CHAPTER V

DISCUSSION

Pregnancy is a period of enormous physio-pathological and psychosocial adaptation, often producing increased stress and anxiety. Psychological factors have an important role to play in the development of anxiety rather physiological changes. Significant increase in the levels of stress hormones may compromise the health of both mother and fetus. Complementary alternative therapies (CAM) are increasingly popular among expectant mothers which can be used constructively to deal with physio-pathological as well as psychological stress and anxiety. One of the CAM is progressive muscle relaxation. Practicing progressive muscle relaxation by the primigravidae helps to reduce the stress, anxiety and also improves the pregnancy outcome.

This chapter deals with the detailed discussion on the findings of the study interpreted from the statistical analysis. The findings are discussed in relation to the objectives of the study and the strength and limitation are also included.

Characteristics of the study samples

Primigravidae with minimal, mild, moderate level of stress and anxiety were selected for the study. The major focus of the intervention was to promote their emotional wellbeing and reduce their level of stress and anxiety. Those women, who had severe stress and anxiety were excluded from the study as they were directed to the consultant.

Distribution of background variables among primigravidae in the study and the control groups showed that majority of them, in the study group 60 (48%) and 57(45.6%)
in the control group were in the age group of 25-29 years and 29(23.2%) in the study group and 39(31.2%) in the control group belonged to the age group of 20-24 years.

The educational status showed that 37 (29.6%) women in the study group had high school education and 35(28.0%) in the control group had highersecondary school education, none in the study group and 3(2.4%) in the control group had no formal education.

Regarding location, 63(50.4%) in the study group and 59(47.2%) in the control group were residing in suburban area. 30(24%) in the study group living in urban area, and 27(21.6%) in the control group were living in rural area.

Analysis of the types of family shows that 72(57.6%) in the study group and 68(54.4%) in the control group belonged to nuclear family system. The extended family system was being followed by 18(14.4%) in the study group and 16 (12.8%) in the control group.

The nature of job revealed that 82(65.6%) in the study group and 79(63.2%) in the control group belonged to the homemaker category and 8(6.4%) in the study group and 5(4.0%) in the control group were professionals.

Regarding income,53 (42.4%) in the study group and 64 (51.2%) in the control group received Rs 7501- 10000 per month. 14 (11.2%) in the study group and 16 (12.8%) in the control group received Rs 10,001-12,500 per month.

None of them in the study and control group attended Mother Craft Classes

Regarding source of information 76 (60.8%) in the study group and 74(59.2%) in the control group had received information through the family members and 28 (22.4%) in the study group and 29 (23.2%) in the control group received it through TV/Radio.
The chi square revealed homogeneity between the study and control groups with regard to the background variables.

Socio psycho economic variables in the study and the control group. Majority of them in the study group, 55 (44%) and 52 (41.6%) in the control group had got sometimes support from the husband, 77 (61.6) in the study group and 76 (60.8%) in the control group had got sometimes support from their family members and 55(44.0%) in the study group 56(44.8%) in the control group had got sometimes support from the friends/peers.

With regard to psychological variables 78 (62.4%) in the study group and 73 (58.4%) in the control group sometimes had understanding between partners, 55 (44.0%) in both the study and the control groups had sometimes feeling of cared, 56 (44.8%) in the study group and 57(45.6%) in the control group experienced sometimes respect for personal feeling, 56 (44.8%) and 57 (45.6%) in the control group sometimes felt others trustworthy and 88 (70.4%) in the study group and 74 (59.2%) in the control group never had understanding in workplace.

82 (65.6%) in the study group, 86 (68.8%) in the control group sometimes experienced physical abuse. 83 (66.4%) in the study group 57 (45.6%) in the control group sometimes experienced verbal abuse and 55 (44.0%) in the study group and 58 (46.4%) in the control group sometimes experienced sexual abuse.

In relation to substance abuse by the spouse 66 (52.8%) in the study group and 75 (60.0%) in the control group sometimes spouse had habit of alcohol drinking, 71 (56.8%) in the study group and 66 (52.8%) in the control group spouse had sometimes
habit of smoking and 60 (48.0%) in the study group and 59 (47.2%) in the control group never had other habits.

Regarding the economic dependency 66 (52.8%) in the study group and 63 (50.4%) in the control group sometimes had economic independency and 56 (44.8%) in the study group and 63 (50.4%) in the control group sometimes had economic commitment.

