# CHAPTER VI

## SUMMARY, CONCLUSIONS AND SUGGESTIONS

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CHAPTER VI

SUMMARY, CONCLUSIONS AND SUGGESTIONS

5.1 The Study in Brief

Anxiety is one of the most common problems of pregnant women and that has a varied prevalence and severity in different populations. The literature gives a wide range of prevalence in different parts of developed and developing world. It is a serious concern affecting the outcome of pregnancy and newborn care. The Investigator felt the need to estimate the prevalence of pregnancy-specific anxiety, antenatal depression and postnatal depression in this regional population using an intervention model to decrease the pregnancy-specific anxiety.

5.2 Objectives of the Study:

1. To determine the prevalence of general anxiety during three trimesters of pregnancy (antenatal), intranatal and postnatal period.
2. To determine the prevalence of pregnancy-specific anxiety during three trimesters of pregnancy (antenatal), intranatal and postnatal period.
3. To determine the prevalence of depression during three trimesters of pregnancy, (antenatal), intranatal and postnatal periods.
4. To identify the pregnant women’s knowledge of selected aspects of antenatal care such as diet in pregnancy, antenatal check-up, prevention of minor disorders of pregnancy, breastfeeding, and preparation for childbirth
5. To find out the relationship of anxiety and depression with pregnant women’s knowledge of selected aspects of antenatal care
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6. To determine the association between socio-personal variables and the levels of anxiety and depression

7. To find out the association between socio-personal variables and the levels of pregnant women’s knowledge of selected aspects of antenatal care

8. To identify the relationship between level of anxiety and outcome of labour

9. To compare the levels of anxiety of pregnant mothers in experimental and control groups before and after the planned childbirth education

10. To compare the gain in knowledge of the control and experimental groups

11. To compare the outcomes of labour in mothers in experimental and control groups
   a. Excluded from study after pilot study

5.3 Hypotheses

The Investigator intends to study the extent of anxiety and depression among pregnant women. By studying alone, the anxiety and depression among pregnant women could not be ameliorated; therefore, the Investigator planned an intervention program to minimize anxiety and depression among them.

The following hypotheses are formulated for this study.

1. There is a high level of anxiety among women during pregnancy and postnatal period.

2. There is a high level of depression among women during pregnancy and postnatal period.

3. There is an association between pregnancy-specific anxiety and the pregnant women’s knowledge of antenatal care.
4. There is an association between socio-personal variables and the pregnant women’s knowledge of antenatal care.

5. An intervention program of Planned Childbirth Education is an effective strategy to minimize the anxiety and depression of women during pregnancy and postnatal period.

5.4 Methodology

The main aim of the study was to identify the prevalence of anxiety and depression among pregnant women during pregnancy and postnatal period and also to find out the effectiveness of childbirth education programme on pregnancy-specific anxiety, knowledge gain related to preparation for childbirth. Independent variables were socio-personal variables, knowledge of antenatal care and childbirth education program which is the activity manipulated or varied by researcher to create an effect on dependent variables. Dependent variables were anxiety, depression, and gain in knowledge score, labour outcome of mother and baby.

The methodology of the study includes two phases. In Phase I a prospective cohort approach was used to find out the prevalence of anxiety and depression during pregnancy and postnatal period. The research approach adopted for Phase II was quasi experimental approach using pre-test post test control group design, as the study aims to determine the effectiveness of planned childbirth education on pregnancy anxiety and knowledge gain.

The pregnant women attending all Government hospitals in the State of Kerala were the population for the study. The Investigator in consultation with the Guide selected the Government Victoria Hospital of Kollam as the setting of the study.
The study was conducted among pregnant women attending Government Victoria Hospital of Kollam. The sample size was determined as 500 and data were collected until the desired sample size reached out of 700 pregnant women who volunteered to participate in the study.

