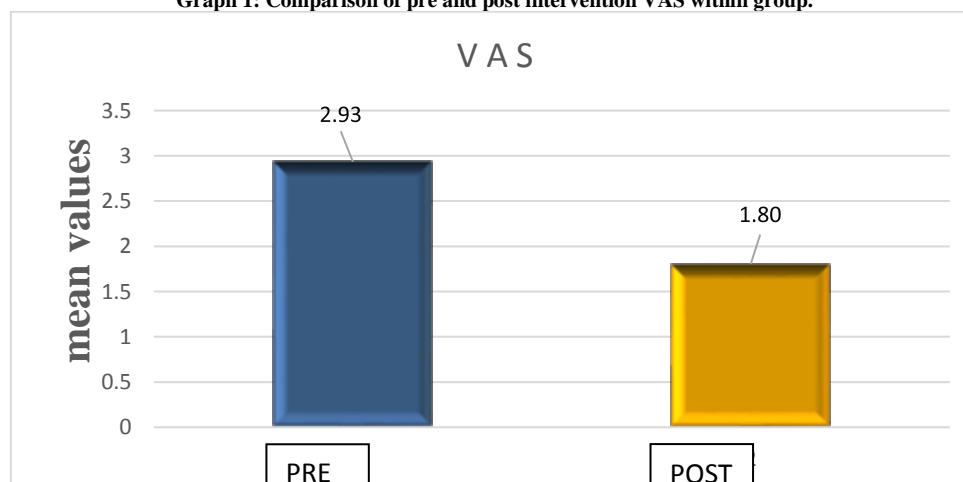
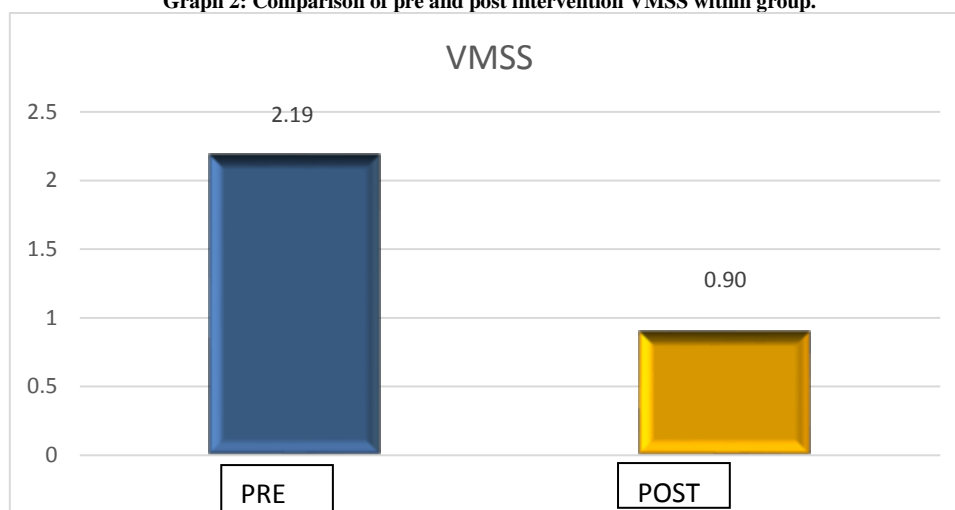


Table2: Comparison between pre and post intervention VMSS score

Sr.no	Outcome variable	Pre mean \pm SD	Post mean \pm SD	T- value	P-value
1)	VMSS	2.19 ± 0.70	0.90 ± 0.59	1.67	0.0001

Graph 2: Comparison of pre and post intervention VMSS within group.



DISCUSSION

The results of the current study revealed that the yogasanas and anulom vilom pranayama techniques are effective in reducing pain and severity of dysmenorrhea.

In this study the mean age of students was 20.74 ± 1.43 . The students were asked not to perform the exercises on the first 2 days of their menstrual cycle. On statistical analysis a significant decrease was found in pain intensity, and menstrual symptoms.⁽⁴⁾ In this interventional study (n=31), most of the subjects (22.6%) experienced complete pain relief, (64%) majority of subjects had mild pain.

