# CHAPTER II

## REVIEW OF RELATED LITERATURE

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CHAPTER II

REVIEW OF RELATED LITERATURE

2.1 Introduction

The review of related literature is a key step in research process. The major purpose of reviewing the literature is to determine what has clearly been done that relates to one’s problem. Another important function of review is that it points out research strategies and specific procedures and measuring instruments that have been found to be productive in investigating one’s problem. Familiarity with previous research also facilitates interpretation of the results of the study. Finally these reviews give information which can either support or challenge the conclusion of the investigator’s research and therefore help in future research.

The aim of the present study was to identify the prevalence of anxiety and depression among pregnant women during antenatal and postnatal period. The assessment of pregnant women’s knowledge related to five selected aspects of antenatal care and find out the influence of knowledge on pregnant women’s anxiety and depression levels. The study also intended to determine the effectiveness of childbirth education in improving childbirth knowledge thus reducing pregnancy-specific anxiety. Explored the impact of pregnancy anxiety on labour outcome. Hence the review is organized under the following headings:-

- Anxiety
- The Framework of Anxiety Theories
- Fear of Childbirth in the Framework of Anxiety Theories
Review of Related Literature

- Anxiety During Pregnancy
- Prevalence of Anxiety and Depression during Pregnancy
- Depression
- Prevalence of Depression during Pregnancy
- Prevalence of Postpartum Depression
- Psychosocial and Personal Variables Influencing Anxiety and Depression during Pregnancy and Postpartum Period.
- Impact of Anxiety and Depression on Pregnancy
- Childbirth Education
- Effectiveness of Planned Childbirth Education.
- Nurses’ Role in Health Promoting Behaviors in Pregnancy and Stress Management

2.2 Anxiety

Anxiety is a state of emotional tension of uncertain or unknown course, which produces feeling of apprehension and fear (Fredenburg, 1971). Anxiety denotes a palpable but transitory emotional state characterized by the feeling of tension, apprehension and heightened autonomous nervous system activation following stressful situations. Any deviation from normal state of health and unsuccessful adjustments can result in anxiety. Anxiety occurs as a response to threat that is unknown, internal, vague and conflict in origin. Individual response to stressful situations varies among individuals.

Stress and anxiety can occur at any time in the lifespan from various sources. Sometimes these arise within the person, such as when the person is ill or experiences conflicts, undergoes lifespan changes. The change in human body due to stress and anxiety
was described by Hans Selye as General Adaptation Syndrome (GAS) and Local Adaptation Syndrome (LAS). The most important regulators of GAS and LAS are central nervous system (CNS), autonomous nervous system, pituitary glands and adrenal glands. The pituitary and adrenal gland hormones inhibit or stimulate the body’s stress response. Selye called these hormones as adaptive hormones. Adaptive hormones include epinephrine and norepinephrine, glucocorticoids and mineralo-corticoids which reduce inflammation, increase glucogenesis, and increase the circulation of white blood cells and blood pressure.

Excessive stress and anxiety produce excessive hormones which lower the body’s resistance leads to serious effects on the human body resulting in fatal disease or death. The body’s ability to resist stress and minimize anxiety by adapting to stressors depends on the proper balance of epinephrine and cortisol.

The effect of these hormones on the body’s resistance to stress depends on the individual’s conditioning factors. These factors include genetic predisposition, experience, mental attitude, diet, climate and life style. These factors can enhance or diminish the response to stress. Anxiety emerges from unsuccessful coping mechanisms. Coping with stress has been regarded as a strategy for reducing anxiety.

Based on stress and coping model of Folkman and Lazarus, (1980) there are two broad–band coping strategies that are employed in the face of disturbing events. Problem-focused coping and the emotion- focused coping. Every human being has to learn to cope with various situations from time to time in order to survive. Coping is the cognitive and behavioral effort to manage specific external and internal demands that are appraised as taxing or exceeding the recourses of the person (Folkman and Lazarus, 1991). How coping varies from one individual to another depends on internal strength and external
recourses. The internal resources such as faith in God, energy, self determination and perception of situation and external resources such as support from family members, relatives, friends, neighbors, professionals, community, governmental policies and programmes.

2.3 The Framework of Anxiety Theories

Anxiety has three separate response systems (Lang, 1971; 1985): behavioural, physiological and verbal or cognitive. Anxiety-provoking situations have effects on each of these three systems. Worrying about what may happen in the future is of central importance in anxiety (Eysenck, 1992). Anxiety is a person’s cognitive appraisal of stressful situations that leads to the subjective experience of emotion and to the physiological arousal associated with the emotions. (Lazarus & Folkman, 1984, pp. 52–53).

Spielberger (1970) is one cognitive theorist who distinguishes conceptually and operationally between anxiety as a transitory state and as a relatively stable personality trait. To summarize anxiety states (State anxiety) are characterized by subjective feelings of tension, apprehension, nervousness, worry and by activation or arousal of the autonomic nervous system (Spielberger et al., 1983). On the other hand, trait anxiety is described as a personality trait that indicates relatively stable individual differences in anxiety-proneness. Trait anxiety implies differences between individuals’ disposition to respond to stressful situations with varying amounts of state-anxiety.

In 1970 Spielberger and his associates developed State Trait Anxiety Inventory (STAI) to measure anxiety as a state and anxiety as a trait. Spielberger explains that trait anxiety refers to individual difference in anxiety proneness and state anxiety is regarded as a tendency to respond anxiously under stress. Lazarus (1991), in his discussion about
emotions, claims that states and traits are closely related and that the former can be described as “figure”, “being provoked in a specific context” and the latter as “background”.

2.4 Fear of Childbirth in the Framework of Anxiety Theories

Zar M. Wijma, (2001) in their study of Pre and Post partum fear of childbirth in nulliparous and parous women described fear of childbirth, like anxiety, might be viewed from both state and trait perspectives. For most women the very situation of labour and delivery comprises stress and strain and evokes a certain degree of uncertainty or even worry and fear, indicating state anxiety. The degree of state anxiety during childbirth depends on the success of the physiological process of labour and delivery, the woman’s interpretation of what happens physiologically, her tendency to perceive the situation as dangerous or threatening and, finally, her capacity to cope with what she may appraise as difficult and dangerous. Fear of childbirth as a state is a transient reaction which comes and goes, while fear of childbirth as a trait refers more to a characteristic of an individual woman, her tendency to react with fear of childbirth. Fear of childbirth as an indication of trait fear should influence fear both before and after delivery.

Women’s differences in trait fear could be greatly influenced by their individual’s past experiences; such as the degree of negative information she has received or collected about childbirth and her life experiences. In parous women differences in trait fear could also be influenced by how negatively she has experienced a previous delivery. Trait fear should be self-stimulating, because persons with more trait fear exhibit state fear elevations more frequently than people with less trait fear. Women with higher trait fear have a tendency to interpret a wider range of aspects of the delivery as dangerous or threatening.
For women who are less fear prone with respect to childbirth (less trait fear), childbirth may generate a mild level of emotional arousal and produce alertness and interest in the ongoing process. In fear prone women regarding childbirth (more trait fear), emotions become intense during labour and delivery, and disrupt cognition and behaviour, which in turn leads to uncertainty, more fear and worry. Central to both state fear and trait fear is the woman’s cognitive processing, the key to her personal experience of fear. Of central importance to women’s trait fear is their worrying about what may happen during an imminent or future delivery.

Beck and Emery’s (1985) description of what happens in such worrying persons is a perfect description of women with trait fear of childbirth: “the patient is hyper vigilant, constantly scanning the environment for signs of impending disasters or personal harm”. The event of childbirth as well as its outcome is momentous, in the first place for the woman giving birth, but also for the child being born, and for the woman’s possible partner. Her achievements during the delivery thus have lifelong physical, social and existential consequences for herself and her intimates. A woman with fear of childbirth as an indication of fear proneness (trait fear) has a tendency to worry about her ability to cope with possible obstetric problems, her capacity to perform adequately and the health, or even survival, of herself and her child during and after the delivery.

Therefore, women with high trait fear of childbirth can be considered not only to look frequently and suspiciously for signals of danger, but also, because of their narrowed outlook, often to have their suspicions confirmed. Thus, a vicious cycle of negative expectations and aversive experiences will be created. Some pregnant women with a strong tendency to worry about delivery (trait fear) even keep completely away from information about childbirth. After 40 gestation weeks they suddenly find themselves trapped in the
situation they were not even able to think about. In such a situation the state fear increases to extremely high levels and the woman’s attention concentrates more and more on fear-related stimuli.

