

Title : An Experimental Study of Selected Yoga Poses on Young Adult Female Population Reporting Primary Dysmenorrhoea.

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ABSTRACT -

Background and purpose : Dysmenorrhoea is one of the most common gynaecological complaints in young adolescent girls who present to clinical physician and referral to physiotherapy. Yogic exercises are well designed for women and various yoga poses are mentioned in various research articles but the research related to absenteeism at workplace, frequency of medication and other symptoms related to menstrual period could not be traced. **Study Design:** Experimental study of 30 subjects between 15-25 yrs of age. **Method :** Total 30 subjects were included in study. A yogic exercise programme was given three times in a week for three months, one time session was supervised. A record was maintained regarding absenteeism at workplace, Visual Analogue Scale, Moo's Menstrual Distress Questionnaire and frequency of medications. Data was collected and analysed statistically. **Results :** The present study shows, a significant change in the frequency of medication, absenteeism at workplace, visual analogue scale, Moo's menstrual distress questionnaire (S, $p < 0.05$). **Conclusion -** Selected Yoga postures can be used as an alternative treatment protocol. Selected yoga postures have shown significant change in the outcome measures by influencing autonomic nervous system. Selected yoga postures were positively influencing all outcome measures. Hence, selected yoga postures can be used as remedy for alleviating symptoms of primary dysmenorrhea.

Key words : Dysmenorrhoea, Moo's menstrual distress questionnaire, Visual Analogue Scale, yoga

Introduction : Dysmenorrhea is derived from Greek word, "dys", meaning difficulty / painful/ abnormal,

"meno", meaning flow.^[1] It is of two types, primary and secondary. Primary dysmenorrhea is defined as menstrual pain with no visible pelvic pathology to account for them. It typically occurs in first 6-12 months, requires starting ovulation followed by pain.^[2] Secondary dysmenorrhea is associated with pelvic condition or pathology that causes pain in conjunction with menses.^[1,2,3,4] Dysmenorrhoea (period pain) is one of the commonest gynaecological disorders and is thought to affect 50% of women in their reproductive years.^[5] It has a negative effect on quality of life of the patients as well as their families. It is also responsible for huge economic losses as a result of cost of medications, medical care and reduced productivity.^[6]

There are various options available for the management of primary dysmenorrhea like drugs such as NSAIDs and combination oral contraception are the most commonly used. Patients receiving these medications should be monitored for more serious adverse effects, including GI bleeding and renal dysfunction. Cyclooxygenase-2 (COX-2) inhibitors may be used in patients who cannot tolerate other NSAIDs or in whom these agents are contraindicated. The combination OCs suppresses the hypothalamic-pituitary-ovarian axis and thereby inhibits ovulation and prevents prostaglandin production in the late luteal phase. Caution should be taken in patients diagnosed with hepatic impairment, migraine, seizure disorders, cerebrovascular disorders, breast cancer, or thromboembolic disease. Other drugs such as niacin, vitamin E, calcium, omega-3 fatty acids antispasmodics are also used.^[7] Physiotherapy modalities like TENS^[8], spinal manipulation^[9] and acupuncture^[10] seem to be effective in the pain relief. There is need of studies regarding to look at the effect of myofascial trigger points on dysmenorrhea. Besides attaining physical fitness, yoga offers positive mental health. As yoga includes both these aspects, its integration in prevention of disease and promotion of positive physical and mental health deserves its proud place in any health care programmed specially in women's health.^[11] Few articles mention that, cobra, cat and fish poses are effectively alleviating period pain^[12] Other yoga poses are yet to explore.^[11,12,13,14,15,16] There is need of quantification of outcomes such as absenteeism at workplace, frequency of medication

and other symptoms related to menstrual period. This study was an effort to lighten the contribution of yoga regarding primary dysmenorrhea.

Objectives : To study the effectiveness of selected yoga postures on pain during menstruation, absenteeism at workplace, frequency of medication, and other symptoms observed during menstruation.

