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A study to assess the effect of progressive muscle relaxation (PMR) on stress, anxiety and pregnancy outcome among primigravida in a selected hospital at Jabalpur (M.P.).

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Abstract
Background of study: Pregnancy is an important event, one of the great honors and God's gift to woman, for this woman is respected everywhere. It is surrounded by many positive values ranging from enhancement of the self esteem to social approval. The highest value placed on the woman in most societies is the role as mother which make the motherhood as central to woman's life. Pregnancy and childbirth is a great event in the life of every woman for which she aspires and longs for, with great expectation. She has fantasies about pregnancy and motherhood.

Objectives: The objectives of the study were to, Assess the effect of progressive muscle relaxation on stress and anxiety among primigravida, Assess the effect of progressive muscle relaxation on pregnancy outcome among primigravida, Identify the relationship between stress and anxiety with pregnancy outcome among primigravida., Associate the selected background variables with stress and anxiety among primigravida.

Result: The PMR was scheduled to their convenience, which included both mind and body interventions. The literature provided and substantiated that the complementary therapies are commonly used as the intervention. The video teaching on PMR to the women was perceived as one of the effective methods to relax their mind and improve their pregnancy outcomes.

Conclusion: The study suggests that the progressive muscle relaxation practices is useful during pregnancy by decreasing stress, anxiety and improving the pregnancy outcome in terms gestational age at birth, mode of delivery, birth weight and reducing the occurrence of post partum complications.

Keywords: Progressive muscle relaxation (PMR), stress, anxiety, pregnancy outcome

Introduction
The psychological changes also depend upon whether the pregnancy was planned or unplanned, wanted or unwanted, becoming pregnant after a long period or after medical intervention like IVF, changes in the role, changes in the relationships, fear of being a good parent, fear of problems associated with the pregnancy or the baby, fear of childbirth and lack of support and being alone, the amount of help the couple might expect to receive in raising the child, the type of relationship whether stable or transient with the partner, pressure from the partner or family to become pregnant. Life stress, perceived social support in relations between stress and symptoms during pregnancy reveal influences of socio-demographic factors (i.e., socioeconomic status, age, parity), stress (partner conflict and life events), and social support on symptoms of anxiety and depression. Women who reported low levels of social support showed stronger relations between stress and symptoms 34 than women who reported high levels of social support, indicative of a mediating effect of social support.

Objectives
The objectives of the study were to
- Assess the effect of progressive muscle relaxation on stress and anxiety among primigravida.
- Assess the effect of progressive muscle relaxation on pregnancy outcome among primigravida.
- Identify the relationship between stress and anxiety with pregnancy outcome among primigravida.

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- Associate the selected background variables with stress and anxiety among primigravida.

Hypothesis

H1: There is a significant difference in the level of stress among primigravida who practice progressive muscle relaxation than those who do not.
- **H2:** There is a significant difference in the level of anxiety among primigravida who practice progressive muscle relaxation than those who do not.
- **H3:** There is a significant difference in gestational age at birth among primigravida who practice progressive muscle relaxation than those who do not.
- **H4:** There is a significant difference in mode of delivery among primigravida who practice progressive muscle relaxation than those who do not.
- **H5:** There is a significant difference in APGAR score of the newborn of primigravida who practice progressive muscle relaxation than those who do not.
- **H6:** There is a significant difference in birth weight of the newborn of primigravida who practice progressive muscle relaxation than those who do not.
- **H7:** There is a significant difference in the occurrence of post-partum depression among primi mothers who practice progressive muscle relaxation than those who do not.

Assumptions
- Pregnancy is maturational crisis.
- Individual is a bio psychosocial being in constant interaction with a changing environment.
- Primigravida experiences mood disturbance.
- Stress is cumulative which endangers the health of the mother and fetus.
- Individual is viewed as holistic adaptive system.
- Relaxation enhances the sense of wellbeing.

