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A Study to Assess the Effectiveness of Progressive Muscle Relaxation on Premenstrual Syndrome among the Students of Selected Colleges of Sri Ramachandra University, Chennai

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Abstract: ***A study was conducted to asses the effectiveness of progressive muscle relaxation on premenstrual syndrome among the students of selected colleges or Sri Ramachandra university, Chennai. The data were analysed using descriptive statistics such as frequency , percentage ,mean and standard deviation and inferential statistics such as paired 'F' Test and independent F Test and ANOVA .The significant findings of the studies were in the experimental groups there was a significant reduction in all the aspects of premenstrual syndrome at the level of P<0.001 and pain. Awtromic reactions ,control at the level of P< 0.05.The same level of premenstrual syndrome found in the aspects such as water retention ,negative affect and arosal in the ost test .comparison of premenstrual syndrome between experimental and control group shows that there was a highly significant difference in all the aspects of premenstrual syndrome at the level of P<0.001 & water retention at the level of P<0.01 and control at the level of P<0.05 .The study concluded that there was a significant difference in premenstrual syndrome in experimental group when compared to control group***

Keywords: Progressive muscle relaxation ,premenstrual syndrome

1. Introduction

Premenstrual syndrome has been defined as the cyclical recurrence, in the luteal phase of the menstrual cycle a combination of distress occurs in physical state ,psychological and behavior which results in deterioration of interpersonal relationship and an interference with normal activities (Reid,1985) The exact cause of premenstrual syndrome is not known ,but the following hypothesis are postolated .Alteration in the level of estrogen and progesterone starting from the mid luteal phase. Neurosendoerine factors decreased synthesis of serotonin ,with drawl of endrorphins from CNS during the luteal phase .Deficiencies in vitamin B6 ,vitamin D and calcium .psychological and factors may produce behavioral change other involved are increased secretion of prolactin, postaglandins (Roger smith,2008) numerous symptoms experienced by women in premenstrual syndrome are which includes physical and psychological symptoms. The physical complaints include breast, tenderness, abdominal bloating , peripheral edema, abdominal cramps, weight gain, hot flushes etc.Loss of control of emotions and behavior are probably the most distressing features of premenstrual syndrome. The psychological symptoms includes aggression, imitability, Anxiety, tension, depression, extreme clumsiness, inability to perform normal tasks and in ability to concentrate may also be distressing (kcl2, 2007) .The premenstrual syndrome is managed by pharmacological methods include, divretics, pain killers, oral contraceptive pilla, drugs that suppress ovarian functions and antidepressants. The complementary therapies include yoga, massage theraphy, herbal medicines and acupuncture (james scott,1999).. Women with premenstrual syndrome, mostly find adequate relief through complementary therapie the one among that is progressive muscle relaxation. It has superior effects on physical and psychological symptoms of premenstrual syndrome. It is a systematic techniques or achieving a deep state of relaxation it has been dicover that a muscle could be relaxed by first tensing it for a few seconds and then releasing it tensing and releasing various muscle groups throughout the body produces a deep state of relaxation (Groer and ohnesorge,1993)

2. Review of Literature

Julia potter and jean bouyer , et al (estimated the prevalence of premenstrual syndrome among 2863 French women. The result showed that 4.1 % of the women had severe premenstrual syndrome and 8.1% had moderate premenstrual syndrome 12.2% of the women reported premenstrual symptoms that impacted their daily lives

Groer and ohnesorge investigated the effect of progressive muscle relaxation on premenstrual syndrome. Thirty college students with regular menstrual cycles were studied for a period of 6months .The participants completed the MOOS Menstrual distress questionnarie at the beginning of the study followed by progressive muscle relaxation .At the end of the study the participants were assessed with the same questionnaire participants who completed the entire study had significant decline in the total premenstrual distress

3. Objective of the Study

1) Asses the effectiveness of progressive muscle relaxation on premenstrual syndrome in the experimental group
2) Compare the premenstrual syndrome between the experimental and control group
3) Associate the premenstrual syndrome with selected demographic variables in the experimental group
4) Conceptual baed frame work :Based on synthesis of kings goal attainment theory.