During second phase of the study 100 first time pregnant women who are in their third trimester were selected and 50 were assigned to experimental group and the rest 50 to the control group. Data were gathered through following tools:

Tool 1  Socio-Personal Data Sheet.
Tool 2  Pregnancy-specific anxiety Inventory (PSAI) Prepared by the Investigator.
Tool 3  Knowledge Questionnaires. (Prepared by the Investigator).
Tool 4  Beck Depression Inventory II. (BDI-II).
Tool 5  State Trait Anxiety Inventory. (STAI)
Tool 6  Checklists for Outcome of Labour. (Prepared by the Investigator)

The data were analyzed based on the objectives and hypotheses by employing appropriate statistical methods using SPSS version 16. The following statistical techniques were used for this purpose:

a) Computation of frequencies, percentages, arithmetic mean and standard deviation
b) Karl Pearson’s product- moment coefficient of correlation.
c) Chi-square test
d) General Lineal Model- Repeated Measures
e) Independent group ‘t’ test

GLM - Repeated Measures model test was used to test main effect within and between subjects, interaction effects between factors, covariates effects and effects of interaction between covariates and between subjects. This test was used to identify
association between socio-personal variables with anxiety and depression at different time period of pregnancy and postpartum period. Same GLM- Repeated Measures model was used in Phase II of the study to compare the levels of anxiety of pregnant women in experimental and control groups before and after planned childbirth education. Percentage and frequencies were calculated to compare the outcome of labour and to determine prevalence of antenatal anxiety, depression and postnatal depression in both phases of the study. Independent ‘t’ tests were used for finding the difference between pre-test and post test scores of control and experimental group.

5.5 Major Findings of the Study

The study has been done in two phases, Phase - I include nine sections and Phase II consists of five sections. Hence the major findings of the study are classified under fourteen major sections.

PHASE – I

Prevalence of Anxiety and Depression among Pregnant Women

Section I: Sample Characteristics: Among 500 sample of pregnant women in phase I of the study, 356 (69.2) were nulliparous pregnant women and 154(30.8) were parous pregnant women.

Religion: Most of the women (64%) belonged to the Hindu religion

Age group: Majority of pregnant women (59.9%) belonged to the age group of 20-24 years. There were only 6.2 % pregnant women below 20 years of age.

Educational Status of pregnant women: Pregnant women were with moderate levels of education. The data showed that 61.6 % pregnant women were with high school and plus
two education and only 7% pregnant women with educational status of 1 to 7 standards. Altogether 93% of study group were with education above standard seven.

**Occupation of Pregnant Women:** 81.6% pregnant women were housewife.

**Type of family:** Most of the pregnant women (80%) belonged to nuclear family set up.

**Sources of information to Pregnant Women:** It is observed that 0.6 percent of pregnant women get information from relatives and friends. 51% pregnant women were using television as a main source of information and the remaining 49% seek information from various sources.

**Marital relationship of Pregnant Women:** Most of the pregnant women were satisfied in their marital relationship (88%).

**Care from Husband:** Majority (86.6%) of pregnant women reported that they were satisfied with the care from their husband.

**Family history of members with fear of pregnancy:** Majority of pregnant women (94%) did not have any family member with fear of pregnancy.

**Family history of members with mental disease:** 99.6% pregnant women did not have any family history of members with mental disease.

**Support System:** Majority of pregnant women (96%) reported having support system

**Section II: Prevalence of Anxiety during Trimesters of Pregnancy and Postnatal Period**

**1. Prevalence of General Anxiety during Trimesters of Pregnancy and Postnatal Period**

Prevalence of 48.4% severe general anxiety during first trimester among pregnant women was noted. Data further indicated that the mean general anxiety score during third
trimester was high (106.89) compared to other trimesters, indicating that pregnant women were having high degree of general anxiety especially of state anxiety (56.25) during their third trimester.

2. Prevalence of Pregnancy-specific anxiety (PSA) during Trimesters of Pregnancy and Postnatal Period

   Majority of pregnant women (77%) had moderate amount of pregnancy-specific anxiety in their third trimesters and a prevalence of 22 % severe pregnancy-specific anxiety. Pregnant women during third trimester reported a high mean score (126.90) value of Pregnancy-Specific Anxiety compared to other trimesters. So highest prevalence of pregnancy-specific anxiety (99%) was observed during third trimester and next highest prevalence was observed during first trimester (97.6%). During first trimester (89.2%) pregnant women reported moderate amount of pregnancy-specific anxiety and (8.4%) reported severe anxiety.