2.5 Anxiety during Pregnancy

Anxiety is commonly associated with increased pain during labour. Mild anxiety is considered normal during labour but moderate to excessive anxiety and fear cause more catecholamine secretion, which increases the stimuli to the brain from pelvis because of decreased blood flow and increased muscle tension, this in turn magnifies pain (Lowe, 2002). Thus, as fear and anxiety heighten, muscle tension increases, the effectiveness of uterine contraction decreases, the experience of discomfort increases and a cycle of increased fear and anxiety begins. Ultimately, this cycle will slow the progress of labour.

Pregnant women express concerns predominantly about the baby’s health, but also delivery, miscarriage in early pregnancy and their own physical appearance (Georgsson-Ohman et al., 2003). An additional worry conceptualized by Georgsson-Ohman et al was ‘maternity services’ which was defined by women as ‘shortage of beds’ and ‘medical safety’, although this finding may have been context specific. Technological interventions such as ultrasound scanning have been linked with both a decrease and an increase in anxiety (Green, 1990). Evidence remains scanty regarding the causes of pregnant women’s anxieties, the clinical significance of this being that in order to allay women’s anxieties; health professionals make assumptions about causes (Green et al., 2003).

Women’s worries seem to decrease in mid-pregnancy (Georgsson-Ohman et al., 2003 and Green et al., 2003), consistent with the characteristic U-shaped curve for mood during pregnancy first described by Lubin, et al. (1975). Symptoms of anxiety develop as a psychological response to stress (Cantwell and Cox 2003; Gennaro and Hennessy, 2003).
Heron et al. (2004) reported that antenatal anxiety occurs frequently, overlapping with depression, and increases the likelihood of postnatal depression. In addition, a correlation has been found between somatic complaints that are experienced in pregnancy, as anxiety and depression (Kelly et al., 2001).

Rico, (2009) in Spain did analysis of the relationship between maternal anxiety and pregnancy. An observational, analytical cross-sectional study of anxiety among 174 pregnant women was done. The objective was to evaluate levels of maternal anxiety in third trimester pregnancies according to pregnancy risk, classified as low, medium and high-risk/very high-risk. Levels of both state anxiety and trait anxiety were evaluated in the three groups of pregnant women. Of the 174 participants in the study, 98 (56.3%) had low risk pregnancies, 40 showed medium risk (23%) and 36 (20.7%) had high risk or very high risk pregnancies. A mean of 32.8 points for state anxiety and of 27.3 points for trait anxiety was rated. Mean anxiety levels scores were 44.1 points in the high/very high risk group, 33 points in the medium risk group, and 28.5 points in the low risk group, with statistically significant differences (P=0001 for the high risk group and P = 038 for the medium risk pregnancies). The authors conclude that in pregnant women, anxiety levels were higher than average levels in the general population. Anxiety levels increased in accordance with greater risk in the pregnancy.

Significant correlations between self-report depression scores and self-report anxiety scores during both early pregnancy (Jomeen and Martin, 2005) and late pregnancy (Karjmovova and Martin, 2003) have been demonstrated. Evidence suggests that although specific areas of pregnant women’s concerns correlate with anxiety they still have unique predictive value for psychological health (Glazer, 1980) and mood (Green et al., 2003).
recommends that coordinated multidisciplinary care should be available for all women with identified mental health problems and that a specialist prenatal mental health team should be available to women.

2.6 Prevalence of Anxiety and Depression during Pregnancy

A prospective study of the course of anxiety and depression during pregnancy and postpartum in community sample (n=8323) of women in England assessed for anxiety and depression at 18 and 32 weeks of gestation and 8 weeks and 8 months postnataley. The result revealed that antenatal anxiety occurs frequently, overlaps with depression and increases the likelihood of postnatal depression (Jonatha, et al., 2003). In short across the 8 week and 8 month postnatal assessment 13% were depressed and 11% reported augmented depression in antenatal period.

A longitudinal pattern of anxiety from 18 weeks gestation to 8 months reveals that the stability of anxiety across the four assessments was moderate and consistent with sample pattern. At 8 weeks postpartum, 8.1% reported anxiety of which 2.4% were new. Out of those women who reported anxiety in the postnatal period, two-third experienced anxiety in pregnancy. Analysis of mean changes in depression and anxiety from pregnancy to postpartum indicated a significant effect of the phase on depression. The time effect found in repeated measures of variance for anxiety was the same as depression.

Anxiety in antenatal period that predicts postnatal depression was verified by statistical means and the result revealed that anxiety at 32 weeks of gestation was associated with greater than three-fold increase in postnatal depression. Prediction of postnatal depression from depression at 32 weeks was particularly strong and strongest for the persistent definition of postnatal depression.
Thus the current findings indicate that anxiety should be a focus of increased attention because it forecasts subsequent illness and may also have direct effect on foetus.

A cross-sectional descriptive survey conducted by Hall, et al.(2009) in a community sample of six hundred and fifty English-speaking nulliparous and multiparous women of 17 to 46 years of age and between 35 and 39 weeks gestation, with uncomplicated pregnancies. They explored levels of childbirth fear, anxiety, fatigue, and sleep deprivation in pregnant women and their relationships during the third trimester of pregnancy. Wijma Delivery Expectancy/Experience Questionnaire, STAI, Mindell's Sleep Questionnaire, and the Multidimensional Assessment of Fatigue Questionnaire were used to collect data.

Reported 25% women with high levels of childbirth fear and 20.6% reported sleeping less than 6 hours per night. Childbirth fear, fatigue, sleep deprivation, and anxiety were positively correlated. Women with high childbirth fear were more likely to have more daily stressors, anxiety, and fatigue, as well as less help. Higher levels of anxiety predicted higher levels of childbirth fear among women. The study concluded that one fourth of women reported high childbirth fear. Fear of childbirth appears to be part of a complex picture of women's emotional experiences during pregnancy.

Faisal (2006) conducted a prospective study to estimate the prevalence and risk factors for antenatal anxiety and antenatal depression among 432 women attending antenatal clinic in the city of Osasco, São Paulo. Using State Trait Anxiety Inventory, Beck Depression Inventory reported the prevalence of antenatal state and trait anxiety as 59.5 and 45.3, respectively. The prevalence of antenatal depression was 19.6.

Zar, Wijma, K., Barbro, W., (2001) investigated fear of childbirth among 77 nulliparous and 85 parous women during week 32, at 2 hours and at 5 weeks after
Review of Related Literature

childbirth. Data were collected using STAI and the Wijma Delivery Expectancy/Experience Questionnaire. The findings of the study highlighted nulliparous women who were inexperienced in the situation of labour reported higher level of fear of childbirth during pregnancy than parous women. Differences in fear of childbirth between nulliparous and parous women disappeared after delivery. The authors observed that women with high fear of childbirth have higher general trait anxiety than those with a moderate level of fear of childbirth.

Huizink et al., (2004) used a 34-item pregnancy-related anxiety questionnaire to test their structure, and to examine their associations with general anxiety and depression among nulliparous pregnant women with a normal risk status (N=230), other questionnaires covering general anxiety (STAI) and depression (BDI) were also filled along with it. These questionnaires were filled in at 15–17, 27–28, and 37–38 weeks of gestation. A three-factor model of pregnancy related anxiety was found by means of confirmatory factor analysis, reflecting ‘fear of giving birth’, ‘fear of bearing a handicapped child’ and ‘concern about appearance. General anxiety and depression measures explain only a small part of the variance of these fears. A marked increase in pregnancy related anxiety concluded that pregnancy related anxiety should be regarded as a relatively distinctive syndrome. The author recommended that pregnancy related anxiety enables researchers and clinicians to address issues of prediction, identification and risk reduction more precisely and perhaps more effectively in the future.

Prospective survey of MATQUID cohort conducted on pregnant women (n=497) attending state maternity hospital, assessed psychiatric status using diagnostic interview and EPDS during third trimester of pregnancy and 6 weeks postpartum and reported 24.1% pregnancy anxiety and 5.8% with postnatal depression. The study concluded that
promoting the recognition and management of antenatal anxiety in pregnant women may be of interest for the prevention of postnatal depression. Studies have demonstrated that risk of postnatal depression increases with higher levels of self-reported anxiety in pregnancy. (Heron et al., 2004).