4. Materials and Methods

The design chosen for the study was experimental design. The study was conducted at Sri Ramachandra university ,Sri Ramachandra university has 9 constituent colleges out of that 2 colleges, Sri Ramachandra college of nursing and Sri Ramachandra college of Allied health science were selected by lottery method. These two colleges were randomized , Sri Ramachandra college of nursing was grouped under the experimental group & Sri Ramachandra college of Allied health science was grouped under the control group by lottery method .The population of the study was the college students with premenstrual syndrome between the age group of 17-22 years

All the students were screened by using MOOS Menstrual distress questionnaire for premenstrual syndrome ,student who scored above the mean score (69.5) of population have premenstrual syndrome,The students who had health problems such as serious injuries ,muscle spasms, problems in spine ,thyroid problem such as hyperthyroidism and hypothyroidism.

Pilot study was done to confirm the feasibility written permission and consent were accorded prior to the study .The data collection was done by questionnaire method using MOOS menstrual distress questionnaire .The validity and reliability of the tool was established prior to data collection pained F test and independent F test and ANNOVE were used for statistical analysis

5. Analysis and Interpretation

Table 1: Frequency and percentage distribution of demographic variables among students in experimental and contro group, (N=40)

Demograhic Variables	Experimental Group(n=20)		Control Group(n=20)	
	Frequency	Percentage	Frequency	Percentage
1.Age(Years)				
a. 17-18	9	45.0	4	20.0
b. 19-20	11	55.0	13	65.0
c. 21-22			3	15.0
2.Family Income(Rs/month)				
a. <5000	6	30.0	5	25.0
b. 5000-10000	6	30.0	10	50.0
c. >10,000	8	40.0	5	25.0
3.Habitance				
a.Urban	9	45.0	10	50.0
b.suburban	4	20.0	5	25.0
c.Rural	7	35.0	5	25.0
4. Type of family				
a.Nuclear	16	80.0	18	90.0
b.Joint	4	20.0	2	10.0
5. Age at Menarche(years)				
a. 11-13	10	50.0	10	50.0
b. 14-15	8	40.0	7	35.0
c. >15	2	10.0	3	15.0
6.Duration of the menstrual distress(days)				
a. 9-10	10	50.0	1	5.0
b. 11-12	5	25.0	6	30.0
c. 13-14	5	25.0	13	65.0
7. Undergone treatment				
a.Yes	2	15.0	1	5.0
b.No	18	85.0	19	95.0
8.Habit of taking tablets				
a.Yes	2	10.0	4	20.0
b.No	18	90.0	6	80.0
9.Following traditional remendies				
a.Yes	2	10.0	1	5.0
b.No	8	90.0	19	95.0
10.Family history of Menstrual problem				
a.Yes	2	10.0	1	5.0
b.No	8	90.0	19	95.0

The table 1 shows that out of 40 subjects ,55% in the experimental group 65% in the control group were in the age group 19-20 years .45% in the experimental and 50% in control group were urbans with regard to type of family 80% in the experimental group and 90% in the control groupwere from nuclear family .50% in the experimental group and 50% in the control group attained menarche between the age of 11&13 years with respect to duration of menstrual distress ,50% in the experimental group had menstrual distress for 9-10 days and 65% in the control group had menstrual distress for 13-14 days .85% in the experimental group and 95% in the control group were not taken to treatment for menstrual distress in relation to habit of taking tablets at the time of menstrual distress ,90% in the experimental group and 80% in the control group had no habit of taking tablets at the time of menstrual distress ,90%

in the experimental group is 95% in the control were not following the traditional remedies for menstrual distress.90% in the experimental group and 95% in the control group had no family history of menstrual problem

Table 2

Aspects of premenstrual syndrome	pretest		Posttest		Paired T Value
	Mean	S.D	Mean	S.D	
Pain	14.6	3.95	10.55	2.93	T=8.668 P=0.000
Concentration	16.85	6.15	11.10	2.53	T=5.1139 P=0.000
Behavior changes	9.00	3.83	6.35	2.99	T=5.618 P=0.000
Autonomic Reaction	8.80	4.22	6.55	3.03	T=5.039 P=0.001
Water Retention	6.50	2.52	5.15	2.15	T=3.857 P=0.001
Negative Affect	23.75	7.54	13.85	4.44	T=8.632 P=0.000
Arousal	11.05	3.72	6.60	1.72	T=6.728 P=0.000
control	11.45	5.21	6.60	1.04	T=4.268 P=0.001
Overall	102.0	25.68	66.95	13.69	T=11.234 P=0.000