3. Area-wise Pregnancy-specific anxiety during Three Trimesters of Pregnancy and Postnatal period

   a. Anxiety about Being Pregnant (ABP)

       Among 500 pregnant women, 190 (38%) pregnant women during third trimester had severe anxiety about being pregnant. Also 305(61%) pregnant women reported moderate anxiety in the third trimester. Totally 99 % pregnant women during their third trimester were having moderate to severe anxiety related to being pregnant with a mean score of 53.94 which was the highest compared to other trimesters. The result confirmed that anxiety about being pregnant is high during third trimester.
b. Anxiety about Childbirth (ACB)

It is evident that 465 (93%) pregnant women out of 500 were with severe childbirth anxiety in their third trimester with a high mean childbirth anxiety 38.70.

It is interesting to notice that during first trimester 212 (42.4%) pregnant women reported highest childbirth anxiety. To conclude childbirth anxiety was highest among pregnant women during third trimester as compared to other aspects of pregnancy-specific anxiety.

c. Anxiety about Breastfeeding (ABF)

Nulliparous pregnant women’s anxiety about breast feeding remains high (20.28) compared to parous pregnant women (16.29). During third trimester 96.8 % pregnant women were with mild to moderate levels of anxiety about breastfeeding.

d. Anxiety about Newborn Care (ANB)

Majority of pregnant women (472) reported mild to moderate anxiety about newborn care. Nulliparous pregnant women reported more anxiety about newborn care than parous pregnant women (16.8, 12.7 respectively).

Section III : Prevalence of Depression during Three Trimesters of Pregnancy and Postnatal period

Moderate degree of depressive symptoms were reported among 11(2.2%) pregnant women in the first trimester but during the third trimester 16 (3.2%) reported moderate degree of depressive symptoms. During postnatal period the highest number 20 (4 %) pregnant women with moderate depression.
Section IV: Knowledge of Pregnant Women regarding Selected Aspects of Antenatal Care

With regard to knowledge of childbirth preparation only 1.4% pregnant women had good knowledge and also reported that 21% pregnant women were with poor knowledge in this aspect. The mean percentage value showed only 52.85% scores in the area of knowledge regarding childbirth preparation. The above findings indicated that pregnant women had very little knowledge regarding preparation for childbirth. This finding confirmed the need for an organized childbirth education to all pregnant women.

Section V: Association of STAI and PSAI with Knowledge

Both general anxiety levels and pregnancy-specific anxiety levels were negatively correlated with knowledge regarding antenatal care indicating that decreased knowledge level caused increased anxiety. Detailed analysis of pregnancy-specific anxiety revealed that 93% pregnant women had severe anxiety about childbirth during third trimester with maximum mean score 38.70 and at the same time their knowledge regarding childbirth preparation was to be low with a mean percentage value of 52.85%.

A negative linear correlation value of -0.09 of third trimester pregnancy-specific anxiety with total knowledge score which is the high negative correlation compared to other trimesters. And the next highest negative correlation (-0.10) was observed between third trimester pregnancy-specific anxiety and knowledge regarding childbirth preparation. This negative correlation statistically indicates that lack of proper knowledge regarding preparation for childbirth is the leading cause of severe childbirth anxiety among pregnant women. Detailed analysis found more negative correlations of pregnancy-specific anxiety with total knowledge score of nulliparous pregnant women’s knowledge regarding
preparation for childbirth. These finding supported the need for more organized childbirth education programs especially to first time pregnant women.

**Section VI: Association between BDI with Knowledge of Antenatal Care**

There were no significant correlation found between depression scores of pregnant women and knowledge score. The highest correlation value obtained between first trimester BD1 score and second trimester BDI score with total knowledge was (0.11, 0.10). The insignificant correlation shows that knowledge regarding antenatal care does not seem to influence the proneness to depression.