The chi square revealed homogeneity between the study and control groups in the aspects of social support and psychological variable except in the aspect of abuse (0.001**), substance abuse by spouse (0.000*** ) and economic dependency (0.070*).

The first objective of the study was to evaluate the efficacy of progressive muscle relaxation on stress and anxiety among primigravidae

Stress

The study showed (Table 7) 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 in the pretest. No significant difference was found between groups on stress. The pretest mean score of stress (Table 11) in the study group was 49.47 with a SD of 8.94 and in the control group the overall stress was 48.38 with a SD of 8.65 reveals absence of statistical significant in the stress score between groups.

The study findings were consistent with the findings of the study done by Rondo, Ferreira, Nogueira, Ribeiro, Lobert and Artes (2003) on the prevalence of stress and distress during pregnancy which varied from 22.1 to 52.9% at Brazil and at Washington
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 study findings were consistent with the findings of the study done by Dumas Reid, Wolfe, Griffin (2005) the result showed that stress was progressively worse over time; Women in rural areas were less likely to develop stress during pregnancy.

The posttest mean score of stress (Table 12) in the study group had a overall mean score of 40.52 with 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 in the stress in the all the aspects of stress among the study group than in the control group at P<0.001.

Comparison of study group (Table 15) mean score of stress among primigravidae in the pretest and posttest revealed there is significant decrease in the stress in overall as well in the aspects of labour at p<0.001 and in the aspects of responsibility, relationship and fetus at p<0.01 and there was no significant change of stress in the aspects discomfort/illness and newborn care. Comparison of control group (Table 16) mean score of stress among primigravidae in the pretest and posttest revealed a significant increase in the stress in overall as well as in all the aspects of responsibility, relationship, discomfort/illness, fetus, labour and newborn care at p<0.001 level.
Comparison of mean difference of stress (Table 19) between the study and control group showed a mean difference of 8.95 with a SD 2.70 for the study group and 29.18 with a SD 3.88 for the control group pretest-posttest. There was a highly significant reduction in the mean difference of the stress between the study and the control groups at the level of p < 0.001.

After each day of practice of PMR the primigravidae verbalized that they “felt refreshed and relaxed” “all their fear and tension had drained from their body” and “it is energizing and creating confidence”.

These findings were supported by the study done by Chang Chen Huang (2008) by using a randomized experimental study to assess the effects of music therapy on psychological stress during pregnancy. The result revealed that the music therapy group showed significant decrease in PSS, S-STAI and EPDS after two weeks. An ANCOVA test with the pretest scores as the control revealed the changes in PSS, S-STAI and EPDS after two weeks were significantly decreased in the experimental group compared with the control group. The controlled trial provides preliminary evidence that two-week music therapy during pregnancy provides quantifiable psychological benefits. The findings can be used to encourage pregnant women to use this cost-effective method of music in their daily life to reduce their stress, anxiety and depression.

The present study is supported by another study findings supporting the same by Nacy, Bourugion, Cheryltylor, Gill and Sharon (2008) determined the effects of relaxation guided imagery(R-GI) as a primary prevention strategy for stress management during second trimester of pregnancy. All participants documented
perceived benefits of R-GI that includes improved breathing, ability to relax, clear one’s mind and become calm. Ability to channel and decease stress, release anxiety, control anger and improve ability to fall and stay asleep.

Hence the hypothesis (H₁) “There is a significant difference in the level of stress among primigravidae who practice progressive muscle relaxation than those who do not” was accepted.

Anxiety

This study showed the pretest state anxiety (Table 8) 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 trait anxiety (Table 9) of the pretest 39(31.2%) in 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 state anxiety.

In the overall anxiety (Table 10) of 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.

The findings are consistent with the study done by Nasreen, Kabir, Forsell and Edhborg (2011) on prevalence of depressive(ADS) and anxiety symptoms(AAS). It showed the prevalence of ADS as 18% and AAS 29% and Faisal Cury and Rossi
Menezes (2007) found that the prevalence of antenatal anxiety, state and trait were 59.5 (95 CI%: 54.8:64.1%) and 45.3% (95% CI: 40.6:50.0) respectively.