Material and Methods : Assessment format, Exercise log book, Mat for each individual girl, a demonstration room, Pencil, Scale, Ruler, Pen and selected yoga postures

Methodology: The study design was a quasi-experimental study with the main objective of exploring the effectiveness of selected yoga postures on primary dysmenorrhea. Prior to beginning the study ethical committee consent was obtained.

Initial assessment was made on 40 subjects but 10 subjects were not included due to their exams, vacations and college schedule. Hence, only 30 subjects were statistically analysed.

Inclusion criteria was age group 15-25 yrs having primary dysmenorrhea, two yrs after completing menarche, unmarried females.

Exclusion criteria for present study was, any medical and surgical conditions in which selected yoga postures are contraindicated, subjects who were not able to attend the programme regularly.

The study was conducted in the hostels and institutions in and around Pune. Informed consent was obtained from subjects. They were informed about the use of the study in detail and also the procedure to be performed as a part of study. Selected yoga postures were prescribed to these subjects for three times a week out of which, one time session in a week was supervised. A record was maintained for three months with the help of log book given to every subject for the outcome measures such as - Visual Analogue Scale (VAS), Frequency of medication, Absenteeism at workplace and Moo's menstrual distress questionnaire (MDQ). All these readings were analysed statistically. The selected yoga postures were as follows-

Figure 1: Baddhakonasana (~ 1minute or as per tolerance)



Figure 2:Vajrasana (~5 minutes or as per tolerance)



Figure 3:
Paschimottanasana (~30
2nd or as per tolerance)



Figure4:Uttahita
Trikonasana (~1minute
each side as per tolerance)



Figure 5: Ardhamatsyendrasana (~2minutes each side or
as per tolerance)



Figure 6: Shavasana
(asana is meant for rest,
so its duration may vary
subject to subject)

Duration of each posture was kept flexible as every individual's physical capacity will be different. All the readings for above mentioned outcome measures were documented and data was analysed statistically.

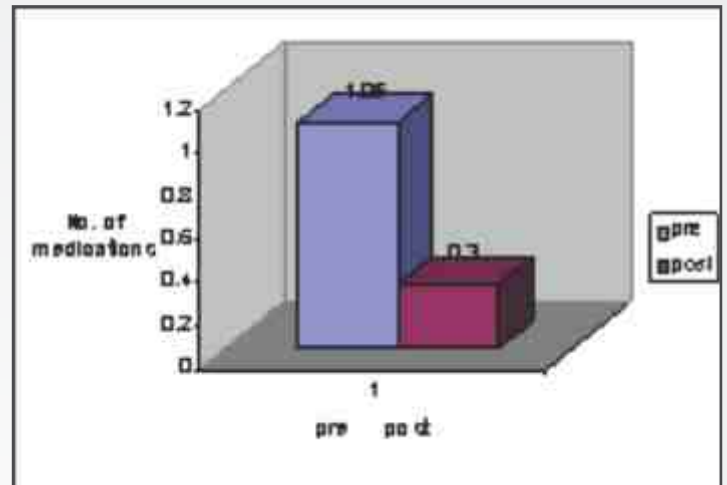
Table 1: Results of paired 't' test

Sr. no.	Content	n	Mean		t value	p value
			Pre	Post		
1	Frequency of medications	30	1.05	0.3	9.5	p<0.05 S,p < 0.05
2	Absenteeism at workplace	30	1.53	0.63	8.3	p<0.05 S,p<0.05