**Section VII: Association between Socio-personal Variables and Levels of STAI, PSAI, BDI**

Detailed analysis of each trimester pregnancy-specific anxiety with gravidity of pregnant women found that first time pregnant women had high third trimester pregnancy-specific anxiety score of 131.4 as compared to parous pregnant women scores 116.80, and these values are significantly varied according to GLM test (0.001).

Section wise analysis of pregnancy-specific anxiety with gravidity of pregnant women revealed that nulliparous pregnant women had the highest mean score (39.26) for childbirth anxiety than of parous pregnant women (37.44). These values were statistically varied significantly according to GLM test. This result supports the selection of third trimester nulliparous pregnant women for the second phase intervention study. Other socio-personal variables were having only association in some aspects of anxiety and no specific pattern observed between each socio-personal variables with anxiety and depression.
Section VIII: Association between Socio-personal Variables and Knowledge of Five aspects of Antenatal Care

1. Knowledge regarding Pregnancy Diet and Socio-personal Variables

No significant relationship found between the pregnant women’ knowledge on diet and any of the socio-personal variables. Many studies conducted on dietary knowledge of pregnant women support the findings and moreover 93% of samples were with education above the level of standard seven. Dietary knowledge derived from magazines and mass media such as TV are wide spread among women in Kerala.

2. Knowledge regarding Antenatal Check up and Socio-personal Variables

It is evident from the Chi Square test that except with type of family all other socio-personal variables were insignificantly related to pregnant women’ knowledge regarding antenatal check up. An association at 0.05 significance level was found in relation to the mother’s type of family and pregnant women’ knowledge regarding antenatal check up. As we have observed that 400 (80%) pregnant women belong to nuclear family, where there was no chance of sharing information and transfer of knowledge from immediate relatives which was one of the common means of knowledge transfer within the .This may be the reason for this significance.


There was no significant association between mother’s knowledge regarding prevention of minor disorders of pregnancy and any of the socio-personal variables.
4. Knowledge regarding Breastfeeding and Socio-Personal Variables

Chi Square test result values revealed no significant relationship between the pregnant women’ knowledge regarding breast feeding and the socio-personal variables except with variable the type of family.

5. Knowledge regarding Childbirth Preparation and Socio-personal Variables

Chi Square test revealed 0.05 levels significant association between the knowledge of pregnant women regarding preparation for childbirth and some of the socio-personal variable such as pregnant women’ gravidity, occupation, type of family, history of abortion and history of family members with fear of pregnancy. This finding confirmed that pregnant women need to know more about preparation for childbirth. Nulliparous pregnant women must be considered as primary focus group as 69.2 % pregnant women were of nulliparous in the study population.

As our Nation is has small family norm at present, the majority of all pregnant women group at any given point, anywhere in the Nation especially in Kerala State constitute nulliparous pregnant women. As 81.6% pregnant women belongs to the group of house wife category and their exposure to information sources are less. The added effects of nuclear family predisposed nulliparous pregnant women with the knowledge deficit regarding childbirth preparation. These finding confirms that there should be an organized and formal childbirth education program available for pregnant women especially to nulliparous pregnant women.

6. Total Knowledge of Five aspects of Antenatal Care and Socio-personal Variables.

It is found that total knowledge of pregnant women regarding selected five aspects of antenatal care had significant association at 0.05 levels with mother’s gravidity,
occupation, type of family, history of abortion and history of family members with fear of pregnancy. These results confirmed the need for formal planned childbirth education programmes to pregnant women.

**Section IX: Association between PSA and Outcome of Labour**

**Duration of labour:** There were total of 132 pregnant women with moderate to severe anxiety went into prolonged labour and 30 pregnant women had abnormal /operative deliveries and all of them were with moderate to severe anxiety. Chi-square value (0.001) indicated that anxiety levels of pregnant women significantly influenced the duration of labour.