Kerry and Marie (2007) conducted a prospective study to examine the course of maternal anxiety across the transition to parenthood among 100 Australian antenatal mothers from pregnancy through seven months following birth as assessed by diagnostic interview and self-report using STAI. They reported anxiety and depression during pregnancy. Twenty one (21%) women with current anxiety disorder, while 7% met current depression were with co-morbid anxiety. Twenty were diagnosed with anxiety disorder during first 7 postnatal months. Twenty four (24%) met criteria for depression since birth and of these 15 (63%) were co-morbid with diagnosis of anxiety. The study also examined the pattern of anxiety and depression across pregnancy and postnatal period. Among 21 mothers with pregnancy anxiety disorder, 10 (47.6%) continued to meet criteria during the postnatal period. Nineteen new cases of depression were diagnosed postnatally. The correlation between antenatal and postnatal measures of state-trait anxiety and depression were moderate to high and statistically significant (p < 0.001).

The prevalence of generally expressed fear of childbirth is slightly more than 20%, a figure which has not changed over the last decade (Areskog, Uddenberg, & K Jessler, 1981; Searle, 1996). Risa, Weisberg, Julie, (2002) reported that anxiety disorders are highly prevalent in pregnant women and may be associated with poor neonatal outcome or impairment in parenting. Therefore, detection and treatment of these disorders is essential. Cognitive-behavioral therapy for the anxiety disorders has proven to be extremely
efficacious, and in most cases it should be considered before psychopharmacologic treatment in pregnant and breastfeeding mothers.

2.7 Depression

Depression is a mood disorder characterized by sadness (Harrison internal medicine, 2001) Depression is a mental state of excessive sadness characterized by persistently low mood, loss of pleasure and interest. WHO defined depression as a common mental disorder that presents with depressed mood, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, low energy, and poor concentration?

Depression occurs in persons of all genders, ages, and backgrounds. Facts are that Depression is common, affecting about 121 million people worldwide. About 12% of men and up to 25% of women suffer from depression during their lifetimes. The signs and symptoms of depression include loss of interest in activities that were once interesting or enjoyable, including sex; loss of appetite (anorexia) with weight loss or overeating with weight gain; loss of emotional expression (flat affect); a persistently sad, anxious or empty mood; feelings of hopelessness, pessimism, guilt, worthlessness, or helplessness, social withdrawal, unusual fatigue, low energy level, a feeling of being slowed down; sleep disturbance with insomnia, early-morning awakening, or oversleeping, trouble concentrating, remembering, or making decisions; unusual restlessness or irritability, persistent physical problems such as headaches, digestive disorders, or chronic pain that does not respond to treatment, thoughts of death or suicide or suicide attempts. Alcohol or drug abuse may be signs of depression.
2.8 Prevalence of Depression during Pregnancy

Depression is the most prevalent psychiatric disorder during pregnancy and is associated with psychosocial and clinical obstetric factors. Depression is likely if the woman feels a general loss of interest and energy, generalized guilt and hopelessness, and has thoughts of self-harm particularly if planned or has had previous attempts. During pregnancy, depression may be diagnosed if emotional disturbances last longer than 2 weeks; disturbances occur in memory and concentration, the woman experiences weight loss and loss of appetite, wakes up early in the morning and feel bad about her. Some of the symptoms such as fatigue, trouble in sleeping are common in pregnancy but if they are experiencing three or more symptoms for more than two weeks they are having depression.

A cross-sectional study was carried out, involving 331 pregnant women attending a public primary health service over one-year period in Rio de Janeiro city, Brazil. Depression was assessed. The prevalence of depression during pregnancy was 14.2% (95%CI: 10.7-18.5) and associated factors included were previous history of depression and any psychiatric treatment, unplanned pregnancy, serious physical illness and casual jobs. (Pereira, Lovisi, Pilowsky 2009). This study recommended and emphasized screening of depression during pregnancy and its risk factors.

Symptoms of depression have been found in 30% of pregnant women in Finland (Kurki et al., 2000) 25% in Canada (Da Costa et al., 2000) and 21% in the USA (Kelly et al., 2001) In a US study, depressive symptoms were found in 26% of low-income African-American pregnant women (Chung et al, 2004). These findings showed that the prevalence of prenatal depression may vary in women with different cultural backgrounds.

One study, based on the ALSPAC cohort, found that symptoms of depression were higher in antenatal than postnatal period (Evans et al., 2001). The current estimates of the
prevalence of depression during pregnancy vary widely. Systematic review by Bennett et al. (2004) to estimate the prevalence of depression during pregnancy by trimester, as detected by validated screening instruments BDI and structured interviews. The result of study shows that prevalence rates were 7.4%, 12.8% and 12 % for first, second, and third trimesters, respectively.

A study conducted among Maltese women reported that the prevalence of depression was 15.5% in the third trimester of pregnancy (Felice et al., 2004). Maltese women reported that depression in pregnancy was related to women who themselves have, or with a family history of a psychiatric problem (Felice et al., 2004).

Gausia, Fisher, Ali, Oosthuizen, (2005) estimated the prevalence of depression during pregnancy and identified potential contributory factors among rural Bangladeshi women. A community-based study was conducted during 2005 in Matlab sub-district, a rural area of eastern Bangladesh. Three hundred and sixty-one pregnant women were identified through an existing health and demographic surveillance system covering a population of 110,000 people. The women were interviewed at home at 34-35 weeks of pregnancy. Information on risk factors was collected through structured questionnaires, with the Bangla version of the Edinburgh Postnatal Depression Scale (EPDS-B) used to measure their psychological status. The prevalence of depression at 34-35 weeks pregnancy was 33% (95% CI, 27.6-37.5).

2.9 Prevalence of Postpartum Depression

Postpartum non psychotic depression is the most common complication of childbearing, affecting 10-15 % of women. Postnatal depression is indeed a public health problem, particularly as the incidence is much higher than the quoted rate of 10%—15%.
(Palo Almond, 2009). Approximately 13% of women experience this crippling mood disorder sometime during the first year after delivery (O’ Hara & Swain, 1996).

Although profound hormonal changes after childbirth are often claimed to cause PPD, there is little evidence that variations in pregnancy hormone level is correlated with variations in PPD level. Though all mothers experience hormonal changes, yet only 10% to 15% suffer postpartum depression. Numerous studies support the correlation between postpartum depression and lack of support or other child care stressors (Beck, 2001; Hagen, 1999).

According to Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition Text revision (DSM-IV-TR) Postpartum depression is defined as “The presence of either depressed mood or decreased interest or pleasure occurring persistently for two weeks and resulting in a decline in functional status during the postnatal period” (Garg, Marton & Heneghan, 2005).

In 2006, Segre et al., conducted a study “on the extent to which race/ ethnicity is a risk factor” for PPD. Studying 26877 postpartum women they found that 15.77% were depressed. Likewise, a study conducted by Howell et al in 2006 confirms Segre’s findings that women who are nonwhite and in lower socioeconomic categories have more symptoms of PPD.

A study conducted in Maharashtra, India revealed that the prevalence of post-partum depression was 14.1% and the incidence of post partum depression was 9%. Poverty, unwanted pregnancy, birth of a daughter when a son was desired, problems with the spouse and in-laws, excessive alcohol consumption in spouse, pregnancy and delivery complications and lack of physical help increased the risk of developing post-partum depression.(Putado & Tharyan).
Findings from meta-analysis of over 14,000 subjects and subsequent studies of nearly 10,000 additional subjects found that the following factors such as depression during pregnancy, anxiety during pregnancy, experiencing stressful life events during pregnancy or early puerparium, low levels of social support, and previous history of depression were the strongest predictors of postpartum depression Robertson, E. Grace, (2004).

Beck & Tatano, (2001) conducted a meta-analysis 84 studies published in the decade of the 1990s to determine the magnitude of the relationships between postpartum depression and various risk factors of predictors of postpartum depression. They reported thirteen significant predictors of postpartum depression. Ten of the 13 risk factors had moderate effect sizes while three predictors had small effect sizes. The mean effect size indicator ranges for each risk factor were as follows: prenatal depression (.44 to .46), self esteem (.45 to .47), childcare stress (.45 to .46), prenatal anxiety (.41 to .45), life stress (.38 to .40), social support (.36 to .41), marital relationship (.38 to .39), history of previous depression (.38 to .39), infant temperament (.33 to .34), maternity blues (.25 to .31), marital status (.21 to .35), socioeconomic status (.19 to .22), and unplanned/unwanted pregnancy (.14 to .17). These factors known to correlate with postpartum depression. “Correlation” in this case means that high levels of prenatal depression are associated with high levels of postnatal depression. But this does not mean that the prenatal depression causes the postnatal depression - they might both be caused by some other factor. In contrast some factors such as lack of social support almost certainly cause postpartum depression.