Methodology
The research design adopted for this study was randomized controlled trial conducted at department of obstetrics, Sri Ramachandra Hospital with a sample size of 250 primigravida, 125 in each group, allotted using lottery method of randomization. The instruments had 9 parts: Part I- Background Variables, Part II- Stress scale, Part III- State and trait anxiety inventory, Part IV- Pregnancy outcome, Part V- Maternal complications, Part VI- foetal/neonatal complications, Part VII- Postpartum depression scale, Part VIII- Progressive muscle performance check list and Part IX - Daily performance dairy. Data were collected from the primigravidae at 21-22 weeks of gestational age, 31-32 weeks of gestational age, during delivery and 6 weeks following delivery. The progressive muscle relaxation was the intervention (video) installed on one -to- one basis for two consecutive days and issued audio cassette/CD followed by self-practice at home daily once for 10 weeks by the primigravidae, weekly reinforcement through phone and direct reinforcement during visits to antenatal clinic for the study group along with routine care, but for the control group the video was shown on the 6 weeks after postpartum period.

Findings
Stress
- Comparison of the level of stress among primigravida

in the pretest, 48 (38.4%) in the study group and 53 (42.4%) in the control group had mild stress. 77 (61.6%) in the study group and 72 (57.6%) in the control group had moderate stress. No significant difference was found between groups on stress.
- In the posttest, 51 (41.6%) in the study group and 19 (15.2%) in the control group had mild stress, 67 (54.4%) in the study group and 71 (56.8%) in the control group had moderate stress and 5 (4.0%) in the study group and 35 (28.0%) in the control group had severe stress. The groups had a significant difference exhibited by chi square value of 24.81 with $P<0.001$.
- The pretest stress score for the study group was 49.47 with a SD of 8.94 and the control group had a stress score of 48.38 with a SD of 8.65 which revealed absence of statistical significance in the stress score between groups.
- The posttest mean score of stress for the study group was 40.52 with a SD 8.61 and the control group had a mean score of 77.56 with a SD 8.89.
- There was a highly significant reduction at $P<0.001$ in all the aspects of stress among the study group than the control group.
- The mean difference of stress was 8.95 with a SD 2.70 and 29.18 with a SD 3.88 for the study and control group respectively. There was a highly significant reduction in the stress mean score of the study group than the control group at the level of $P< 0.001$.

Anxiety
- Comparison of the level of state anxiety among in the pretest, 36 (28.8%) in the study group and 41 (32.8%) in the control group had mild anxiety. 89 (70.2%) in the study group and 84 (67.2%) in the control group had moderate anxiety. No significant difference was found between groups on state anxiety.
- In the posttest, 22 (17.9%) in the study group and 9(7.2%) in the control group had mild anxiety, 97 (78.9%) in the study group and 84 (67.2%) in the control group had moderate anxiety and 4 (3.2%) in the study group and 32 (25.6%) in the control group had severe anxiety. The groups had a significant difference exhibited by chi square value of 17.80 with $P<0.001$.
- The level of trait anxiety in the pretest, 39 (31.2%) from the study group and 43 (34.4%) in the control group had mild anxiety. 86 (68.8%) in the study group and 82 (65.6%) in the control group had moderate anxiety. No significant difference was found between groups on trait anxiety.
- In the posttest, 24 (19.5%) in the study group and 10 (8.0%) in the control group had mild anxiety, 95 (77.3%) from the study group and 83 (66.4%) in the control group had moderate anxiety and 4 (3.2%) in the study group and 32 (25.6%) in the control group had severe anxiety. The groups had a significant difference exhibited by chi square value of 18.60 with $P<0.001$.
- The overall anxiety in the pretest, 38 (30.4%) in the study group and 44 (35.2%) in the control group had mild anxiety. 87 (69.6%) in the study group and 81 (64.8%) in the control group had moderate anxiety. No significant difference was found between groups on overall anxiety.
- In the posttest, 26 (21.1%) from the study group and 11 (8.8%) from the control group had mild anxiety, 93

(75.6%) in the study group and 82 (65.6%) in the control group had moderate anxiety and 4 (3.2%) in the study group and 32 (25.6%) in the control group had severe anxiety. The groups had a significant difference exhibited by chi square value of 19.80 with $P<0.001$.

- The mean difference of anxiety, state anxiety for the study group was 2.13 with a SD 6.79 and for the control group it was 10.24 with a SD 8.83 which reveals that there was a significant decrease in state anxiety for the study group at $P<0.001$. The mean difference in the trait anxiety for the study group was 1.18 with a SD 6.02 and for the control group it was 2.96 with a SD 6.31 and the mean difference of overall anxiety for study group was 1.66 with a SD 6.35 and for the control group it was 6.61 with a SD 7.23 which reveals that there was a significant decrease in overall anxiety for the study group at $P<0.001$.