**Types of delivery:** The data with regard to type of delivery only 38.8 % pregnant women with moderate to severe anxiety had spontaneous vaginal delivery, 34.2 % had induced labour. 104 (20.8%) pregnant women ended up with vacuum and forceps delivery and 30 (6%) pregnant women underwent caesarean section

**Reasons for assisted delivery:** Among 104 pregnant women who had assisted labour and delivery, failure of maternal power was the reason for 40 (44.45%) pregnant women.

**Caesarean planned:** Out of 30 caesarean sections 28 were unplanned of which 12 (42.9%) were done at maternal request. Chi-square value (0.000) indicated that pregnant women with moderate to severe pregnancy-specific anxiety were requesting for caesarean birth. This signifies the importance of planned childbirth education during third trimester to reduce childbirth anxiety.

**Maternal Injury:** The data with regard to maternal injury indicate that 406 pregnant women had episiotomy and 14 pregnant women had second degree tear. Chi-square value (0.142) indicated that anxiety levels of pregnant women not significantly related to the occurrence of maternal injury during labour.
Postpartum Hemorrhage: Only 102 pregnant women had postpartum hemorrhage, the Chi-square value (0.272) indicated that incidence of postpartum hemorrhage not significantly related to anxiety of pregnant women.

Weeks of Gestation: 98 (19.8%) pregnant women with moderate to severe pregnancy-specific anxiety baby born were before 37 weeks. Chi-square value 0.009 indicates statistically significant.

Age at birth by size and baby birth weight: Chi-square value computed was 0.028 for both of these variables and found significantly associated with pregnancy-specific anxiety pregnant women.

PHASE II

Effectiveness of Planned Childbirth Education

Section X: Sample Characteristics of the Second Phase of Study

The pregnant women of both control and experimental group belong to same socio-personal variables. The groups were matched and homogenous with respect to socio-personal variables. The chi-square test values with a non significant value (p> 0.05) statistically agrees with the group’s homogeneity.

Section XI: Effect of Planned Childbirth Education on Pregnancy-specific anxiety among Nulliparous Pregnant Women

GLM test showed a high statistically significant value (p<0.001) which indicated that childbirth education markedly influenced in decreasing pregnancy-specific anxiety. In repeated measures of test for each section of pregnancy-specific anxiety also proved the same result (p<0.001) indicating the positive impact of childbirth education on reducing all aspects of pregnancy-specific anxiety. Our results also indicated that structured childbirth
education programmes help in reducing pregnancy specific fears in pregnant women especially in nulliparous women.

**Section XII: Effectiveness of Planned Childbirth Education on the Acquisition of Knowledge regarding Five Selected aspects of Antenatal Care among Nulliparous Pregnant women**

Comparison of knowledge scores regarding antenatal care in control and experimental groups revealed that experimental group scored higher knowledge in all five aspects of antenatal care, especially in the area of preparation of labour (Mean 54.30) and in the total knowledge regarding antenatal care (Mean 149.66). The p-values (p <0.001) confirmed that childbirth education was effective to improve the knowledge regarding antenatal care.

Wide range pre and posttest scores of preparation for childbirth in experimental group ascertained that childbirth education program was effective to impart knowledge regarding preparation for labour. Independent t test showed that knowledge gain of experimental group is statistically significant at 0.001 level compared to control group. The present study proved that childbirth education program increases nulliparous women’s knowledge regarding antenatal care especially in the area of preparation for labour and delivery.

**Section XIII: Comparison of Labour Outcome in Control and Experimental group**

The comparison of labour outcomes between control and experimental groups indicated that 68% pregnant women of experimental group went into normal labour compared to 52% in control group.

**Incidence of cesarean section** also reduced to 12% in experimental group than 24 % in control group. Another noted finding was mother’s request for cesarean section reduced to 6% in intervention group than 16% in control group. This reduction from 16% to 6% in
experimental group can be attributed to childbirth education programme which raised the knowledge of pregnant women on childbirth helping them to be in self control due to less anxiety.

Section XIV : Distribution of Postnatal Depression Scores in Control and Experimental group.