Mani Chandran, Prathap Tharyan, (2002) Post-partum depression in a cohort of women from a rural area of Tamil Nadu, India incidence and risk factors for developing
post-partum depression determined. Assessed 359 women living in rural South India in their last trimester of pregnancy and 6-12 weeks after delivery for depression and risk factors reported 11% (95% CI 7.1-14.9) incidence of post-partum depression. Low income, birth of a daughter when a son was desired, relationship difficulties with mother-in-law and parents, adverse life events during pregnancy and lack of physical help were risk factors for the onset of post-partum depression. The study concluded that depression occurred as frequently during late pregnancy and after delivery as in developed countries, but there were cultural differences in risk factors.

Correlative survey to find the relationship between postpartum depressive symptoms and family support among two hundred postnatal mothers in Rural Maternity and Child Welfare Centers and hospitals in Udupi district, Karnataka, India reported 22% prevalence of postpartum depression and a significant correlation between postpartum depression and family support (Menaka, V. 2007)

2.10 Psychosocial and Personal Variables Influencing Anxiety and Depression during Pregnancy and Postpartum Period.

Study on antenatal anxiety has received increased attention with regards to both its impact on infant outcomes and as a risk factor for postnatal depression. Antenatal anxiety has been found to be a significant predictor of postnatal depression in three meta-analyses (Beck, 2001, O’Hara and Swain, 1996 and Robertson et al., 2004).

A systematic review by (Robertson, Grace, Wallington and Stewart, 2004) provided a synthesis of the recent literature pertaining to antenatal risk factors associated with post partum depression condition. The findings from the meta-analyses of over 14,000 subjects, and subsequent studies of nearly 10,000 additional subjects found that the following factors were the strongest predictors of postpartum depression: depression
during pregnancy, anxiety during pregnancy, experiencing stressful life events during pregnancy or the early puerperium, low levels of social support, and a previous history of depression.

Saisto et al., (2001) examined the personal characteristics and socio economic background of women and their partners fearing vaginal childbirth, from 16 maternity centers of Finland. 278 outpatient mothers and their partners filled Questionnaire survey by the 30th week of pregnancy, and reported that women with low self-esteem, dissatisfaction with partners and lack of social support showed more pregnancy-related anxiety and fear of vaginal delivery anxiety, neuroticism, vulnerability, and depression. In multiple regression analyses psychological variables of the woman contributed most to the prediction of Pregnancy-related anxiety, the strongest predictor being general anxiety (beta = 0.28, \(P < 0.001\)). Lack of support contributed most to the prediction of severe fear of vaginal delivery (increase in \(\chi^2 = 13.66, P < 0.001\)), the strongest predictor being dissatisfaction with the partnership (Wald 8.61, \(P < 0.001\)). Life-dissatisfaction reported by the partner contributed to pregnancy-related anxiety and also dissatisfaction with the partnership contributed to the woman's fear of vaginal delivery.

Although first time mothers are often the focus of research and clinical attention, the prospective study conducted by Kerry-Ann Grann, Catherine (2007) on maternal anxiety during transition to parenthood among 100 antenatal mothers found that women with more than one child were more likely to meet criteria for a postnatal anxiety or mood disorder than were first time mothers. The study also revealed Chi-square analysis of anxiety and depression and demographic variables indicated maternal parity was marginally related to pregnancy; however women with more than one child were significantly more likely to meet the criteria of anxiety and depression than first time mothers.
Ross et al., (2004) in Canada reported that those with the experience of psychological problems during the current pregnancy led to depression. Like in other research findings, women in Turkish study who had a history of depression were at a statistically significantly higher risk for depression during pregnancy. These findings show the importance of asking all pregnant women, regardless of their cultural differences, about their own psychiatric problems or family history of psychiatric problems, so that supportive care can be given.

In addition, women who themselves have a psychiatric illness or a family history of psychiatric illness need to be screened and, when necessary, referred for advanced diagnosis and treatment.

Women in Turkish study who had recently experienced a stressful life event were at risk for depression during pregnancy. This finding is similar to studies in the USA (Kessler, 2003) and in Canada (Zelkowitz et al., 2004). These findings show that stressful life events can affect the experiencing of depressive symptoms in pregnancy. For this reason, health-care personnel who provide prenatal care need to be sensitive to the presence of stressful life events and strengthen the women's skills in coping with stress to improve their emotional health.

The study conducted among Maltese women reported that the initial negative reaction to pregnancy by the women, their husbands or partners, and immediate family was significantly associated with depression in pregnancy (Felice et al., 2004). These findings highlight the negative psychological effects of an unwanted pregnancy in Turkish culture as in others. For this reason, the provision of modern family planning education can prevent unwanted pregnancies and improve the level of psychological health of pregnant women.
The roles of coping strategies have been explored in relation to depression during pregnancy and the postpartum. Demyttenaere et al. (1995) measured coping style, trait anxiety, pregnancy specific attitudes and depressed mood in the third trimester in a sample of primiparous women. Higher trait anxiety and depressive coping style were related to higher BDI scores during pregnancy. While only depressive coping was linked to higher BDI scores at 6 months postpartum these findings suggest that individual coping style may contribute to depressed mood during pregnancy.

Zekiye and Ançel (2005) conducted a descriptive, correlation study among 1,039 pregnant women were selected using a convenience sampling with objectives to determine the prevalence of depression in pregnancy and the factors that influence the development of depression and anxiety in pregnancy in a Turkish population at public hospital in Ankara Province Centre, Ankara, Turkey. The Results were: 27.9% \((n=290)\) of the 1,039 women were found to be experiencing depression at a level requiring treatment. In stepwise multiple linear regression analysis the following variables were found statistically significant influencing factors for both depression and anxiety. They are perceived social support; recent experience of marital or emotional problems during and before this pregnancy; recent experience of life stress; having a negative self-perception; experience of physical violence; and experience of physical problems during pregnancy. Statistically significant factors influencing depression were marital dissatisfaction, being a housewife, having an unwanted pregnancy, and having a formal marriage. The correlation between total anxiety and depression scores was at a medium level (Pearson correlation=0.592).

Deborah et al. (2009) studied on Psychosocial correlates of prepartum and postpartum depressed mood with the aim to delineate the influence of maternal stress, social support and coping styles on depressed mood during pregnancy and the early
postpartum period. Data were collected from the third month of pregnancy; data on numerous variables including daily stress (Hassles), state-anxiety (STAI-state), pregnancy-specific stress (PEQ) and depressed mood (DACL) were collected monthly. In each trimester social support (SSQ), coping strategies (CISS) and pregnancy progress were assessed. Approximately 4–5 weeks following delivery, information on labour, delivery and infant status was collected and the DACL and the Edinburgh Postnatal Depression Scale (EPDS) were administered. The final sample consisted of 80 women. Results of the study revealed approximately 25% of the samples with depressed mood during pregnancy and 16% of the women with depressed mood in the postpartum. Women depressed only during pregnancy and those depressed in the postpartum reported more emotional coping and higher trait and state anxiety during gestation. Both depressed groups reported higher levels of trait and state anxiety during pregnancy compared to women who did not report elevated depressive symptomatology in either the pre or postpartum. Consistent with the literature, the best predictor of postpartum depressed mood was depressed mood during pregnancy. Stresses were higher among women who were depressed only in the prepartum. As well, hassles scores in the first trimester emerged as the most important predictor of depressed mood during pregnancy, suggesting that the experience of depressed mood during pregnancy may be stress-related. These results have clinical implications for prevention and screening to identify women at increased risk for depression during pregnancy, which may in turn have implications for decreasing rates of postpartum depression.
2.11 Impact of Anxiety and Depression on Pregnancy and Its Outcomes

Antenatal anxiety is an important early marker that could be used to identify women at risk for compromised mental health and offspring outcome. The presence of high trait anxiety in pregnancy also has implications for the offspring, with a number of studies indicating that high maternal trait anxiety is associated with difficult infant temperament.

The impact of psychological health status in pregnancy on clinical outcomes such as preterm labour, pre-eclampsia, epidural use, caesarean section, instrumental deliveries and increased rates of admission to neonatal intensive care, alongside the cognitive and social development of the infant and child are well documented.

