

EFFECT OF PMR ON SOMATIC AND PSYCHOLOGICAL SYMPTOMS OF PREMENSTRUAL SYNDROME

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ABSTRACT

BACKGROUND

The objectives of this study were-

1. To evaluate somatic and psychological symptoms of premenstrual syndrome and
2. To validate the efficacy of progressive muscular relaxation in relieving the symptoms of PMS.

MATERIALS AND METHODS

60 participants were randomly assigned to two groups- Group A as experimental group, and Group B as control group. Group A was given relaxation therapy while Group B acted as a control. The efficacy of progressive muscular relaxation in relieving the symptoms was assessed using Visual Analogue Scale as a tool.

RESULTS

It was observed that participants had somatic symptoms like leg cramps, breast tenderness, backache, bloating, oedema and psychological symptoms like irritability, crying spells, depression, mood swings and drowsiness. Group A showed significant changes in somatic symptoms like leg cramps and psychological symptoms like irritability and Group B too showed significant changes in irritability and crying spells.

CONCLUSION

The relaxation technique (progressive muscular relaxation) helps to alleviate symptoms of premenstrual syndrome and even being aware about stressors helps to decrease the severity of the symptoms.

KEYWORDS

Progressive Muscular Relaxation, Premenstrual Syndrome, Visual Analogue Scale.

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BACKGROUND

Premenstrual syndrome (PMS) is a condition of recurrent physical and psychological symptoms occurring in a cyclic fashion during the 1- to 2-weeks period, proceeding a woman's menstrual period, significant enough to cause disruption in family, personal or occupational life.¹ Research has proved that PMS is a stress induced disease resulting in psychological and physical symptoms. More than 160 symptoms have been associated with the premenstrual phase of ovarian cycle such as breast tenderness, bloating, weight gain, backache, leg cramps (somatic symptoms) and irritability, mood swings, crying spells, depressed mood, anxiety, sleep disturbances, lethargy, fatigue (psychological) to name a few.^{2,3,4}

As the presentation of PMS could be subjective and the direct assessment of the severity of the symptom is not possible, the researcher uses a Visual Analogue Scale

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(VAS). VAS helps in measurement of values across the extreme range. This is a widely used scale by clinician and researcher to study the effect of various manoeuvres, methods, interventional strategy on a parameter.

Relaxation Therapy

Relaxation response is a physiological response that results in decreased metabolism, decreased heart rate, decreased blood pressure, and decreased rate of breathing and slower brain activity.

Progressive relaxation was developed by Edmund Jacobson in 1929. Patient relaxes major muscle groups in a fixed order of sequence, beginning with the small muscle groups of the feet and working cephaloid or vice versa.⁵ Patients are also known to be benefitted by the use of hypnosis or even by use of pre-recorded exercise. Relaxation techniques counter the adrenaline induced stress response.

Stress is a major psychosomatic disorder and 21st century had been labelled as the century of stress. Modernization has resulted in increased level of stress, affluence which in turn bring about changes in eating habits and level of exercise. Staff of medical college, hospital, and university are constantly under stress due to several factors like overwork in wards and OPD., irregular timings for food,

faulty food habits, lack of sleep, work pressure, peer pressure to perform well in this competitive atmosphere. All these builds up pressure and led to many psychosomatic illnesses in them.

Aims and Objectives

1. To evaluate the symptoms of premenstrual syndrome and
2. To validate the efficacy of progressive muscle relaxation in alleviating the symptoms with the help of VAS.

MATERIALS AND METHODS

A total 60 females in the age group of 18 to 45 years were selected to study the symptoms of premenstrual syndrome and to validate the efficacy of progressive muscle relaxation in alleviating the symptoms of PMS with help of VAS as a tool.

This study was done in Department of physiology, S.B.K.S. MI and RC, Sumandeep Vidhyapeeth University on staff of university between August 2010 to August 2011 after getting clearance from ethical committee of the institute.

Participants included in study were having criteria like firstly age group of 18 to 45 years, and having one symptom either an affective or a somatic symptom which was restricted to luteal phase of menstrual cycle only.

Exclusion Criteria

Exclusion criteria were participants having symptoms throughout the cycle.