Table 3

Aspects of premenstrual syndrome	Pretest		Posttest		Paired' t'-Values & P-value
	Mean	S.D	Mean	S.D	
Pain	14.15	3.22	14.95	3.89	T=2.179 P=0.042
Concentration	13.95	3.39	14.45	4.24	T=1.32 P=0.180
Behavior changes	9.15	2.68	10.70	3.04	T=7.815 P=0.000
Autonomic Reaction	8.00	2.88	8.75	3.53	T=2.680 P=0.015
Water Retention	6.05	2.11	6.85	3.06	T=1.341 P=0.196
Negative Affect	20.25	7.09	21.15	8.27	T=1.260 P=0.223
Arousal	8.95	3.44	8.65	3.63	T=0.661 P=0.516
control	8.90	2.55	7.40	1.39	T=2.480 P=0.023
Overall	89.40	13.08	92.90	15.03	T=2.674 P=0.015

Table 4: Mean, standard deviation and independent' t' premenstrual syndrome between experimental and control group in pretest (N=40)

Aspects of premenstrual syndrome	Experimental Group(n=20)		Control Group(n=20)		Independent ' t' value & P-value
	Mean	S.D	Mean	S.D	
Pain	14.86	3.95	14.15	3.22	T=0.395 P=0.695
Concentration	16.85	6.15	13.95	3.39	T=1.846 P=0.073(NS)
Behavior changes	9.00	3.83	9.15	2.68	T=0.144 P=0.887
Autonomic Reaction	8.80	4.22	8.00	2.88	T=0.0699 P=0.489
Water Retention	6.50	2.52	6.05	2.11	T=0.611 P=0.545
Negative Affect	23.75	7.54	20.25	7.009	T=1.511 P=0.139
Arousal	11.05	3.72	8.95	3.44	T=1.853 P=0.072(NS)
control	11.45	5.21	8.90	2.55	T=1.964 P=0.057(NS)
Overall	102.00	25.68	89.40	13.08	T=1.955 P=0.058(NS)

Table 5: Mean, standard deviation and independent' t' premenstrual syndrome between experimental and control group in posttest (N=40)

Aspects of Premenstrual syndrome	Experimental Group(n=20)		Control Group(n=20)		Independent ' t' value & P-value
	Mean	S.D	Mean	S.D	
Pain	1055	2.93	14.95	3.89	T=4.035 P=0.000
Concentration	11.10	2.53	14.45	4.24	T=3.029 P=0.004
Behavior changes	6.35	2.99	10.70	3.04	T=4.554 P=0.000
Autonomic Reaction	6.55	3.03	8.75	3.53	T=2.111 P=0.041
Water Retention	5.15	2.15	6.85	3.06	T=2.028 P=0.05
Negative Affect	13.85	4.44	21.15	8.27	T=3.4791 P=0.001
Arousal	6.60	1.72	8.65	3.63	T=2.279 P=0.028
control	6.60	1.04	7.40	1.39	T=2.055 P=0.047
Overall	66.95	13.69	92.90	15.03	T=5.708 P=0.001

Table 6: Mean, standard deviation and independent' t' premenstrual syndrome between experimental and control group in posttest (N=40)

Aspects of premenstrual syndrome	Experimental Group(n=20)		Control Group(n=20)		Independent 't' value & P-value
	Mean	S.D	Mean	S.D	
Pain	4.05	2.09	0.80	1.64	T=8.163 P=0.000
Concentration	5.75	5.00	0.50	1.61	T=5.319 P=0.000
Behavior changes	2.65	2.10	1.55	0.88	T=8.208 P=0.0000
Autonomic Reaction	2.25	2.00	0.75	1.25	T=5.694 P=0.000
Water Retention	1.35	1.56	0.80	2.67	T=3.109 P=0.004
Negative Affect	9.90	5.13	0.90	3.19	T=7.994 P=0.000
Arousal	4.45	2.95	0.30	2.03	T=5.188 P=0.000
control	4.85	5.06	1.50	2.70	T=2.611 P=0.013
Overall	35.05	13.95	3.50	5.85	T=8.320 P=0.000

Table 7: ANNOV between pretest of premenstrual syndrome and demographic variables among students in the experimental group (n=20)