Studies have reported that anxiety and depression in pregnancy can increase complications of pregnancy, such as spontaneous abortion (Lundy et al., 1999), pre-eclampsia (Kurki et al. 2000). Preterm birth and low-birth weight babies (Weiberg and Paquette, 2002). On the other hand, studies consistently found that depressed mood or anxiety during pregnancy were significant predictors of postpartum depression (Gennaro and Hennessy, 2003; Heronelal, 2004; Robertson et al., 2004).

A prospective population based study of pregnant women in outpatient maternity clinic of Helsinki metropolitan area to examine whether anxiety and depression in early pregnancy is associated with preeclampsia among singleton nulliparous (n=6230), at ten to 17 weeks’ gestation and at delivery. The result revealed 28 (4.5%) women developed preeclampsia. depression (mean Beck score 4.5, range 3–17) was observed in 185 (30%), women and anxiety was observed in 99 (16%) in early pregnancy. Further multivariate analysis showed that either depression or anxiety, or both, were associated with increased risk (OR 3.1; 95% CI 1.4, 6.9) for preeclampsia (Tapio et al., 2000).
A significant correlation was found between experience of physical discomfort during pregnancy and depression during pregnancy. A study conducted in Japan by Kitamura et al. (1996) reported that excessive nausea and vomiting was a risk factor for depression. We also found that the experience of physical discomfort during pregnancy had an effect on anxiety. Kelley et al. (2001), in the USA, reported that the number of somatic symptoms was significantly higher in women with depression, anxiety or both than in those without.

Verdoux et al. (2002), in France, reported that women who are diagnosed with an anxiety disorder in the prenatal period were more likely to have serious obstetric complications than those who do not. In a related study that investigated factors associated with depression in pregnant immigrant women in Montreal, Canada, Zelkowitz et al., (2004) reported that depressive symptoms were associated with more somatic symptoms. These findings showed that there is a correlation between physiological and psychological symptoms in pregnant women. For this reason, it is necessary to address physiological problems in addition to psychological problems while providing care.

Nieminen, ; Stephansson and Ryding (2009), investigated Swedish women's level of antenatal fear of childbirth at various gestational ages, and factors associated with intense fear and with preference for cesarean section.

A cross-sectional study was done in all antenatal clinics in four geographical areas. Sampled thousand six hundred and thirty-five pregnant women at various gestational ages recruited during September-October 2006 at the antenatal clinic. The women reported their appraisal of the approaching delivery according to the Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ). The prevalence of intense fear of childbirth was
15.8% and very intense fear 5.7%. Nulliparous women had a higher mean score than parous women, but more parous women reported an intense fear.

Preference for cesarean section was associated with fear of childbirth (OR 11.79, 6.1-22.59 for nulliparous and OR 8.32, 4.36-15.85 for parous women) and for parous women also with a previous caesarean section (OR 18.54, 9.55-35.97), or an instrumental vaginal delivery (OR 2.34, 1.02-5.34). The study suggested that when a woman requests a cesarean section, both primary fear of birth and traumatic childbirth experiences need to be considered and dealt with.

Fenwick et al. (2009) investigated pre- and postpartum levels of childbirth fear in a cohort of childbearing women and explored the relationship to birth outcomes. A prospective correlation design method used among 401 women, who completed the Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ) version A at 36 weeks gestation, with 243 (61%) women also completing version B at six weeks postpartum. Twenty-six percent of pregnant women reported highly fearful. Analysis revealed high antenatal fear was associated with emergency caesarean delivery (n = 324) and found nulliparous women experienced more fear than parous women before but no difference in post partum.

Weisberg & Paquette (2002) on Screening and treatment of anxiety disorders in pregnant and lactating women proposed that thorough assessment of anxiety disorders in pregnant and breastfeeding women, as untreated anxiety disorders during pregnancy and the postpartum period may pose significant risks to the unborn fetus and interfere with a mother’s ability to care properly for her newborn child. As the symptoms of anxiety disorders are often similar to those found in pregnancy, careful screening for anxiety disorders in pregnant women is essential. For women suffering from anxiety disorders during or after pregnancy, safe and effective treatment is needed.
Warren et al. (2003) observed that compared to controls, mothers with panic disorder displayed less sensitivity toward their infants during interaction and reported less effective parenting behaviors in disciplinary situation. There is evidence that maternal anxiety following birth may contribute to suboptimal child outcome, with several studies pointing to dysfunctional parenting as a possible mediating mechanism. Whaley and colleagues (1999) observed that mothers with anxiety disorders were less warm and positive in their interactions with children.

The impact of maternal depression during pregnancy can be substantial. Some women may develop poor nutritional intake and/or increased tobacco, alcohol and drug use, any of which can adversely affect the developing fetus. Still other women may end their pregnancy with elective abortions due to their depression (Suri et al., 2004). Thus, the screening for depression effectively during pregnancy is very important. Women with a prior history of a Major Depressive Disorder need to be monitored closely during pregnancy as these women on prophylactic antidepressants are at high risk for relapse during pregnancy if antidepressants are discontinued (Cohen et al., 2006).

Tapio et al. (2000) examined whether depression and anxiety in early pregnancy are associated with preeclampsia in an unselected nulliparous population of Helsinki, Finland. In this prospective population-based study during pregnancy at outpatient maternity clinics in the Helsinki metropolitan area, depression was assessed by a Finnish modification of the short form of the Beck Depression Inventory and anxiety by one established question.

Age, smoking, alcohol consumption, marital status, socioeconomic status, and bacterial vaginosis were analyzed as potentially confounding factors in a multiple logistic regression analysis. Six hundred twenty-three consecutive nulliparous women with
singleton pregnancies were studied at ten to 17 (median 12) weeks’ gestation and at delivery. Of them, 28 (4.5%) women developed preeclampsia. Depression (mean Beck score 4.5, range 3–17) was observed in 185 (30). Anxiety was observed in 99 (16%) in early pregnancy. In multivariate analysis, after adjustment for potentially confounding factors, depression was associated with increased risk (odds ratio [OR] 2.5; 95% confidence interval [CI] 1.1, 5.4) for preeclampsia, as was anxiety (OR 3.2; 95% CI 1.4, 7.4). Either depression or anxiety, or both, were associated with increased risk (OR 3.1; 95% CI 1.4, 6.9) for preeclampsia. They concluded that depression and anxiety in early pregnancy are associated with risk for subsequent preeclampsia.

Laura, Glynn, et.al. (2008) Assessed Pattern of Perceived Stress and Anxiety in Pregnancy Predicts Preterm Birth. Perceived stress and anxiety were measured in 415 pregnant women at 18–20 and 30–32 weeks' gestation. The data proved the patterns of anxiety and stress were associated with gestational length. The finding of the study revealed that those who delivered preterm exhibited increased stress and anxiety though majority of women who delivered at term exhibited decline in stress and anxiety. The author concluded that an increase in stress or anxiety among pregnant woman is an important predictor of preterm birth.

Dayan. (2002) in a cohort study conducted in France in 1997–1998 on Role of Anxiety and Depression in the Onset of Spontaneous Preterm Labor investigated the effects of antenatal anxiety and depression on spontaneous preterm labor. A consecutive series of anxiety and depression was assessed among 634 subjects of pregnant women with singleton pregnancies using self-administered questionnaires Spielberger's State-Trait Anxiety Inventory and the Edinburgh depression scale. The findings showed that anxiety
and depression, when combined with specific biomedical factors, are associated with spontaneous preterm labor.

Saisto, (1999) identified factors associated with fear of childbirth during and after first labor among 100 primiparas who reported severe fear of vaginal childbirth during their second pregnancies and 200 age- and parity-matched controls who reported no later fear of delivery. The main outcome measures were previous miscarriages, participation in birth-education classes, and support during labor, length of first delivery, pain relief, obstetric complications, welfare of the newborn, and time between deliveries. Results showed the prevalence of emergency caesarean (adjusted odds ratio [OR] 26.9, confidence interval [CI] 11.9, 61.1) and vacuum extraction (adjusted OR 4.5, CI 2.2, 9.3) during first delivery was much higher in subjects than controls. Labour lasted longer in cases than in controls during the first (10.5 hours versus 7.8 hours, \( P = .016 \)) and second stages (62 minutes versus 47 minutes, \( P = .002 \)). They received epidural analgesia more often, but its timing and the amount used were not different between groups. The study concluded that emergency cesarean and vacuum extraction during first deliveries were associated with secondary fear of delivery. So prevention of fear might require more education in childbirth classes and at postpartum visits.