Though the overall incidence of postnatal depression is low, Experimental group’s mean depression score was markedly reduced to (9.50) as compared to mean depression score (11.16) of the control group. This reduction in mean score statistically significant as per independent ‘t’ test could be due to the effect of childbirth education.

5.6 Tenability of the Hypotheses

Hypothesis I

Hypothesis 1 is stated as: There is a high level of anxiety among women during pregnancy and postnatal period. The findings of the study revealed that there were significant levels of both general and pregnancy-specific anxiety in the course of pregnancy as well as in postnatal period. The detailed analysis showed that third trimester pregnancy-specific anxiety level is significantly higher (Mean 126.90) than other trimesters of pregnancy. The study also revealed that among four sections of pregnancy-specific anxiety, childbirth anxiety was high in all pregnant women and this childbirth anxiety is significantly high (Mean 53.94) during third trimester of pregnancy. In other words third trimester of pregnancy is characterized with highest level of general anxiety and pregnancy-specific anxiety especially of childbirth anxiety segment of pregnancy-specific anxiety. So the Hypothesis is accepted and the null hypothesis rejected.
Summary, conclusions and suggestions

Hypothesis II

The second hypothesis of the study is: **There is a high level of depression among women during pregnancy and postnatal period.** The results of the study revealed the prevalence of moderate degree depression among 4% and mild degree depression among 12% women during postnatal period. During antenatal period 14%, 1.8% and 10.4% pregnant women reported mild depression during first, second and third trimester respectively and only 2.2% and 3.2% pregnant women had prevalence of moderate degree depression during first and third trimester respectively. So the hypothesis partially rejected and null hypothesis is accepted.

Hypothesis III

Hypothesis III is quoted as **there is an association between pregnancy-specific anxiety and knowledge of pregnant women regarding antenatal care.** Pregnant women’s level of knowledge regarding antenatal care and pregnancy-specific anxiety was analyzed in detail and it was found that knowledge regarding childbirth preparation and anxiety levels was statistically significant leading to the conclusion that childbirth preparation of pregnant women decreases their childbirth anxiety. It is also found that the first time pregnant women were with high levels of childbirth anxiety but lowest level of knowledge and a corresponding significant relation between these too was proved statistically. Based on the finding of the study this hypothesis is accepted.

Hypothesis IV: There is an association between socio-personal variables and the knowledge of pregnant women regarding antenatal care.

Socio-personal variables such as gravidity of pregnant women, type of family and total knowledge of pregnant women regarding selected aspects found significant at 0.05
level with pregnant women’s gravidity, occupation, type of family, history of abortion and history of family members with fear of pregnancy. This result confirms that this hypothesis is partially accepted with respect to the above mentioned socio-personal variables but rejected with respect to other variables.

**Hypothesis V:** An intervention program of Childbirth Education is an effective strategy to minimize the anxiety and depression during pregnancy and postnatal period.

The present study revealed that childbirth education reduced pregnancy-specific anxiety especially childbirth anxiety. The study also proved that there was a significant increase in total the knowledge scores of experimental group (149.66) the maximum score being related to knowledge regarding preparation for childbirth (54.30) after the intervention. The wide range of pre and post test scores in preparation for childbirth among intervention group also established that childbirth education program is an effective programme to impart knowledge regarding preparation of labour for nulliparous pregnant women. Posttest scores of pregnancy-specific anxiety in experimental group (102.00) revealed a much lower score compared to control group (139.66). Similarly post intervention childbirth anxiety also markedly reduced (29.24) than in the control group (39.72). The GLM Repeated Measures statistically tested that the reduction of pregnancy-specific anxiety and childbirth anxiety was significant at 0.001 levels after the intervention. These findings confirmed that fifth hypothesis was tenable and therefore null hypothesis is rejected.

It is noted that there is a high level of general anxiety and pregnancy-specific anxiety among subjects of the study but, the prevalence of postnatal depression is rather low; however the intervention helps in reducing postnatal depression scores in intervention
Summary, conclusions and suggestions

The low incidence of postnatal depression could be attributed to improved marital relationship, good family support in Kerala, intrafamily interactions and consequent psychological well-being of pregnant women in our settings.