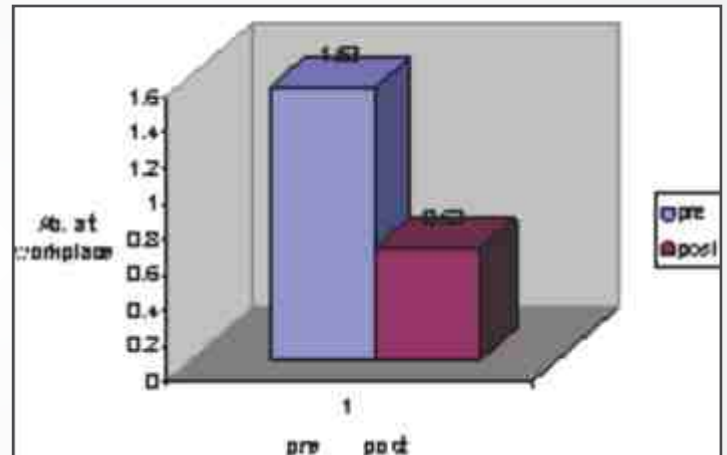
Table 2: Results of Wilcoxon signed rank test

Sr. no.	Content	n	Mean		z value	p value
			Pre	Post		
1	VAS	30	7.76	3.46	-4.824	p<0.05 S,p<0.05
2	MDQ	30	100.3	72.13	-4.784	p<0.05 S,p<0.05

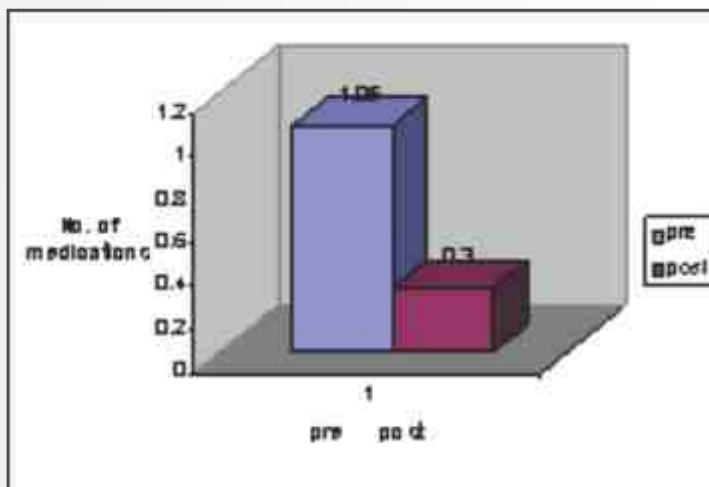
Graph 1: Freq. of medication Pre and Post intervention



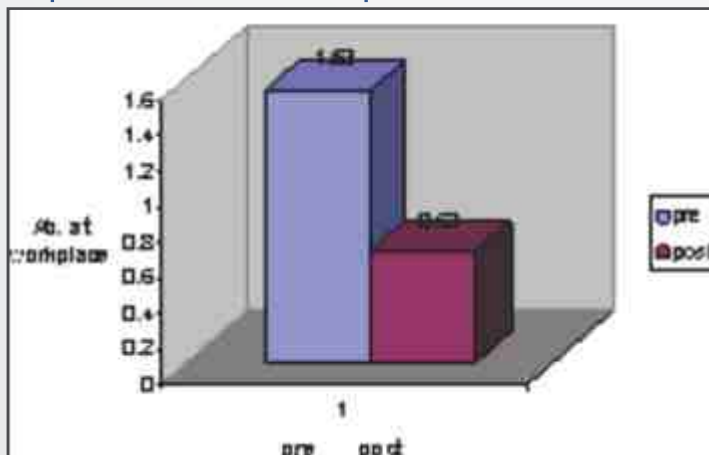
Graph 2: Absenteeism at workplace Pre & Post intervention



Graph 1: Freq. of medication Pre and Post intervention



Graph 2: Absenteeism at workplace Pre & Post intervention



Discussion: The inclusion criteria were decided regarding the history and age group. The selections of asanas were done by keeping in mind that, the subjects were beginners and will not be able to perform difficult postures. So yoga postures which are easy to learn and perform were selected. Sessions were avoided during menstrual phase of the cycle.^[11] Selected yoga postures have not shown any side effects throughout study.