Laursen (2009) examined fear of childbirth and risk for birth complications in nulliparous women in the Danish National Birth Cohort. Prospective cohort study among 25297 healthy nulliparous women with uncomplicated pregnancy in the setting of Danish National Birth Cohort was conducted. Data were collected during 1997-2003 from computer-assisted telephone interviews twice in pregnancy linked with national health registers. The researcher found out fear of childbirth in early (16 weeks) and late (31 weeks) pregnancy was associated with emergency caesarean section: OR, 1.23 (1.05-1.47)
and 1.32 (1.13-1.55), respectively. Women who feared childbirth had an increased risk for dystocia and prolonged labour. The researcher concluded that fear of childbirth during pregnancy was associated with dystocia and emergency caesarean section but not with fetal distress.

In the secondary analysis done by Lowe (2000), the relationship between self-efficacy for labour and childbirth fears in healthy nulliparous women was investigated during the third trimester of pregnancy. The sample of 280 well-educated third trimester nulliparae was divided into two groups as low- fear and high-fear group. Significant differences were found between groups on a number of psychological variables. The women with high- fear were characterized by significantly higher learned helplessness and significantly lower self esteem and generalized self –efficacy. The most common fears of high- fear group were of losing control during delivery, of the birth itself, of something being wrong with the baby and of painful contractions.

Rouch, Salmela, Halmesmaki and Saisto (2009) conducted a study in Finland to examine fear of childbirth according to parity, gestational age and obstetric history among 1400 pregnant women. They used Visual analong scale and Wimja Delivery Expectancy / Experience Questinnaire to measure women’s anxiety of childbirth. The results showed higher score of anxiety in nulliparous than in multiparous and also their anxiety levels were more during later trimester compared to first and second trimester. 8.1 % preferred caesarean section and it was found that their anxiety level were very high as compared to those who preferred vaginal delivery. The study concluded that severe fear of childbirth was more common in nulliparous women in later pregnancy.
2.12 Childbirth Education

Childbirth education is a process designed to help parents to make the transition from role of expectant parents to the role and responsibility of parents of new baby. Grantly Dick-Read, an early 20th-century obstetrician, observed that some women did not experience pain during childbirth. In 1933, he described his theory of pain-free birth in the absence of fear in his first book, Natural Childbirth. The title was changed to Childbirth Without Fear for its second printing in the 1950s. Dick-Read was a pioneer whose theories had a profound impact on childbirth education and provided the foundation for three of the childbirth education models available today: Lamaze, the Bradley Method, and Hypno Birthing.

The Lamaze Method was introduced in 1951 by the French obstetrician Fernand Lamaze. He was influenced by Ivan Pavlov, an early pioneer in behavioral psychology who was well known for his scientific work on conditioned reflexes. The Lamaze Method consisted of childbirth education, relaxation, and breathing techniques.

Lamaze advocated for more aggressive emotional support from the father of the baby, including their involvement with the birth. Lamaze (1967) introduced a programme of exercise aimed at the maintenance of proper body mechanics and conditioning of the body using breathing and relaxation techniques. The regular and daily practice of these exercises is essential for pregnant mothers to condition their body for labour, as it helps in natural progress of childbirth.

Childbirth education is a good way to alleviate fears and anxiety associated with pregnancy and childbirth because it provides clients with an opportunity to extend their knowledge (Whitley (1992). The goal of childbirth education is to assist individuals and their family members to make informed the safe decision about pregnancy, birth & early
parenthood. It provides women with the knowledge and skills necessary to take educated and informed decisions about the birth of baby.

A woman’s pain during childbirth is unique to each woman and is influenced by variety of physiologic, psychological and environmental factors. Most proponents of prepared childbirth education agree that the major causes of pain in labor are fear and tension. Fear of pain is a key issue for pregnant women and is the reason for attending childbirth education. Numerous studies show that women who have received childbirth preparation later report no less pain but do report greater ability to cope with the pain during labour and also with increased birth satisfaction than unprepared women.

Many women fear the pain of childbirth or mutilation because they do not understand anatomy and birth process. Education by the nurses can alleviate many of these fears. Women also express concern over what behaviors are appropriate during the birth process and whether caregivers will accept them and their actions. (Lowdermilk, 2007).

All childbirth education methods attempt to reduce fear, tension and pain by increasing the women’s knowledge of labour and birth process, enhancing her self-confidence and sense of control, preparing a support person, training the women in physical conditioning and relaxation breathing. Women and couple should not expect pain free childbirth but rather pain controlled birth using variety of methods. Childbirth methods taught in the United States were Dick-read method, or natural childbirth method, the Lamaze method or psycho prophylactic method and Bradley method or husband coached childbirth.

In current practice the method of preparation is of less important, instead emphasis is placed on getting expectant parents to attend childbirth preparation classes (US Department of Health and Human services, 2000). Pain management strategies are
essential components of childbirth education. Couples need information about advantages and disadvantages of pain medication and about techniques for coping with labour. An emphasis on non pharmacological pain management strategies helps couples to manage the labour and birth with dignity and increased comfort. Many women actively prepare for birth by reading books, viewing films, attending parenting classes and talking to others and relatives. They seek the best caregiver possible for advice, monitoring and caring.

The review of the studies reveals the effectiveness of planned childbirth education. It has proven that childbirth education is effective in helping parents to make positive lifestyle changes and can play an important role in reducing the risk associated with poor pregnancy outcome. The childbirth education gives parents the knowledge, desire and confidence that they need to change their health behaviors. Knowledge and understanding were described as important means of coping during pregnancy and childbirth.

The literature reviewed showed that women approaches childbirth with fears and anxiety. Self efficacy and control during labour are negatively correlated with childbirth fears. Childbirth education is reported to be a good way to dispel fears (Sorenson, 1999). Thinking about one’s positive experiences of pregnancy and childbirth or of the positive experiences of others can also alleviate fears.

2.13 Effectiveness of the Planned Childbirth Education Programme

Salomonsson, Wijma, and Alehagen, (2010) described midwives’ experiences with, and perceptions of; women with fear of childbirth. The data were collected by means of interviews in focus groups. Four focus groups at four types of hospitals in Southern Sweden over a period of 18 months, 2004-2006 among 21 experienced midwives. The study concluded that fear of childbirth is seen as a continuum from normal to irrational severe fear. Fear of childbirth influenced the experience of pregnancy, the labour process
and the transition to parenthood. Authors pointed out that midwifery care of women with fear of childbirth is emotionally demanding and time consuming. Aspects of care required early identification of women with fear of childbirth, individual care, preparation for giving birth, and support of a companion during labour, and postpartum follow-up.

Lee, Linda, Holroyd, (2009) examined 40 Chinese women's satisfaction with and the perceived effect of childbirth education class on their labour experience. Findings revealed an overall satisfaction with the class. Three themes emerged from this qualitative study was, ‘learning about labour’, ‘contributing to a smooth labour process’ and ‘coping with uncertainty and handling. Authors highlighted the importance of cultivating positive coping measures among the Chinese women after attending childbirth education class when facing childbirth-related anxiety. The results of a number of studies suggest that childbirth education increases not only confidence but also the woman’s ability to cope with labour and birth (Koch, 2002).

Tang and Goggins (2009) conducted a randomized controlled trial to test the effectiveness of enhancing educational intervention to promote women’s self–efficacy for childbirth and coping ability in reducing anxiety and pain during labour. The eligible Chinese first-time pregnant women were randomly assigned to either an experimental group (n=60) or a control group (n=73). The experimental group received two 90 minutes sessions of educational programme in between the 33rd -35th weeks of gestation. Follow-up assessments on outcome measures were done 48 hours after delivery. Evaluation of pain and anxiety during the 3rd stage of labour and performance of coping behaviour during labor were measured by Visual Analog Scale and Childbirth coping behavior scale respectively. The experimental group demonstrated higher levels of self efficacy for childbirth than control group (p<0.001), lower perceived anxiety (p<0.001) and greater
performance of coping behaviour during labour (p<0.001). The study found that educational intervention was effective in promoting women’s self efficacy for childbirth and reducing their perceived pain and anxiety in the first two stages of labour.