5.7 Conclusions

1. The findings of the study revealed the prevalence of both anxiety and depression among pregnant women during pregnancy and postnatal period. It is found that pregnancy-specific anxiety was high among pregnant women irrespective of socio-personal variables and the study also throws light on high levels of childbirth anxiety among all pregnant women irrespective of socio-personal variables.

2. The findings of the study revealed that the prevalence of pregnancy-specific anxiety was high among pregnant women especially during third trimester of pregnancy (99%). Further detailed analysis of pregnancy-specific anxiety also revealed that majority of pregnant women in their third trimester had severe childbirth anxiety (93%). During their first and third trimester 99% prevalence of moderate to severe childbirth anxiety was reported by pregnant women.

3. The findings also showed prevalence of significantly high levels of anxiety among first time pregnant women compared to parous women.

4. 12-16% of pregnant women had prevalence of mild to moderate degrees of depression during first and third trimester and only 4% had prevalence in postnatal period, the latter probably related to cultural factors that extend a good family support once the woman is pregnant and child is born.

5. The study revealed that total knowledge of pregnant women regarding selected five aspects of antenatal care was not adequate.
6. The study showed that only 1.4% of pregnant women had good knowledge regarding childbirth preparation and 7% of pregnant women had good knowledge regarding prevention of minor disorders. This finding suggests the need for an organized childbirth education.

7. It is found that all pregnant women had high levels of childbirth anxiety. The analysis revealed negative linear correlation between pregnant women’s knowledge of antenatal care and their pregnancy-specific anxiety level. The Highest negative correlation was found between knowledge regarding childbirth preparation and pregnancy-specific anxiety levels. Repeated GLM Measures when statistically tested showed that intervention program such as childbirth education reduced maternal anxiety levels. Childbirth education mainly helped pregnant women to prepare for delivery and thereby reduced their childbirth anxiety.

5.8 Implications of the study

The present study reveals that an organized ongoing regular childbirth education to pregnant women especially during third trimester could reduce their total pregnancy-specific anxiety mostly of childbirth anxiety. This finding has got wider implications in the area of nursing practice especially of midwifery practice, nursing education, and nursing research. The implications with regard to nursing practice, nursing education and nursing research are discussed below.

Implications for Nursing Practice

The findings of the present study showed that prevalence of pregnancy-specific anxiety was high among pregnant women especially during third trimester of pregnancy (99 %). Further, the detailed analysis of pregnancy-specific anxiety also revealed that majority of pregnant women in their third trimester had severe childbirth anxiety (93 %). It
is found that 2.2% pregnant women had moderate degrees of depression during first trimester and 3.2% of pregnant women had during third trimester. This indicates that health promotion activities and antenatal care need to be further strengthened with a component of regular organized childbirth education. Measures must be taken to empower women to take charge of their pregnancy related needs. Findings of the study provide a basis for policy makers to suggest and implement various strategies and techniques to promote health behaviours of women in reproductive age.

A well designed Information Education and Communication (IEC) programs should be effectively implemented to enhance reproductive health of women in our country.

The findings also showed prevalence of high anxiety among the first time pregnant women as compared to parous women. This emphasizes the need for intense information regarding childbirth preparation to pregnant women especially to first time pregnant women. As nurses contribute to the largest population of healthcare delivery personnel, they have a major role to play in identifying and providing supportive measures, especially childbirth education to nulliparous women being the priority.

We can plan for nurses running a regular scientific childbirth education programmes at antenatal outpatient department and inpatient maternity services of each hospital on a scheduled basis. So all pregnant women can avail themselves of their service and get prepared for a stress free and safe delivery. The structured childbirth education programme delivered by nursing personnel in wards and outpatient departments will enable pregnant women to increase their knowledge and get prepared for a stress free enjoyable delivery experience. Several teaching strategies could be used to disseminate information on childbirth education like demonstration, printed materials, slide projectors,
charts, video and audio. In the era of “Health for all” healthcare has become a universal concept and more emphasis is given on self reliance and client participation in healthcare, so steps may be taken to implement such programs in community settings too.