The pretest mean score of anxiety (Table 13 ) showed the study group had a mean of 45.19 with the SD 5.26, the control group had a mean of 44.08 with a SD 3.83. There was no statistically significant difference in the state anxiety between groups. With regard to trait anxiety, the study group mean score was 40.74 with SD 5.63 and in the control group the mean score was 39.55 with a SD 3.85. There was no statistically significant difference in the trait anxiety between groups. The overall anxiety of the study group had a mean of 42.96 with the SD 5.45, the control group had a mean of 41.81 with the SD 3.84. There was no statistically significant difference in the overall anxiety between groups.

In the posttest state anxiety (Table 8) 22 (17.9%) in the study group and 9(7.2%) in the control group had a mild anxiety, 97(78.9%) in the study group and 84(67.2%) in the control group had a moderate anxiety and 4(3.2%) in the study group and 32(25.6%) in the control group had a severe anxiety. The groups had a significant difference exhibited by chi square value of 17.80 with p<0.001. With regard to the posttest trait anxiety, 24(19.5%) in the study group and 10(8.0%) in the control group had mild anxiety, 95(77.3%) in 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 posttest overall anxiety showed that 26(21.1%) in the study group and 11(8.8%) in 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
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 findings were consistent with study findings by Lee, Lam Sze Mun, Lau, Chong, Chui and Fong. (2007) identified that antenatal anxiety and depression prevalent and serious problems with changing courses. The study insisted on continuous assessment over the course of pregnancy to be warranted. Identifying and treating these problems are important in preventing postpartum depression.

The posttest mean score of anxiety (Table 14) among primigravidae between the study and the control groups reveals the study group had a mean of 43.02 with a SD of 7.13 and control group had mean of 54.32 with a SD 8.44. There was a significant reduction in the state anxiety between the study and control groups at p<0.001. With regard to trait anxiety, the study group had a mean score of 37.56 with the SD 6.01 and the control group had a mean of 42.51 with a SD 6.97, there was a significant reduction in the trait anxiety between the study and the control groups at p<0.001. The overall anxiety reveals that the study group had mean score of anxiety of 40.29 with SD 6.62 and the control group had a 48.41 with a SD 7.71. There was a significant reduction in the overall anxiety between the study and the control group at p<0.001.

Comparison of pretest and posttest mean score of anxiety (Table 17) in the study group shows there was a significant decrease in the state anxiety with mean difference of 2.13 with a SD 6.79 and trait anxiety with mean difference of 1.18 and a SD of 6.02. In the overall anxiety there was a significant decrease with mean
difference of 2.67 with SD a 5.94 which reveals the reduction of state and trait anxiety and over all anxiety at p<0.001 after 10 weeks of progressive muscle relaxation.

Comparison of pretest and posttest mean score of anxiety (Table 18) in the control group showed that an increase in the state anxiety with mean difference of 10.24 and a SD 8.83 and increase in trait anxiety of 2.96 with a SD 6.31. There was an overall increase in anxiety mean score of 6.61 with a SD 7.23 which reveals there was significant increase in state and overall anxiety at p<0.001 level. No significant change was noted in the trait anxiety.

Comparison of mean difference of anxiety (Table 20) between the pretest and posttest of 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 revealed there was a significant decrease in state anxiety for the study group at p<0.001. The mean difference in the trait anxiety for 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 in the overall anxiety for the 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 revealed that there was a significant decrease in overall anxiety for the study group at p<0.001.

The finding is supported by the study done by Vieten and Astin (2008) ’S eight-week mindfulness-based intervention done during pregnancy showed significantly reduced anxiety (effect size, 0.89; p < 0.05) and negative affect (effect size, 0.83; p < 0.05) during the third trimester in comparison to those who did not receive the intervention. The brief and non pharmaceutical nature of this intervention makes it a promising effect during pregnancy.
Hence the hypothesis (H₂) “There is a significant difference in the level of anxiety among primigravidae who practice progressive muscle relaxation than those who do not” was accepted.

The second objective was to evaluate the efficacies of progressive muscle relaxation on pregnancy outcome among primigravidae.

The pregnancy outcome of the study includes the gestational age at delivery, mode of delivery APGAR score, birth weight of newborn, maternal and foetus/newborn complications and occurrence of postpartum depression among primigravidae (Table 21).

**Gestational age at birth**

Regarding gestational age at birth, the study group 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, which revealed a statistical significant difference at gestational age at delivery between the study and control group at p<0.05. The mean score of pregnancy outcome (Table 23) revealed that in the study group the mean weeks of gestational age at birth was 38 with a SD 3.6 and the control group it was 37.2 with a SD 4.2 which showed a significant different at p<0.05.