A study was done by Davim, Torres and Dantas (2008) in the state of Rio Grande do Norte, Brazil, to evaluate the effectiveness of non-pharmacological strategies to relieve labour pain, among 100 mothers applying exercise, muscle relaxation, lumboscaral massage. Most of them (60%) were in the age group of 20-30, 85% had incomplete primary education and 78% had companion in the hospital. A significant difference was observed in pain relief after using non-pharmacological strategies, showing reduced pain during cervical dilation. It was concluded that the strategies were effective in reducing the intensity of labour pain.

Roycemol (2007) conducted study in Institute Of Maternal And Child Health, (IMCH) Kozhikode, Kerala to find out the effectiveness of Planned Childbirth education on Knowledge and Intrapartum compliance among 50 adolescent pregnant women. The study revealed that a significant improvement in knowledge on childbirth increased intrapartum compliance among experimental group (p<0.001). Hence the childbirth education was proved as effective.

Lekshmi (2002) conducted study to find out the effectiveness of Planned Childbirth education on Anxiety and Knowledge of primigravid women attending the outpatient department of Institute Of Maternal And Child Health, (IMCH) Kozhikode-Kerala. Among 60 primigravid sample, 70% were in the age group of 18-23 years, 66.7 % were with high school education, 78.6% belonged to low income group and 83% with nuclear family type. The study concluded that knowledge of primigravid women on childbirth was low and they had moderate level of anxiety. A negative correlation between childbirth anxiety and
knowledge was found. There were significant improvement in the knowledge score of experimental group after planned childbirth education (p<0.001) and a significant reduction in childbirth anxiety score of experimental group compared to control group (p<0.001). Thus proved that planned childbirth education was effective in reducing the childbirth anxiety and improving the of primigravid women’s knowledge on childbirth.

Lucy 2010 studied the effect of childbirth education on intranatal self care practices and maternal satisfaction among 50 primigravid women admitted in District Hospital Kottayam, Kerala. The study revealed a low level of knowledge on childbirth among primi women regarding childbirth and how to cope during labour process. The samples had good support system during pregnancy and delivery, 73% of study group had full support from either husband or woman’s family support along with husband’s support. The remaining 27% were with full support from their husband alone. The intervention group demonstrated good participation with high compliance in intrapartum self care activities and expressed a good satisfaction.

Study by Malata, et al. (2002), with an objective to develop and evaluate a childbirth education program for Malawian women reported the effectiveness of childbirth education in improving knowledge. Participants were pregnant women who attended antenatal clinic in 2002 with 104 in control group and 105 in the intervention group. Changes in childbirth knowledge were determined over a 6 week period. Findings of the study showed that an overall significant increase in knowledge scores across all time period (p<0.001)

A retrospective, descriptive survey design conducted in North Carrolina by Brown, Douglas and Flood (2001) examined which non-pharmacological pain relief techniques used most often by laboring women. The 46 sample result revealed that out of the ten non-
pharmacological pain relief strategies breathing s and relaxation technique were found to be the most effective.

A study by Lee and Holroyd (2009) in China highlighted the importance of cultivating positive coping measures among women through childbirth education class when they are facing with childbirth anxiety. Forty women completed questionnaire after attending childbirth education class. The participant expressed overall satisfaction with class. The main three themes emerged from the interview data were “learning about labour, contributing to smooth labour process and coping with uncertainty and handling anxiety”.

An intervention study to improve the knowledge and practice regarding selected self care activities of intrapartum period among 50 primimothers admitted in Sree Avittom Thirunal Hospital -Thruvanathapuram, Kerala by Elizebeth in 1998 revealed that knowledge of primi women regarding intrapartum self care activities were low. 85% of the samples were housewives within the age group of 18-26 years. 60% samples belonged to Hindu religion and 20% of Christains and the remaing 30% were Muslims .75% belonged to low income but they were having exposure to mass media. Intervention of education with instructional module was effective in improving their knowledge and practice.

Eva, Noronha and Sonia (2010), determined the effectiveness of childbirth class in terms of behavioral responses during first stage of labour and outcome of labour in terms of maternal and neonatal outcome among 60 primigravid women in selected hospitals of Udupi district, Karnataka-India using an evaluative quasi experimental post test research design. Statistically significant differences between the groups were reported in behavioral responses in first stage of labour, nature of delivery and neonatal outcomes. Practice of breathing exercise, relaxation technique and added knowledge of childbirth shortened the duration of labour in experimental group. They concluded that childbirth classes prepared
primigravid women for the process of labour and conditioned them to relax and cope with labour pain.

Girija (1998) done a pretest posttest equivalent control group design study to assess the effectiveness of an intervention on knowledge and practice regarding breastfeeding, among 60 primigravid women admitted in Sree Avittom Thirunal Hospital - Thiruvananthapuram, Kerala. The results revealed that interventional programs like video show and instructional modules regarding breastfeeding enhanced the knowledge and improved their breast feeding practice especially breastfeeding using correct technique significantly (p <0.001). The sample constituted 60% primigravid women in the age group of 18-22 years and 75% of samples were housewives. 68% of them belonged to Hindu religion, 12% Christians and 24% Muslims. Low income category was 65% but, 80% of the samples reported they were exposed to mass media.

A survey among 200 primi mothers who attended the antenatal clinic of Sree Avittom Thirunal Hospital-Thruvanathapuram, Kerala by Sunitha, 1999 revealed that the knowledge of primi mothers regarding antenatal care especially of childbirth knowledge was low. Childbirth education was given to ten primigravid women using one group pretest posttest design as second part of her study revealed a significant post test score. The study concluded that childbirth education was effective in improving primigravid women’s knowledge.

Saisto. et al., (2001) conducted a randomized controlled trial of intervention in fear of childbirth among 176 Finland women, who had fear of childbirth were randomly assigned at the 26th gestational week to have either intensive therapy or conventional therapy, with follow-up 3 months postpartum. Pregnancy-related anxiety and concerns, satisfaction with childbirth, and puerperal depression were assessed with specific
questionnaires. Results revealed birth-related concerns decreased in the intensive therapy group but increased in the conventional therapy group. Labor was shorter in the intensive therapy group. Authors concluded that both kinds of therapy reduced unnecessary cesareans, more so in nulliparous and well-motivated women. With intensive therapy, pregnancy- and birth-related anxiety and concerns were reduced, and labors were shorter.

Saisto et al., (1990) conducted a study to identify factors associated with fear of childbirth during and after first labour. They analyzed 100 primipara mothers who reported severe fear for vaginal delivery during their second delivery, age and parity matched. The results show higher prevalence of emergency caesarean and vacuum extraction among women with high fear of vaginal delivery than control group. Longer length of labour and more use of pain medication during deliveries were reported among them than control. The study concluded that emergency caesarean and vacuum extraction were associated with secondary fear of vaginal delivery. So they suggested prevention of fear of vaginal delivery by preparing pregnant women through childbirth education class and intense childbirth education will definitely enhance their morale.

Crowe and Von Bayer (1989) examined predictors of a positive childbirth experience. The participants completed a questionnaire on three occasions: immediately before the first prenatal classes, immediately after the last class, and 24-48 hours after delivery. The researchers found that participants with high levels of childbirth–related fear before prenatal classes experienced less anxiety during labour and delivery. The authors suggest that the prenatal classes may have provided a setting for early disclosure and discussion of childbirth–related fears.

Bastani et al., (2005) conducted a randomized controlled trial of the effect of applied relaxation training on reducing anxiety and perceived stress in pregnant women. A
Review of Related Literature

A prospective pretest posttest experimental design on primigravid women in their second trimester (n=100) was used. The samples were recruited from prenatal clinics of three major teaching hospitals located in central Tehran. State-trait anxiety and Cohen Perceived stress were measured. The findings of the study suggest beneficial effects of relaxation on reducing anxiety and perceived stress in pregnant women. Teaching relaxation techniques could serve as recourse for improving maternal psychological health.

Svensson et al. (2006) conducted randomized controlled trial of two antenatal education program for 170 primigravid women (91 for intervention and the remaining 79 as control) to determine whether the new antenatal education program ‘Having a Baby’ with increased parenting content could improve parenting outcome for women compared with regular antenatal education. Maternal perceived parenting self-efficacy, worry about baby and perceived knowledge were measured before and after the birth. Birth outcome also was measured. The findings showed intervention group with significantly higher postnatal perceived maternal scores than with mothers in control group. Also perceived parenting knowledge score of women who attended ‘Having a Baby’ program was significantly higher. This study implies that ‘Having a Baby’ program of childbirth education improved maternal self-efficacy and parenting knowledge, which in turn reduced their worrying about baby and enhanced their self-esteem during postnatal period.