**Implications for Health Care Delivery System**

These data and results of the study emphasized the need for screening for anxiety and depression and its risk factors during pregnancy and postpartum period along with routine antenatal check up. High prevalence of pregnancy-specific anxiety and its adverse effect on mother and child indicate the importance of preventive and control measures to combat maternal anxiety and depression.

Reproductive and child health is an integral and important component and dimensions of National Health Programmes and the present study has important significance for reproductive health care. In addition to institutional programmes outlined above an awareness program through mass media especially at adolescence are to be arranged at schools and community settings.

Health education materials on childbirth preparation in the form of posters, charts, pamphlets should be made available to the pregnant women from all healthcare facilities. Childbirth education aspects in the mass media like radio, television, newspaper, and even website regarding childbirth education can be made available especially with inclusion of culturally sensitive care. Every health delivery system especially of maternity service organization must have the facility for childbirth education.

Systematic effort to develop mental health services for women in pregnancy is to be planned and implemented. Pregnancy provides an optimal time for screening, as women have frequent contact with healthcare providers. Early detection of depression during pregnancy is important because untreated illness has consequences for both mother and
child, and may evolve into postpartum depression. Findings of the study highlight direction for public health-orientated prenatal and perinatal mental health research and suggest that service providers should consider the routine assessment of all prenatal women for their psychological wellbeing. These findings have implications for policies regarding maternal and childcare programmes.

**Implications for Nursing Education**

Nursing education today is preparing nurses to play a major role in the health care system. The nursing curriculum should focus on processing of information and implementation. Today there is a need for continuously updating the nurses to provide quality service. Collaborative care with patient participation involving various models of health care delivery midwifery system becomes the need of the day. Innovative teaching methods such as participatory teaching, role play, street plays, preparation of women group and health workers should be emphasized in education programme.

Though nursing curriculum is with comprehensive midwifery course it must be enriched with current concepts of midwifery practice. The investigator feels that a culturally sensitive midwifery care concept must be incorporated in the nursing curriculum. Childbirth Education given to pregnant women should be emphasized in Midwifery component in nursing curriculum as a health promotion activity.

**Implication for Nursing Research**

Women in developing countries continue to face high risk of death and morbidity related to complication of pregnancy. This situation is likely to be improved only if more cost effective interventions are developed to deal with psychosocial problems of pregnant women especially of their anxiety problems which in turn lead to bad obstetrics outcome and childcare. As even normal pregnant women exhibit such high levels of anxiety more
research need to be done to explore the anxiety and depression among pregnant women with high risk pregnancy. The high prevalence of infertility and modern infertility treatment modalities add up a great deal of anxiety to these pregnant women.

Getting pregnant at late age for various reasons also causes more anxiety and depression among pregnant women. So these areas need to be explored to find out the magnitude of the problems and measures must be taken to reduce the psychosocial impact on pregnancy outcome.

5.9. Limitations of the present study

- For ethical reasons it was not possible to have a true control group in which incidental teaching was withheld

- Outcome of pregnancy for mother and child was based on the analysis of record and selected observations. So it is limited to what was documented. However, there was standard Performa available in all government hospital settings for documentation, hence errors could have been less.

- The second phase of the study also could have been with larger sample sizes and at different hospitals. This however was not feasible.

5.10. Suggestions for further research

Based on the findings of the present study the following topics are suggested for further research

- The present study needs to be replicated on a larger sample of pregnant women selected from different districts of Kerala so that findings could be more generalisable
A comparative study of anxiety and depression among pregnant women with abnormal and normal pregnancy status can be done.

A qualitative explorative study can be done to find out the perception of pregnant women regarding childbirth preparation and breast feeding.

Longitudinal studies can be done to measure the breastfeeding practices of pregnant women.

Coping up with pregnant women during labor period can be taken up to measure the effect of anxiety in third trimester on a larger sample.

The variance in the prevalence of anxiety and depression in the prenatal and postnatal women needs detailed exploration on clinical and etiological dimensions.