The study findings were consistent with the study done by Glynn, Laura, Schetter, Hobel and Sandman, Curt (2008) on the pattern of prenatal stress, and preterm delivery (PTD) among pregnant women at 18-20 and 30-32 weeks' gestation which revealed that anxiety and stress were associated with gestational length. Majority of women who delivered at term exhibited declines in stress and anxiety, those who
delivered preterm exhibited increases. The pattern of prenatal stress is an important predictor of PTD. A decline in stress responses during pregnancy may help to protect mother and fetus from adverse influences associated with PTD.

Hence the hypothesis \(H_3\) “There is a significant difference in gestational age at birth among primigravidae who practice progressive muscle relaxation than those who do not” was accepted.

**Mode of delivery**

With regard to **mode of delivery** between study and control group among primigravidae 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 50 (40.7%) in the control group had caesarean section, there was a statistically significance in the mode of delivery at \(p<0.001\) between the study and control group.

The finding was supported by the study of Zhou and Li (2011) which elicited the prenatal anxiety lead to increased rate of non-indicative cesarean section and intrapartum hemorrhage during the cesarean section.

Hence the hypothesis \(H_4\) “There is a significant difference in mode of delivery among primigravidae who practice progressive muscle relaxation than those who do not” was accepted.

**APGAR score**

In relation to APGAR score of newborn between the study and control group among primigravidae. 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. This revealed no statistical difference between the groups. The intrapartum foetal monitoring, early detection and management of foetal distress prevented the newborn suffering from birth asphyxia.

The findings is contradicted by the study done by Pagel, Smilkstein, Regen and Montano (1990) on social and psychological stress factors which influence pregnancy outcome such as birth weight, gestational age, 1 and 5 min APGAR scores confirmed that the life events stress accounted for significant variation in both 1 minute and 5 minute APGAR scores, birth weight, gestational age at birth.

Hence the hypothesis (H₅) “There is a significant difference in APGAR score of the newborn of primigravidae who practice progressive muscle relaxation than those who do not” was rejected.

**Birth weight of newborn**

The birth weight of newborn between the study and control group revealed that, in the study group 76(62.3%) of the newborn had birth weight between 2.5-2.9 kg against 56 (45.5%) in the control group. There was a statistically significant difference at the level of P<0.001. The mean birth weight was 2.71 kg with a SD 0.39 for the study group and 2.59 with a SD 0.54 for the control group. This revealed that there was a 120 grams difference in mean birth weight, which was statistically significant at p <0.01.

The findings is supported by the study done by Marci, Cannella, Lacey; Graham, Jennifer DeVincent, Schneider, Meyer, and Bruce, (2008) on pregnancy-specific stress
and birth outcomes which contributed directly to preterm delivery and indirectly to low birth weight. Pregnancy-specific stress may be a more powerful contributor to birth outcomes than general stress.

The findings is supported by the another study of Shama nthakamani Narendran, Raghuram Nagarat hna, Vivek Narendran, Sulochana Gunasheela, and Hongasandra Rama Rao Nagendra (2005) on efficacy of yoga on pregnancy outcomes proved the number of babies with birth weight ≥2500 grams which was significantly higher ($p < 0.01$) in the yoga group. Preterm labor was significantly lower ($p < 0.0006$) in the yoga group. There were no significant adverse effects noted in the yoga group.

Bastani and Hidarnia (2006) proved 7-week applied relaxation training on anxiety and perceived stress not only reduce stress and anxiety but also cause significant reductions in low birth weight, cesarean section, and/or instrumental extraction. The study proved that nurse-led relaxation education sessions during the prenatal period improve pregnancy outcomes in women with stress and anxiety.

So the hypothesis (H$_6$) “There is a significant difference in birth weight of the newborn of primigravidae who practice progressive muscle relaxation than those who do not” was accepted.

**Maternal and foetus/newborn complications**

The comparison of the maternal complications (Table 24) between the study and the control groups revealed there was an increased occurrence of all maternal complications among the control group in comparison with study group. A statistically significant difference was found in the occurrence of PIH,GDM, induced labor and
wound healing at $p < 0.05$ and anemia at $p < 0.01$ among the control group than the study group.