After explaining the purpose and methodology of study a written consent was taken. A detailed history was taken followed by physical examination. They were randomly divided into two groups. Group A, an experimental group which was given relaxation therapy using recorded instruction of Progressive muscular relaxation (PMR) twice a week for one month. Later they were given the recording and were instructed to practice PMR at home every day for 10 minutes in morning and evening. Group B, the control group was called twice a week for a formal meeting nothing else. All participants were requested to rate severity of their symptoms on VAS. They had to mark it on 100 mm non-hatched VAS line. Follow up was done after 3 months, again all participants were asked to rate the severity of their symptoms on VAS.

The Visual Analogue Scale (VAS) consists of a 10 cm line anchored by 2 extremes of score. In the VAS the extremes were not at all (interpreted as scale 0) and as bad it could be (interpreted as scale 10). Patients are asked to make a mark on line which represents their level of perceived symptom intensity and the scale scored by measuring the distance from 0 (the not at all end) to 10 (as bad it could be) mark.

The DATA was analysed using chi-square test and Wilcoxon Signed Rank test. It was carried out in SPSS (v.24).

RESULTS

Participants had somatic symptoms like, Breast tenderness, bloating, backache, leg cramps, fluid retention etc.

Psychological symptoms were Irritability, mood swings, depression, crying spells, anxiety, and sleep disturbance.

The results of progressive muscular relaxation therapy for PMS can be compared to various other relaxation therapies used to study PMS as they are reasonably similar. In present study the symptom that was observed the most in both the groups was Irritability (>50%) while Leg cramps too was reported by many in the Intervention Group (almost 40%) (as shown in Graph 1).

The tables 1 and 2 of both groups show the number of subjects that reported suffering from one of these symptoms. These tables do not show the severity of the symptoms.

Chi-square test does not show any significant association between the two Groups and the two categories of symptoms ($\chi^2 = 0.68$) at 5% level of significance.

To check whether there was a significant difference in the Post intervention VAS scores compared to the pre-intervention VAS scores in both the groups, a non-parametric test called Wilcoxon Signed Rank test was carried out. So, we see from the table 3 that in the Intervention Group A, the symptoms that significantly reduced post intervention VAS scores are Irritability and Leg Cramps while in the Control Group B, Irritability and Crying Spell reduced significantly.

Symptom	Frequency*	Percentage*
Irritability	16	53.3
Crying Spell	2	6.7
Depression	5	16.7
Mood Swing	2	6.7
Drowsiness	3	10.0
Breast Tenderness	4	13.3
Leg Cramps	11	36.7
Backache	1	3.3
Bloating	1	3.3
Oedema	1	3.3

Table 1a. Group A

Symptom	Frequency*	Percentage*
Irritability	17	56.7
Crying Spell	6	20.0
Depression	4	13.3
Mood Swing	2	6.7
Drowsiness	1	3.3
Breast Tenderness	4	13.3
Leg Cramps	4	13.3
Backache	1	3.3
Bloating	2	6.7
Oedema	0	0.0

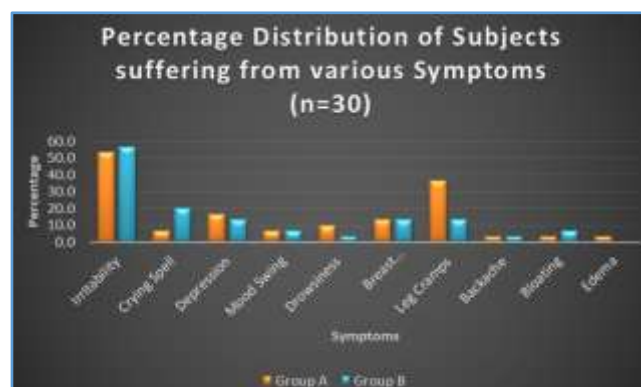
Table 1b. Group B

	Psychological Symptom	Somatic Symptom
Group A	28	18
Group B	30	11

Table 2. Distribution of Subject w.r.t. Symptoms and Group Categories

Symptoms	Group A	Group B
Irritability	0.001 (S)	<0.01 (S)
Crying Spell	0.180 (NS)	0.041 (S)
Depression	0.109 (NS)	0.059 (NS)
Mood Swing	0.180 (NS)	0.180 (NS)
Drowsiness	0.102 (NS)	0.317 (NS)
Breast Tenderness	0.102 (NS)	0.317 (NS)
Leg Cramps	0.003 (S)	0.180 (NS)
Backache	0.317 (NS)	0.317 (NS)