Dysmenorrhea having negative effects on health peaks in the late adolescence. A relation has been found between early age at menarche and dysmenorrhea causing greater exposure to uterus prostaglandin hormone in girls. Other studies have seen condition prevails more in women with longer cycles, long bleeding and a positive family history.⁽⁸⁾ Amita Aggarwal et al (2020).

Menstrual pain experienced in dysmenorrhea has direct effects bearing from uterine muscle contraction.⁽¹⁴⁾ These muscles are stimulated under stress which further increase activity in sympathetic nervous system. Various authors have showed a correlation between the life stress and premenstrual syndrome.⁽¹⁰⁾

Our results are comparable with Amita Aggarwal et al (2020) who suggest that yoga

poses have specific benefits too. Bhujangasana (cobra pose) increases spinal muscles strength especially of extensors, increases core stability, promotes spinal flexibility.⁽¹⁷⁾ In women it tones up ovaries and uterus too.⁽⁴⁾ The Marjarasana (cat pose) initiates movement from centre requires coordinated efforts of abdominals with regular breathing movements.⁽¹⁸⁾ The Matsyasana (fish pose) promotes cervical flexibility, decreases neck along with shoulder stiffness.⁽²⁰⁾⁽¹⁸⁾ Improvement in flexibility especially around pelvic region will have positive effect on supra pubic area pain reported by patients.

Reda Mohamed -Nabil Aboushady et al (2016) studied the Effects of homebased stretching exercises and menstrual care on primary dysmenorrhea and premenstrual symptoms among adolescent girls had found that using two months regular stretching exercises combined with the usual menstrual care were effective for reducing the pain intensity of primary dysmenorrhea and premenstrual symptoms.⁽⁸⁾⁽²⁰⁾

Exercises like yoga or anulom vilom promoting relaxation and reducing tension will even alleviate symptoms. A study by Dawood MY et al. had shown that therapeutic exercise can increase the secretion of endorphins from the brain increasing pain threshold.⁽⁹⁾ Reduction in the pain along with reported decrease in symptoms explain reduction in severity of

dysmenorrhea seen in the study. Z Rakshae et al. study had also found positive effects of yogic postures on pain and dysmenorrhea severity.⁽¹³⁾

Interventions designed to conservatively manage the dysmenorrhea has an objective to improve quality of life. This condition causing absentee-ism, physical and psychological symptoms affect college going along with working young females. Yoga physical and mental benefits increase vagal activity and decreases sympathetic hyperactivity. This will have complimentary results on endocrinal and immune system of the body. Some hatha yoga positions have characteristics specific to immune enhancing or restoring.⁽¹⁷⁾

Yoga maintains the physiological balances in the body, modifies the mental health by promoting mind body coordination. Also, psychosocial stress experienced will be benefited. Another study had shown more improvement in quality of life with slow compared to fast pranayama.⁽¹⁶⁾ Stimulation of Beta endorphins release along with improvement in alveolar ventilation was seen with pranayamas.⁽¹⁵⁾ Irregular breathing disrupts the rhythm of the brain and lead to physical, mental, emotional blocks leading to disordered lifestyle and disease. This technique helps to attain higher state of vibratory energies along with breathing control. This explains how these conservative techniques improves quality of life in patients with dysmenorrhea symptoms.⁽¹⁵⁾

Management that takes into account relaxation using anulom vilom along with improving blood supply to pelvic region, better flexibility by doing yoga explains added benefits in quality of life. These results were seen in study. So conservative protocols have got their importance in primary dysmenorrhea and should be advocated. The study had its limitations. Firstly the intervention was given for a period of 4 weeks only. Also sample size was small.

CONCLUSION

The study supports that Yogasanas along with Pranayama techniques are more effective than using a single intervention protocol either of yogasanas or pranayama in primary dysmenorrhea. Whereas it showed a significant improvement in pain and severity of the subjects with primary dysmenorrhea.

Declaration by Authors

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