The findings were supported by study of Leeners, Wagner, Kuse, Stiller and Rath (2007) on the correlation between emotional stress during pregnancy and the risk for hypertensive diseases in pregnancy (HDP) which was associated with a 1.6-fold increased risk for HDP. Psychosocial interventions to reduce emotional stress during pregnancy may help to decrease the risk to develop HDP.

Another study by Suzie Daniells, Grenyer, Davis, Coleman, Burgess, and Moses (2003) on anxiety levels of women diagnosed with gestational diabetes mellitus (GDM) and to compare these with glucose-tolerant (GT) revealed that women with GDM, compared with GT women, had a higher level of anxiety (state rather than trait) at the time of the first assessment.

The comparison of maternal complication with level of anxiety (Table 25) between the study and control group revealed there was an increased occurrence of all maternal complications among the control group in comparison with study group, but no statistically significant difference is found in the occurrence of complications between control group and the study group.

The comparison of foetal/neonatal complications (Table 26) between the study and the control group diplyed that there was an increased occurrence of all foetal/neonatal complications among the control group in comparison with study group. There is a statistical significant difference in the occurrence of birth asphyxia and neonatal jaundice $p < 0.05$ and neonatal respiratory distress at $p < 0.01$ among the participants of control group than the study group.
The comparison of foetus/newborn complications with level of anxiety (Table 27) between the study and control groups showed there was an increased occurrence of all foetal/neonatal complications among the control group in comparison with the study group. There was no statistically significant difference found between the study and the control groups.

The mean percentage of the maternal and foetal/newborn complications (Table 28) between the study and control groups presents 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 complication 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 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**

The frequency and percentage distribution of occurrence of postpartum depression (Table 29) between the study and control groups shows that 8(7%) of study had postpartum depression and 24 (20%) of control had postpartum depression. The comparison of postpartum depression (Table 30) among primiparas revealed that 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 in mean value at the level of p<0.001.
The findings were supported by the study of Grant, McMahon and Austin (2008) on the course of maternal anxiety across the transition to parenthood which was found to be a significant predictors of postnatal anxiety and mood disorders (p values<.05).

Lee, Lam Sze Mun, Lau, Chong, Chui and Fong (2007) identified that antenatal anxiety and depression were prevalent and serious problems with changing courses. The findings suggested that continuous assessment over the course of pregnancy is warranted. Identifying and treating these problems is important in preventing postpartum depression.

Hence the hypothesis (H₇) “There is a significant difference in the occurrence of postpartum depression among primipothers who practice progressive muscle relaxation than those who do not” was accepted.

**Third objective was to identify the relationship between stress and anxiety with pregnancy outcome among primigravidae.**

Correlation between stress, anxiety and pregnancy outcome in the study group and the control group revealed that (Table 32 & 33) 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.

Correlation among PMR and stress, state anxiety and trait anxiety of primigravidae in the study during Assessment II (Table 34) showed there was a strong negative correlation between PMR and stress and PMR and state anxiety at p<0.001, and a 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.
The findings were supported by study of Yasmin Neggers, Robert Goldenberg, Suzanne Cliver and John Hauth (2006) which identified that women with a poor psychosocial profile and depressed during pregnancy were at increased risk of giving birth to low birth weight and preterm infants.

**Fourth objective was to associate the selected background variables with stress and anxiety among primigravidae**

**Study group**

There was an association between age of the primigravidae and pretest stress at p<0.05 and source of health information at p<0.01, pretest stress and social support from husband at p<0.05, physical abuse and economical commitment p<0.01 and alcohol use p<0.001 at p<0.01.

Age of the primigravidae and posttest stress at p<0.05 and source of health information at p<0.01 posttest stress and social support from husband at p<0.05, physical abuse and economical commitment p<0.01 and alcohol use p<0.001

Type of family of the primigravidae and pretest state anxiety at p<0.05 and source of health information at p<0.01. pretest state anxiety and social support from husband at p<0.05, physical abuse and economical dependency p<0.01 and alcohol use p<0.001

Education and nature of work of the primigravidae and pretest trait anxiety at p<0.01 and source of health information at p<0.001 level. pretest trait and physical abuse and economical commitment p<0.01 and alcohol use p<0.001
Posttest state anxiety among and source of health information at p<0.001. posttest state anxiety and social support from husband at p<0.05, physical abuse p<0.01 and alcohol use p<0.001.