Demograhic Variables	Premenstrual syndrome			ANNOVA Test Value & P-Value
	Number	Mean	SD	
1.Age (Years)				
a.17-18	9	102.56	32.15	F=0.007
b.19-20	11	101.54	20.63	F=0.933(NS)
2.Family Income(Rs/month)				
a.<5000	6	113.67	18.42	F=0.496
b.50001-10000	6	85.67	12.24	P=0.149(NS)
c.>10000	8	105.50	32.88	
3.Habitance				
a.Urban	9	96.33	23.59	F=0.496
b.Suburban	4	101.50	19.21	P=0.617(NS)
c.Rural	7	109.57	32.36	
4.Type of family				
a.Nuclear	16	99.12	27.41	F=1.003
b.Joint	4	113.50	14.15	P=0.330(NS)
5.Age at menarche(years)				
a.11-13	10	93.30	24.80	F=1.184
b.14-15	8	111.37	27.42	P=0.330(NS)
c.>15	2	108.00	14.14	
6.Duration of the menstrual distress (days)				
a.9-10	10	104.80	28.14	F=0.209
b.11-12	5	95.40	28.22	P=0.813
c.13-14	5	103.00	21.89	
7.Undergone treatment				
a.Yes	3	93.67	28.36	F=0.051
b.No	17	103.47	25.83	P=0.431(NS)
8.Habit of taking tablets				
a.Yes	2	98.00	39.60	F=0.051
b.No	18	25.34	25.34	P=0.824(NS)
9.Following traditional remedies				
A.Yes	2	106.00	65.05	F=0.648
b.No	18	100.44	21.51	P=0.431(NS)
10.Family History of Menstrual problem				
a.Yes	2	102.50	28.99	F=0.001
b.No	18	101.94	26.22	P=0.978(NS)

NS-Non significant

Table 8: ANNOV between pretest of premenstrual syndrome and demographic variables among students in the experimental group(n=20)

Demograhic Variables	Premenstrual syndrome			ANNOVA Test Value &P-Value
	Number	Mean	SD	
1.Age (Years)				
a.17-18	4	98.5	17.02	F=1.946
b.19-20	13	85.46	10.06	F=0..173(NS)
c.21-22	3	94.33	16.77	
2.Family Income(Rs/month)				
a.<5000	5	9.4	17.46	F=0.290
b.50001-10000	10	88.2	12.46	P=0.752(NS)
c.>10000	5	87.8	11.49	
3.Habitance				
a.Urban	10	91.9	12.11	F=0.551
b.Suburban	5	84.2	12.64	P=0.587(NS)
c.Rural	5	89.6	16.65	
4.Type of family				
a.Nuclear	18	90.56	13.64	F=0.438
b.Joint	2	83.5	3.54	P=0.516(NS)
5.Age at menarche(years)				
a.11-13	10	89.1	10.99	F=0.017
b.14-15	7	90.14	17.15	P=0.983(NS)
c.>15	3	88.67	14.01	
6.Duration of the menstrual distress (days)				
a.9-10	7	91.71	11.1	F=0.325
b.11-12	13	88.15	14.3	P=0.576(NS)
7.Habit of taking tablets				
a.Yes	4	95.5	9.26	F=1.512
b.No	16	87.62	13.52	P=0.235(NS)

NS-Non Significant

Table 9: ANOVA between posttest of premenstrual syndrome and demographic variables among students in the experimental group(n=20)

Demograhic Variables	Premenstrual syndrome			ANNOVA Test Value &P-Value
	Number	Mean	SD	
1.Age (Years)				
a.17-18	9	68.22	17.58	F=0.135
b.19-20	11	65.91	10.31	F=0.718(NS)
2.Family Income(Rs/month)				
a.<5000	6	73.67	8.5	F=3.652
b.50001-10000	6	56	3.34	P=0.048
c.>10000	8	70.12	17.22	
3.Habitance				
a.Urban	9	65	12.75	F=0.351
b.Suburban	4	65	9.83	P=0.709(NS)
c.Rural	7	70.57	17.47	
4.Type of family				
a.Nuclear	16	65	13.98	F=1.680
b.Joint	4	74.75	10.44	P=0.211(NS)
5.Age at menarche(years)				
a.11-13	10	63.9	13.22	F=0.528
b.14-15	8	70.75	15.95	P=0.599(NS)
c.>15	2	67	0	
6.Duration of the menstrual distress (days)				
a.9-10	10	69	15.46	F=0.325
b.11-12	5	62.4	11.15	P=0.700(NS)
c.13-14	5	67.4	13.87	
7.Undergone treatment				
a.Yes	3	67	18.52	F=0.010
b.No	17	66.94	13.41	P=0.995(NS)
8.Following traditional remedies				
a.Yes	2	78.5	33.24	F=1.634
b.No	18	65.67	11.28	P=0.213(NS)
9.Family History of	2	70	5.65	F=0.105
Menstrual problem	18	66.61	14.37	P=0.750(NS)

Table 10: ANOVA between posttest of premenstrual syndrome and demographic variables among students in the experimental group(n=20)