For classes to be meaningful educators must understand the value system in culture and their influence on issue such as nutrition, exercise, valuing of early prenatal care, maternal weight gain, preparation for labour and infant feeding pattern etc. The social network can be remarkable source of support for women with fear associated with pregnancy and childbirth. Social support may be in the form of emotional support,
information and validation. The network included the spouse/partner, relatives and close friend.

Sjogren (1998) gathered information from women who received individualized psychologic /obstetric support secondary to fear of delivery. Women identified as having fear were enrolled in the study. Some of them requested caesarean birth because of the fear of vaginal delivery. Sjogren and Thomassen (1997) found that psychosomatic supports for women with severe fear of delivery resulted in a 50% reduction in rates of caesarean birth for psychosocial indications.

Ettiott et al., (1998) in their study found that women who were invited to informed groups and provided the information antenatally about realities of parenthood, possibility of postnatal depression, showed only the half prevalence of depression found in a group of randomly selected non-invited mothers.

Koehn's (2002) integrative literature review of childbirth preparation research examined 12 published studies (11 nonexperimental and 1 experimental) of the effect of childbirth education on outcomes. He proposed four recommendations for future childbirth education studies to advance knowledge about the field in a more effective manner: 1) studies are guided by a model that expects and accounts for input differences in client motivation, birth attendant philosophies, attitudes and practices of obstetric caregivers, and other factors that influence a woman's perception of childbirth; 2) include health-focused outcomes; 3) operationally define the measures of health-focused outcomes and continue the development and use of tools that measure these outcomes; 4) establish standardization/categorization of the childbirth education intervention; and 5) perform a meta-analysis.
Following Koehn's review, the Cochrane Collaboration evaluated studies on individual or group antenatal education for childbirth or parenthood, or both. Gagnon and Sandall (2007). The most scientifically sound studies selected were 9 published trials involving 2284 women. The authors reviewed randomized controlled trials of any structured group or individual prenatal educational program attended by either parent that included information related to pregnancy, birth, or parenthood. The measured variables included knowledge acquisition, sense of control, factors related to infant-care competencies, and some labor and birth outcomes. The effects of general prenatal childbirth (or parenthood) education were determined to be inconclusive.

Vieten and Astin (2008) randomized trial (n = 31) that was not included in either of the above reviews evaluated a mindfulness-based intervention during pregnancy on prenatal stress and mood. Women who received the intervention had significantly less anxiety (effect size, 0.89; P < .05) and negative affect (effect size, 0.83; P < .05) during the third trimester compared to those who did not.

Auken and Tomlison (1953) made an appraisal of effectiveness of parent training for childbirth. A sample of 400 primipara women was selected and distributed in experimental and control groups. The mean length of labour in experimental group was 13.5 hours and in control group was 15.5 hrs. The finding of the study revealed that the training programme was effective in reducing the duration of labour in nulliparous mothers.

In an exploratory study on the effectiveness of relaxation with guided imagery protocol in reducing anxiety and depression and in increasing self-esteem among nulliparous mothers during the first four weeks of postpartum was undertaken by Rees (1993). The results indicate that anxiety and depression declined and self esteem increased in subjects in both the experimental and control group over the four week period. However,
the decline in anxiety and the increase in self-esteem were greater in experimental group than in control group. The decline in depression was about the same in both groups.

Expectations and experiences of pain in labor: findings from a large prospective study (Green, 1993). Data on expectations and experiences of pain in labor are presented from a prospective study of over 700 women who gave birth in six maternity units in southeast England. Most women preferred to keep drug use to a minimum, even though they expected labor to be "quite" or "very" painful. The idea of avoiding drugs was unrelated to educational status or social class of mother. Breathing and relaxation exercises were widely used, and were most successful for those who had expected them to be so. Anxiety about the pain of labor was a strong predictor of negative experiences during labour, lack of satisfaction with the birth, and poor emotional well-being postnatally.

Maria (1999) conducted an experimental study to evaluate the effectiveness of selected intranatal exercise on the outcome of labour. The major finding of the study was that the knowledge score of the experimental group were significantly higher than that of control group. The total mean duration of labour and standard deviation in the experimental group was 10.57+ 4.5 hours but in control group it was 16.17 + 4.2 hours. While 88 percentages of women in experimental group had normal delivery, only 80 percentages had normal delivery in control group. Intervention group also reported a significantly lower intensity of pain than control group.

2.14 Nurses’ Role in Health Promoting Behaviors in Pregnancy and Stress Management

According to Swedish official report series (1978), an instrument for the midwife is parent education, an important part of his or her antenatal care. Parent education is to educate for labour and birth aiming at a sensitive preparation for women to learn to trust
her body, and for both parents to learn how they can work together and support each other throughout the various stages of childbirth. The childbirth education should deal with topics like the normal course of labour and delivery, risks, fear of childbirth, worries about baby’s health and pain relief.

Nurses can play an important role in helping the women to achieve a satisfying birth experience by providing honest understandable answers (Hodnett et al., 2002). Self-care is important throughout life, but especially during pregnancy for the benefit of mother and infant. Nurses have the opportunity to encourage healthy stress management and health-promoting lifestyle. Health promoting behaviors are actions or behaviors that improve or promote one’s health or well-being.

Recommended health-promoting behaviors during pregnancy include the following: (1) Get early and regular prenatal care. (2) Avoid substance harmful to fetus. (3) Become educated about pregnancy, birth, and parenting, (4) Attending prenatal classes. (5) Eat healthy diet, (6) Gain weight within recommended guidelines, (7) Get appropriate exercise regularly, (8) Employ stress management strategies, (9) Obtain dental care, (10) Avoid risky sexual practices, (11) Avoid exposure to toxic or infectious agents, (12) Maintain healthy relationships. These actions are expected during pregnancy for health and well-being of mother and fetus. The studies reported that the relationship between maternal perceived stress and health promoting behaviors in third trimester of high risk pregnancy revealed that women with higher levels of perceived stress had fewer health promoting behaviors.

A woman’s social support is important in easing, obtaining and maintaining her psychological adaptation to pregnancy. Midwives and nurses can possibly help prevent the development of anxiety and depression in pregnancy, and mild depression from worsening
and recurrence of depression. They can also implement interventions such as stress reduction, ensure adequate nutrition, prevent the consumption of cigarettes, nicotine and caffeine, encouraging exercise and adequate hygiene, educating women about measures that may help in adaptation by developing coping skills and putting into action current social support systems particularly for women who are separated or divorced) (Hayes et al., 2000; Gennaro and Hennessy, 2003).

Hannah, et al. (2002) described the causes of fear associated with pregnancy, childbirth and coping strategies to alleviate fears among 20 convenience samples of antenatal mothers. The study determined how mothers seek help in coping with fears reported that they seek help from (1) network of social support (2) healthcare professionals (3) seeking information independently. Most of the informants mentioned midwife and community health nurse were the source to help with fears of pregnancy. The categories which described interventions, events or actions that help to alleviate fear are (1) discussion (2) knowledge (3) healthcare services (4) positive experience (5) investigations (6) feeling the baby move. Among these, knowledge and healthcare services rank the highest in alleviating fear. Many participants coped with their fear of childbirth by increasing their knowledge. They obtain information from specialists and books. The professional support is found to be very important in dispelling fear associate with pregnancy and childbirth.

The Midwife is nowadays recognized as the prime educator of women in relation to childbirth. Education is a substantial part of the midwife’s role as laid down within the Midwife’s Code of Ethics (UKCC, 1998). Midwives and nurses who provide prenatal care have significant roles in determining a pregnant woman’s risk factors for psychological illness. They offer preventive care and screening to ensure early diagnosis, also direct
pregnant women with psychological problems to appropriate treatment and care. Being one of the largest healthcare professional groups in India, midwives can contribute a lot to improve knowledge of expectant mothers on pregnancy and childbirth. They can help to reduce the anxiety of pregnant women through anticipatory guidance and emotional support and enable them to cope better with pregnancy and childbirth.

The studies reported that knowledge to be a very important means of removing or alleviating fears and anxiety. The content and methods used to provide childbirth education need to be considered to maximize the effectiveness. Professionals at maternity healthcare clinics should be trained to care for women who have fear associated with pregnancy and childbirth. The midwife can serve in the role of advocate for patient by functioning as a link in the chain of care.