Table 3. Wilcoxon Signed Rank Test on Pre and Post VAS Scores on both Groups to find Significant Difference in the Scores



Graph 1. Percentage Distribution of Subjects Suffering from Various Symptoms

DISCUSSION

Some women experience symptom such as irritability, bloating, oedema, depression, headache 7-10 days prior to the onset of menstruation. Premenstrual syndrome is a condition where physical, emotional and behavioural symptoms occur just before menstruation that is luteal phase and once menstruation starts, they disappear. Many theories are attributed for these symptoms of PMS and many modalities of treatment are tried. How these diverse clinical observations fit together to produce a picture of pathophysiology of PMS is still unknown.⁶

In this study symptoms reported were depression (45.7%), anger (61.2%), irritability (88.1%), headache and abdominal distension (40%). Irritability was the most common psychological and abdominal distension was the most common physical symptom.⁷

In this study it was observed that after 12 weeks yoga intervention, physical symptoms like abdominal swelling, breast tenderness, abdominal cramps, and cold sweats decreased.⁸

In this study having an hs-CRP level 3 mg/L was significantly associated with premenstrual mood symptoms, abdominal cramps/back pain, appetite craving/weight gain, bloating and breast pain.⁹

Aetiology for PMS symptoms is multifactorial which includes hormonal imbalance, especially the progesterone, abnormal neurotransmitter response to ovarian signalling; hypothalamic-pituitary –adrenal (HPA) axis function leading to deficient adrenal hormone secretion. Including amygdale

and hypothalamus many other areas of brain have abundance of steroid receptors.

As sex hormones belong to the steroid category, they can easily cross the blood brain. As per the latest hypothesis neural metabolites of progesterone (allopregnanolone and pregnanolone) stimulates inhibitory GABA (gamma-aminobutyric acid) system, which plays an important role in regulation of mood, affect and cognition. The higher levels of allopregnanolone and pregnanolone is associated with anxiolysis, sedation and at time anaesthetic type of effect while the decreased concentration of have opposite effect e.g. aggression, anxiousness and altered mood. Also, as the levels of the allopregnanolone rises the responsiveness (sensitivity) of GABA receptors to allopregnanolone decreases. This change in sensitivity of GABA receptors to allopregnanolone level results in increasing the severity of symptoms during luteal phase (wherein progesterone levels are high).¹⁰

In addition to effect on neurotransmitter GABA, the female sex hormones (oestrogen and progesterone) also affects the activity of neurotransmitter serotonin. Progesterone affects serotonin activity by increasing the concentration of Monoamine oxidase enzyme resulting in decreased availability of serotonin while oestrogen increases the catabolism of MAO resulting in enhanced level of and transport of serotonin. So, by ALTERING THE serotonin level progesterone and oestrogen brings about depression and mood elevation.¹⁰

In addition to the benefit of relaxation therapy in stress induced and other psychosomatic disorders, relaxation therapy can be used as a supportive modality to counter PMS. However, there is a paucity of literature in showing the benefit of relaxation therapy on PMS when used in isolation.

In this study we observed that relaxation therapy helped to alleviate both somatic and psychological symptoms. The physiologic changes that take place during relaxation are opposite to those induced by adrenergic stress responses. Regular practise of PMR is an effective way of achieving balance between sympathetic and parasympathetic system. Physical effects of stress are alleviated by relaxation of body which relaxes mind automatically. Group B also showed significant decrease in irritability and crying spells both psychological symptoms. During weekly meeting they got the information about PMS how hormonal imbalance because of stress plays a role in aetiology of PMS. Awareness itself reduces the severity of symptoms by 50%.

CONCLUSION

PMR is a handy tool to cope with stress and once learned it helps to deal with stressors and helps to alleviate not only symptoms of PMS, but results in overall well-being.

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