Posttest trait anxiety and source of health information at p<0.001. Posttest trait anxiety and physical abuse and economical commitment at p<0.01 level and alcohol use p<0.05.

**Control Group**

Source of health information with the pretest stress in the control group among at p < 0.01 between pretest stress anxiety and verbal abuse at p<0.01 and economical commitment p<0.001.

Pretest state anxiety and source of health information at p<0.001, with pretest state anxiety and some to have trust and economical dependency at p<0.001 and physical abuse and alcohol use at p<0.01.

Pretest trait anxiety and source of health information at p<0.001 and type of family p <0.05, pretest trait anxiety and family support p<0.01 and some to have trust, sexual abuse at p<0.05

Posttest stress source of health information at p<0.01, between posttest stress anxiety and verbal abuse at p<0.01

Posttest trait anxiety and income at p<0.05 and source of health information at p<0.001, posttest trait anxiety and sexual abuse at p<0.001.

The findings is supported by Nasreen, Kabir, Forsell and Edhborg (2011) identified the associated factors of antenatal anxiety symptom (AAS) were illiteracy,
poor household economy, lack of practical support, physical partner violence, violence during pregnancy, and interaction between poor household economy and poor partner relationship.

Another study done by Karmaliani, Asad, Bann, Moss, Mcclure, Pasha, Wright, and Goldenberg (2009) among Pakistani women revealed that anxiety is higher among women experiencing sexual/physical as well as verbal abuse, also increased among women with unemployed spouses and those with lower household wealth.

Surapol Wingwonham Thitadilok, and Singhakant (2008) found anxiety to be independently associated with mental health problem including worrying about health, stress of taking care of other family members and financial problem.

The researcher assumed that the fundamental right of the women and the gift we can give to pregnant women is making herself and as well her foetus to have safe and healthy stay during course of pregnancy that in turn enhances the healthy future life. The simple, cost effective intervention by the nurses in both hospital as well as in the community settings pave the way for achieving the goal.

**Theory application**

Sr.Callista L.Roy’s adaptation model was used to guide this study. It seems clear that the results of the study could support the theory. According to this theory, Individual is a biopsychosocial being in constant interaction with a changing environment and they needs to cope with stimuli from the internal and external environment. Nurses play a vital role in influencing the external stimuli and bringing positive internal and external environment to enhance the optimal health of an individual. In this study the primigravidae experiences physiological, psychological and social changes, that makes
pregnancy as stressful and anxious one. This may endanger the health of the mother and baby. The relaxation techniques is very useful for managing stress anxiety symptoms.

In this study primigravidae who performed 10 weeks of the progressive muscle relaxation reported reduced stress and anxiety symptom than the primigravidae who did not perform at the statistical significant of p<0.001. This in turns caused improved pregnancy outcome in terms of increased gestational age at birth (p<0.05), birth weight(p<0.01) aided normal vaginal delivery(p<0.001), decreased the maternal,foetal/newborn complications and postpartum depression (p<0.001). Thus support the theory concept by simple, cost effective intervention we can modify the stimuli and brings positive internal environment of the primigravidae.

**Strength of the study**

The study was throughout a challenging process. On one-to-one basis the PMR was taught with the help of video and it was enacted by the participants under supervision of researcher and also the participants performed it during their visit to antenatal clinic and it was further assessed during 23-24 weeks and 31-32 week.

Telephonic reinforcement was given every week and direct reinforcement was given during antennal visit for the study group to improve their adherence to PMR practice and also the performance dairy maintenance at home setting.

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.
**Limitation of the study**

The limitation faced by researcher during the study period was

The participants were limited to low risk primigravidae at 21-22 weeks of gestational age attending OPD at Sri Ramachandra Hospital. So generalization of the present results to a more diverse group of women, including high risk pregnant women, is therefore not appropriate.

Even though randomization was done homogeneity could not established in the few socio-psychoeconomic variables.

The researcher had no control over the pregnancy outcome such as gestation age at birth, mode of delivery, birth weight and other complications, because it may be influenced by other factors such as nutritional, familial, and genetic factors.

Measurement of psychological components is complex and very difficult, yet the baseline value for anxiety and postpartum depression among the participants were all the above the population based mean, thus confirms that this population also was in fact distressed. Because psychological distress has associated with adverse pregnancy outcome, The findings raise the possibility of the benefits of progressive muscle relaxation might clinically meaningful.