The 24 subjects out of 30 were taking medications and maximum medications taken by subjects was 3 in whole menstrual period as per their visual analogue scale scores, highest being 9 and 10. Other subjects were taking medications in between 2 and 1. After the yogic exercise programme, medication was reduced till 0 in whole menstrual period in 14 out of 24 subjects and 6 subjects showing 1. That means these people still have to continue the yoga programme to reduce it further.

Most of the subjects were absent on one day before and on the day of starting menstruation. Those who have highest score on the Moo's menstrual distress questionnaire and visual analogue scale have shown maximum absenteeism. However, some subjects were not allowed to remain absent due to their working design; those subjects were given days of discomfort which are then included in the study. However, this yogic exercise programme has reduced absenteeism till 0 days in 18 subjects out of 27 subjects.

Meir Steiner and David L Streiner have explained that, the visual analogue scale is a reliable and valid source of assessing pain during menstrual disorder.^[17] Three months of yogic exercise programme shows, significant reduction in pain perceived in dysmenorrhea. Other outcome measures which may be influenced by pain are mentioned below. As increase in pain increases absenteeism at workplace and increased frequency of medications is found. David Coulter explains, standing postures includes Utthita Trikonasana, Postures flood the nervous system with sensory input from all over the body. This is not so much of a twist as it is a swivel, one in which the pelvis rotates 90° causing the thigh is flexed with respect to the torso and the left thigh is hyper extended. In this sense, abducted hips are more in line with the frontal plane of trunk^[18]. Such position causes facilitation of autonomic nervous system causing increase awareness of the nervous system, co-ordination and stretching of the muscle leading to increase in blood supply and pain relief. Twisting postures includes Uttahita Trikonasana causes axial compression and release of blood vessels of abdomen and pelvic organs. Forward bending Paschimottanasana and Badhakonasana tends to inhibit the somatic nervous system and sympathetic limb of autonomic nervous system. Flexing forward enough in spine and hips to compress the abdomen have mildly in-vigorating effects on abdominal organs stimulating enteric nervous system.^[18] As Dutta ray explains, sitting posture such as Vajrasana will give relaxation of pelvic floor muscles leading to pain relief. Relaxation of pelvic floor muscles will lead to the reduction of stimuli passing through the spasmodic muscles leading to pain relief^[19]. Karel Nespor published an article on yoga and pain relief in which he

mentions decreased activation of brain due to decreased input of stimuli from the internal as well as external environment.^[20] Lying posture like Shavasana will diminish the sympathetic effects on organs and tissues throughout the body. When you lie down to relax, the sympathetic nervous system calms down, reduces the muscle tone in smooth muscle that encircles artery and arterioles which allows those vessels to dilate to increase the blood supply.

Telles et al, has studied the effect combining stimulating and calming yogic procedures in the same session. Their results supported that, a greater reduction in autonomic arousal followed by the relaxing procedure on their own.^[21]

Rosemary A. Markum has got results that, MDQ is internally consistent and does have high test retest reliability. However, difference between intermenstrual phases has just missed its significance at 0.05 levels. Results obtained in this study have shown significant change in the MDQ scores; at $P < 0.05$ level by Wilcoxon signed rank test. Psychological stresses may have influence regarding MDQ score. Yoga gives psychological benefits to the patients that may have given a significant change in MDQ.^[22]

Hence, the present study was showing significant reduction to pain related menstrual cycle along with reduction in frequency of medication. Also there is improvement in the performance at work place by reducing absenteeism and distress.

Conclusion : Selected yoga postures which were planned could be used as a home based treatment. It is cost effective. It has not shown any side effects in the treatment of primary dysmenorrhea. It causes reduction in frequency of taking medications, absenteeism at workplaces. There is reduction in scores of visual analogue scale and Moo's menstrual distress questionnaire which suggests that yogic exercise programme is effectively reducing symptoms of primary dysmenorrhea. Hence, planned yogic posture exercise programme may be used as an alternative source of treatment in primary dysmenorrhea.

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