Pregnancy outcome
- Regarding gestational age at birth, 108 (88.5%) in the study group and 98 (79.7%) in the control group delivered after 37 weeks and 14 (11.5%) in the study group and 25 (20.3%) in the control group delivered before 37 weeks. The mean weeks of gestational age (weeks) at birth was 38 with a SD 3.6 for the study group and the control group it was 37.2 with a SD 4.2 which reveals that there is a statistical significant difference in the gestational age at delivery between the study and the control groups at $P<0.05$.
- With regard to mode of delivery 90 (74.2%) in the study group and 61 (49.6%) in the control group had normal vaginal delivery, 27 (21.8%) in the study group and 50 (40.7%) in the control group had a caesarean section. Comparison between the study and the control group showed that there was a statistical significance in the mode of delivery at $P<0.001$.
- In relation to APGAR score of newborn, 120 (98.3%) in the study group and 110 (89.4%) in the control group had APGAR score of 7-10 score. 2 (1.7%) in the study group and 10 (8.2%) in the control group had APGAR of 4-6, none of the babies in the study group and 3 (2.4%) in the control group had APGAR score of 0-3. There was no statistical difference between the study and the control groups. The mean APGAR score was 8.3 with a SD 0.2 for the study group and 8.0 with a SD 0.6 for the control group.
- The birth weight of newborn between the study and the control groups reveals that 76 (62.3%) of the newborn in the study group had birth weight between 2.5-2.9 kg against 56 (45.5%) in the control group. The mean birth weight was, 2.71 kg with a SD 0.39 for the study group and 2.59 with a SD of 0.54 for the control group. There was a statistically significant difference at the level of $P<0.01$.
- There is an increased occurrence of all maternal complications among the control group in comparison with the study group. A statistically significant difference was found in the occurrence of PIH, GDM, induced labor and delayed wound healing at p <0.05 and anemia at $P<0.01$ among the participants of the control group than the study group.
- Comparison of maternal complications with level of anxiety between the study and the control groups showed there is an increased occurrence of all maternal

complications among the control group in comparison with study group. But no statistically significant difference was found in the occurrence of complications between the control group and the study group.

- The foetal/neonatal complications between the study and the control group showed an increased occurrence of all foetal/neonatal complications among the control group in comparison with the study group. There is a statistically significant difference in the occurrence of birth asphyxia and jaundice p <0.05 and neonatal respiratory distress at $P<0.01$ among the control group than the study group.
- Comparison foetus/newborn complications with level of anxiety between the study and the control groups had an increased occurrence of all foetal/neonatal complications among the control group in comparison with the study group. There is no statistically significant difference found between the study and the control groups.
- The mean percentage of the maternal complication for the study group was 3.80 with a SD of 5.86 and for the control group it was 8.77 with a SD of 9.23 which was statistically significant at the $p<0.001$. With regard to foetal/newborn complications the mean percentage of the complications was 1.93 with a SD of 4.35 for the study group and it was 7.15 with a SD of 10.95 for the control group which was statistically significant at the $p<0.001$. The overall complications between the study and the control group was statistically significant at the $p<0.001$.
- Postpartum depression among primimothers showed that 8 (7%) of the study group participant had post-partum depression and 24 (20%) in the control group had post-partum depression.
- The mean score of postpartum depression for the study group was 6.9 with a SD 2.45 and for the control group it was 10.54 with a SD of 2.71. There was statistically significant difference at the level of $P<0.001$.

Correlation
There was a positive correlation between stress and state anxiety, trait anxiety, postpartum depression. A negative correlation between stress and gestational age at birth and birth weight.
There is a strong negative correlation between PMR and stress, PMR and state anxiety at $P<0.001$ and moderate negative correlation between PMR and postpartum depression at $P<0.01$ and PMR and trait anxiety $P<0.05$ and moderate positive correlation between PMR and birth weight $P<0.01$ and PMR and gestational age at birth at $P<0.05$.

Conclusion
The study suggests that the progressive muscle relaxation (PMR) practice is useful during pregnancy by decreasing stress, anxiety and improving the pregnancy outcome in terms of gestational age at birth, mode of delivery, birth weight of the newborn and reduce the occurrence of postpartum complications.

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