Demograhic Variables	Premenstrual syndrome			ANNOVA Test Value &P-Value
	Number	Mean	SD	
1.Age (Years)				
a.17-18	4	100.5	21.51	F=0.690
b.19-20	13	90.31	13.11	P=0.515(NS)
b.20-21	3	94	16.09	
2.Family Income(Rs/month)				
a.<5000	5	94.4	15.74	F=0.290
b.50001-10000	10	9.2	17.31	P=0.752(NS)
c.>10000	5	90.8	11.94	
3.Habitance				
a.Urban	10	95.6	13.73	F=0.300
b.Suburban	5	90.4	17.31	P=0.745(NS)
c.Rural	5	90.8	17.66	
4.Type of family				

a.Nuclear	18	94.22	15.28	F=1.452
b.Joint	2	81	2.83	P=0.248(NS)
5.Age at menarche(years)				
a.11-13	10	93.4	13.3	F=0.042
b.14-15	7	91.57	19.13	P=0.959(NS)
c.>15	3	94.33	15.53	
6.Duration of the menstrual distress (days)				
b.11-12	7	96.71	13.37	F=0.682
c.13-14	13	90.85	15.97	P=0.420(NS)
7.Habit of taking Tablets				
a.Yes	4	100.75	10.93	F=1.392
b.No	16	90.94	15.54	P=0.253(NS)

6. Discussion and Conclusion

This study showed that in the experimental group the overall pretest mean was 102.00 with standard deviation 25.68 and for the control group the overall pretest mean was 89.40 with standard deviation of 13.08.The independent ' t' value shows that there was no significant difference found between experimental and control group which reveals that both group experiences the same level of premenstrual syndrome.

For the experimental group the overall posttest mean was 66.95 with the standard deviation of 13.69 and for the control group the overall pottest mean was 92.90 with standard deviation of 15.03.The independent ' t' value shows that there was a significant difference found between experimental and control group at level of P<0.001

For the experimental group the overall mean difference was 35.05 with standard deviation of 13.95 and for the control group the overall mean difference was 3.50 with the standard deviation of 5.85.The independent ' t' value shows that there was highly a significant difference between experimental and control group at the level of P<0.001.This reveals that there is a significant decrease in premenstrual syndrome in the experimental group after performing progressive muscle relaxation when compared to control group.

The study results was correlated with the study done by Groer M.Ohnesorge (1993) he investigated the effect of progressive muscle relaxation on premenstrual syndrome .Thirty college students with regular menstrual cycles were studied for a period of 6 months. The participants completed the Moos Menstrual Distress Questionnaire at the beginning of the study

Followed by progressive muscle relaxation .At the end of the study the participants were assessed with the same questionnaire. Participants who completed the entire study had significant decline in the total menstrual distress.
This study provides preliminary evidence that premenstrual distress is amenable to the mind body intervention of progressive muscle relaxation .This highlights the effectiveness of progressive muscle relaxation on premenstrual syndrome.

The stated hypothesis for this study " There is a significant difference in premenstrual syndrome among the students who performed the progressive muscle relaxation regularly than those who did not " The progressive muscle relaxation was found to be effective in reduction of premenstrual syndrome and helps students to maintain balance in their physical and emotional status. Thus the stated hypothesis is accepted.

The third objective of the study was to associate the premenstrual syndrome with selected demographic variables in the experimental group

The association of demographic variables with premenstrual syndrome among students in the experimental group was assessed by using ANOVA.

This study revealed that in pretest there was no association found between premenstrual syndrome and demographic variables. In the posttest there was a significant association between family income and premenstrual syndrome at the level of P<0.05 Other demographic variables did not show any significant association with premenstrual syndrome.

Certain limitations of study includes: sample size and duration of the study seems to be lesser to generalize the findings. Maintaining calendar of premenstrual syndrome would help students to recognize symptoms at the time of assessment and improve the accuracy of results.

7. Recommendations

The findings of the study help to develop further recommendations as follows.

This study can be replied on larger sample size with extended period of time to generalize the findings.

A comparative study can be conducted between progressive muscle relaxation ad other relaxation techniques like jyoga, acupuncture ,massage therapy on premenstrual syndrome.

Replication of this study in different setting to strengthen the findings.

The study can be conducted to determine the effectiveness of progressive muscle relaxation on other condition such as insomnia, hypertension, pain and anxiety.

Transcultural studies can be conducted regarding the prevalence of premenstrual syndrome

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