



EFFECT OF 16 WEEKS YOGIC INTERVENTION IN PREMENSTRUAL SYNDROME.

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ABSTRACT

Aim : The aim of our study was to evaluate the effects of Yoga intervention in females suffering from premenstrual tension and premenstrual syndrome. **Settings and Design :** 32 recently diagnosed females with premenstrual tension patients were recruited for a randomized controlled trial comparing the effects before and after a Yoga program. **Materials and Methods :** To evaluate the premenstrual symptoms and severity, a simple scoring system given by WHAQ was used. Symptoms were divided in 3 main categories that were Negative effect, Water retention and Impaired concentration, analyzed before and after the yogic intervention techniques. **Statistical Analysis Used :** We used analysis of covariance to compare interventions before and after the Yoga practice. **Result :** 32 females contributed data to the current analysis (n=32). The result suggest a significant decrease in the negative affect category ($p < 0.00001$) and in impaired concentration category ($p < 0.0001$). There was also a significant lesser decrease ($P < 0.001$) in water retention category as compare before and after Yoga practice. **Conclusion :** The result suggest possible benefits for yogic techniques (Asanas, Pranayama and Dhyana) in reducing premenstrual symptoms and preventing suffering from premenstrual tension and syndrome.

KEY WORDS : Premenstrual syndrome, Yoga, exercise.



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INTRODUCTION

Premenstrual syndrome (PMS) also called as premenstrual tension is a cluster of physical and emotional symptoms⁽¹⁾ that occur in the luteal phase of the menstrual cycle and resolve promptly with the onset of menstrual flow^(2,3). Though most experts believed that it is caused by the estrogen level, they also consider that a combination of psychological, genetic, nutritional, and behavioral factors are likely to be involved⁽⁴⁾. Studies indicated the role of serotonin in PMS^(3,9,10). Depression, anger, anxiety and forgetfulness are some of the psychological manifestations of PMS. Nausea, migraines, pain in the breasts, low energy levels, bloating and light sleep is some of the physical manifestations. Preliminary studies suggested that upto 40% of women with PMS has decreased level of β -endorphins⁽¹¹⁾. Mehta V and Chakrabartty AS showed different autonomic responses in different phase of menstrual cycle⁽¹²⁾ as Premenstrual syndrome is a psycho-physiological stress induced disorder. Stress leads to dominance of the sympathetic nervous system. Yogic exercise helps in relaxation of tense muscle, massage the internal organs and stimulate endocrine glands of the body to reach a state of gradual and complete relaxation of mind and body. Keeping the above factors in mind the present study was conducted to find the effect of Yoga on the subjects suffering from the premenstrual symptoms.

METHODS

Subjects selected for the study were from Gynecological OPD in hospital and private nursing homes reported with premenstrual distress. 52 females 18-30 years of age with regular menstruation cycle and not using contraceptives were enrolled for the study in the period from February 2011 to January 2012. Subjects having abnormal menstrual cycle, acute or chronic abdominal pain related

to surgical or medical illness, smokers, alcoholic and those receiving psychiatric treatment were excluded from the study. They were given diagnosis of PMS according to criteria described by American college of obstetricians and gynecologist (ACOG)⁽⁷⁾. To evaluate the premenstrual symptoms and severity a simple scoring system given by WHAQ (The Women Health Assessment Questionnaire) is used. The scoring system of severity from absent to severe was 0 - 4. The detail of ACOG criteria for diagnosis of PMS is shown in Table -1. The questionnaire included 6 categories that contain total 20 points. It is divided in 3 main categories that are negative affect, water retention and impaired concentration. The negative affect categories contained 8 points, water retention category included 4 points and impaired concentration category included 8 sub points as shown in Table -2. Each sub points was graded using 4 point scale from 0- 4 (0=absent 1=mild 2=moderate 3=severe 4=very severe). Base line assessments were done on 52 patients, but 32 patients contributed data to the current analysis. The reason for dropouts were attributed to incompliance for Yoga sessions, time constrains and use of complementary therapies (e.g., Homeopathy or Ayurveda). All the cases were examined twice for WHAQ, assessed the subjects symptoms in luteal phase (4 days before expected day of menstruation) once before joining the Yoga sessions and second after 16 week of practicing Yoga techniques. Written informed consent was obtained from all the subjects. The procedure was non invasive and the study plan was approved by Institutional ethical committee. All the subjects were asked to report at 9am. The height, weight & age of subjects were recorded. The study group was made to perform specially designed Yoga programme, daily in the morning 6 am to 7.30 am at the Ujjain Yoga life center – Yoga Bhavan under the

supervision of qualified Yoga Expert for a period of 16 weeks. Specially designed Yoga techniques were included in the programme. Asanas with abdominal compression and all backward bending asanas were avoided one week before the expected date of menstruation. Initially varieties of simple posture – Tadasana, Vakrasana, Bhadrasana along with proper breathing pattern and duration, providing stretch in pelvic region such Matsyasana, Paryankasana, Vakrasana in lying position. Some asanas providing massage in pelvic organs like Shashankasana, Janu Sirasana, Yogamudra were included in programme after 4 weeks. Also practice of Pranayam – 10 rounds of Anulom Vilom and Kapal Bhati only for 80 times in sets of 20 breaths added in programme. Nishpand Bhav and Yoga Nidra were taught and asked to practice at home in the evening from the Fifth week. Hastapad Angusthansana, Yasthikasana, Shalabhasana were included after 8 weeks. Anulome Vilome was advice to perform for 20 times daily from 9th week. The same programme been followed by the subjects till the end of 16th week. The statistical method uses were Mean, SD and P-value.

Statistical analyses

The data was analyzed using independent t-test for comparing the Yoga and non Yoga groups, paired t test for analyzing intra group effects. Analysis of covariance was used to adjust for BMR for differences in body weights between the groups. SD differences were considered significant at $p < 0.05$ for all statistical procedures. The data is presented as mean \pm standard deviation (SD).

RESULT

Total of 32 females who were diagnosed for PMS were recruited. The mean age of subjects were 22.4 ± 4.5 yrs (Table -3). In terms of severity WHAQ (3 categories having 20 points) was used to asses severity of symptoms during premenstrual phase of the cycle. Mean scores of three categories before and after Yoga practice were shown in table – 4. In Negative affect category, mean scores were 3.51 ± 0.95 and 1.93 ± 0.89 , in Water retention category 3.25 ± 0.89 and 1.96 ± 1.04 and in Impaired concentration category 3.31 ± 0.94 and 1.87 ± 0.85 , before and after Yogic practice respectively.

Table 1
ACOG diagnostic criteria for PMS

Patient reports ≥ 1 of the following affective and somatic symptoms during the 5 days before menses in each of 3 prior menstrual cycles:	
Affective	Somatic
Depression	Breast tenderness
Angry outbursts	Abdominal bloating
Irritability	Headache
Anxiety	Swelling of extremities
Confusion	
Social withdrawal	

Table 2
Three categories (Total 20 points) of WHAQ
(The Women Health Assessment Questionnaire).

Impaired concentration (8)	Water retention (4)	Negative affects (8)
Insomnia	Weight gain	Loneliness
Forgetfulness	Painful or tender breasts	Anxiety
Confusion	Breast and abdominal swelling	Mood swings
Poor judgment		Skin disorders
Difficulty in concentrating		Irritability
Distractibility		Tension
Poor motor coordination		Feeling sad or blue
Minor accidents		Restlessness

Table- 3.
Anthropometric variables of the subjects

Variables	Mean± SD
Age (years)	22.4±4.5
Height (cms)	149±4.5
Weight (kg)	42.5±0.4

Table 4
Mean WHAQ score of premenstrual phase

Group	Score	No. of subjects	Before Yoga practice Mean ±SD	No. of subjects	After Yoga practice Mean ±SD
Negative affect	1	1	3.51±0.95	12	1.93±0.89 **
	2	5		12	
	3	14		6	
	4	12		2	
Water Retention	1	1	3.25±0.89	14	1.96±1.04 *
	2	2		9	
	3	17		5	
	4	12		4	
Impaired Concentration	1	0	3.31±0.94	14	1.87±0.85 ***
	2	6		8	
	3	10		10	
	4	16		0	

*P < 0.001 ** P < 0.0001 ***P < 0.00001

DISCUSSION

Regular practicing of Yoga may bring about chemical changes in blood and central nervous system. Asanas and certain yogic techniques such as Tadasana, Vakrasana, Bhadrasana Matsyasana, Paryankasana, Vakrasana in lying position Shashankasana, Janu Sirasana, Yogamudra, Anulom Vilom and Kapal Bhati. Nishpand Bhav and Yoga Nidra. Hastapad Angusthansana, Yasthikasana, Shalabhasana relaxes the muscles and nerves which are under constant stress and strain and postural and breathing exercise definitely soothe the mind and boost feelings Exercise increases the serotonin levels and as serotonin can cross blood brain barrier and helps in mood elevation and the relationship of increase serotonin levels and depression has been well established⁽¹⁰⁾. Yogic exercise also stimulate the release of endorphins which are body natural pain killer but previous studies reveal that as endorphins cannot cross blood brain barrier ,little to do with depression⁽¹²⁾. Yogic exercise may be helpful in release of phenyl ethylamine which get converted to phenyl acetic acid again elevates mood and relieve from depression⁽¹³⁾. Dramatic decrease in WHO score in women's after Yoga practice of 3 cycles may also be psychological, according to mastery hypothesis exercise gives subjects sense of achievement that might cheer them up. By regular practice of Yogic exercise triggering

factors for depression are removed (Distraction hypothesis) Other reason of mood elevation may be according to social interaction hypothesis when Yoga is done with other people sense of socially connected feeling give sense of wellbeing to the subjects. Pranayam and Dhyam kriya helps calm anxiety by slowing the heart rate⁽¹⁴⁾. Yoga is beneficial in improving general health and helps relieve nervous tension, anxiety blood circulation, maintaining muscle tone, weight control or reduction and flexibility and increasing the levels of mood-regulating chemicals in the brain, decrease in fluid retention and increase in self-esteem that helps the females in overcoming the distress of premenstrual symptoms. It perhaps coupled with healthy and balanced diet. However the results are not entirely conclusive and further research need to be done.

ACKNOWLEDGEMENT

The authors are grateful to Pandit Radheshyam Mishra, Founder Director of Ujjain Yoga life society for his advice and encouragement. Additional thanks go to Dr. Tejsingh Choudhary and Dr. Ashutosh Chourishi for their editorials assistance. We wish our sincere thanks to all the participants of our study for their wholehearted cooperation.

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