EFFECT OF A PRENATAL ATTACHMENT PROMOTING PROGRAM ON ANXIETY AND MATERNAL - FETAL ATTACHMENT IN PREGNANT WOMEN EXPERIENCING PREVIOUS PRENATAL LOSS

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ABSTRACT

The purpose of this quasi-experimental research is to determine the effect of a prenatal attachment promotion program on anxiety and maternal-fetal attachment in pregnant women experiencing previous prenatal loss. Klaus & Kennell's the parent–infant attachment was used as the conceptual framework for this study.

Purposive sampling was used to select 60 pregnant women who had experienced prenatal loss, and attended the prenatal clinic at Ramathibodi Hospital, between June and October, 2004. The sample was divided into a control and an experimental groups with 30 subjects in each group. The experimental group received both the prenatal attachment promotion program and the usual prenatal care, whereas the control group received only the usual prenatal care. Data were collected by using three questionnaires, a demographic data questionnaire, a pregnancy outcome questionnaire, and a maternal-fetal attachment scale. Data were analyzed by the SPSS/FW program.

The results of this study revealed that the pregnant women in the experimental group had no statistically significant higher scores of maternal-fetal attachment ($t = -.56$, $p > .05$) and lower scores of anxiety ($F_{1,57} = .94$, $p > .05$) than those in the control group. Therefore, the beneficial effects of the prenatal attachment promotion program and value of the program are questionable. However, this studied intervention could be further investigated in nursing care procedures.

KEY WORDS: PRENATAL ATTACHMENT / ANXIETY / PRENATAL LOSS
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ผลของโปรแกรมการส่งเสริมความผูกพัน ต่อความวิตกกังวลและความรักใคร่ผูกพันระหว่างมารดาและทารก ในหญิงตั้งครรภ์ที่เคยสูญเสียบุตร (EFFECT OF A PRENATAL ATTACHMENT PROMOTING PROGRAM ON ANXIETY AND MATERNAL-FETAL ATTACHMENT IN PREGNANT WOMEN EXPERIENCING PREVIOUS PRENATAL LOSS)

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บทคัดย่อ

การวิจัยกึ่งทดลองนี้มีวัตถุประสงค์เพื่อ ศึกษาผลของการใช้โปรแกรมการส่งเสริมความผูกพันต่อความวิตกกังวลและความรักใคร่ผูกพันระหว่างมารดาและทารกในหญิงตั้งครรภ์ที่เคยสูญเสียบุตร โดยใช้ทฤษฎีความรักใคร่ผูกพันระหว่างมารดาและทารกของคลอสและเคลเนลเป็นกรอบแนวคิดในการศึกษา

การเลือกกลุ่มตัวอย่างเป็นแบบเฉพาะเจาะจง โดยเลือกหญิงตั้งครรภ์ที่เคยสูญเสียบุตรจำนวน 60 ราย ที่มาฝากครรภ์ ณ หน่วยหน่วยตรวจครรภ์ โรงพยาบาลรามาธิบดี ระหว่างเดือนมิถุนายน ถึงเดือนตุลาคม 2547 แบ่งเป็นกลุ่มทดลองและกลุ่มควบคุม กลุ่มละ 30 ราย กลุ่มทดลองได้รับโปรแกรมการส่งเสริมความผูกพันในระยะตั้งครรภ์ร่วมกับการดูแลครรภ์แบบปกติ ในขณะที่กลุ่มควบคุมได้รับการพยาบาลแบบปกติอย่างเดียว เก็บรวบรวมข้อมูลโดยใช้แบบสอบถามจำนวน 3 ชุด ได้แก่แบบสอบถามข้อมูลส่วนบุคคล แบบสอบถามความวิตกกังวลและแบบสอบถามความรักใคร่ผูกพันระหว่างมารดาและทารกในครรภ์ วิเคราะห์ข้อมูลด้วยโปรแกรม SPSS/FW

ผลการวิจัยพบว่า หญิงตั้งครรภ์ในกลุ่มทดลองมีคะแนนความผูกพันระหว่างมารดาและทารกสูงกว่ากลุ่มควบคุมอย่างไม่มีนัยสำคัญทางสถิติ ($t = -.56$, $p > .05$) และมีคะแนนความวิตกกังวลต่ำกว่ากลุ่มควบคุมอย่างไม่มีนัยสำคัญทางสถิติ ($F_{1,57} = .94$, $p > .05$) ดังนั้นผลของโปรแกรมการส่งเสริมความผูกพันในระหว่างตั้งครรภ์ไม่สามารถเพิ่มความรักใคร่ผูกพันระหว่างมารดาและทารกในครรภ์และลดความวิตกกังวลให้หญิงตั้งครรภ์ที่เคยสูญเสียบุตรได้ อย่างไรก็ตามโปรแกรมส่งเสริมความผูกพันระหว่างมารดาและทารกในระหว่างตั้งครรภ์ ควรมีการศึกษาเพิ่มเติมในกระบวนการพยาบาล

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CHAPTER 1
INTRODUCTION

Background and Rationale

Pregnancy is a natural condition of married women. When a woman experiences pregnancy, she prepares herself, seeks medical care. She also anticipates that the outcome of pregnancy will be birth of a healthy infant (Cote-Arsenault & Marshall, 2000: 473-485). However, such outcome will not be met by every pregnant woman. Perinatal loss can be found about 25% of all pregnancies in form of miscarriage, stillbirth, or neonatal death (Woods & Woods 1997 cited by Cote-Arsenault & Marshall, 2000: 473-485). In Thailand, the statistics of abortion in the childbearing are about 1,711,500 cases or 8.6 % in 1996 (Thai News, 2001). Public Health statistics estimate the rate of perinatal loss from 1997 to 2001 is 1.3 – 2.8 per 1,000 livebirth and maternal deaths rate from abortion by pregnancy is 2.0 - 2.2 per 100,000 livebirth. (Public Health statistics, 2001: 48-56). At the antenatal clinic in Ramathibodi Hospital, the rate of abortion under 28 weeks of gestation from 2000 to 2004 ranges from 4.9 - 8.7 percent.

Most women feel that they have to respond for lossing their children. This attitude causes several problems, such as physiological, psychological and sociological problems. Physiological problems manifested by headaches, restlessness, loss of appetite, guilt, anxiety, loss of hopes, dreams, and feeling excluded from the women's traditional role in society. The effect and the time for adjustment are varied, depending on strength, help and other tensions. Normally, the recovery period is about 6 months to 2 years (Supa, B.E. 2539: 42; Gilbert & Harmon, 1993: 115). The complete resolution of grief response might take up to 3 years (Thompson, et. al., 1986 cited by Town send, 1993: 347).

When women become pregnant again, they may continue mourning about their lost children while simultaneously attempting to develop bond and attachment with their new unborn infants (Armstrong & Hutti, 1998: 183). The problems may occur in

the new pregnancy, the women are puzzled by their mixed feeling. If a mother becomes rapidly pregnant again after her loss, her grief may be suspended during the subsequent pregnancy. Difficulties in the relationship with the following child may be observed from the response of suffering. Depression and anxiety that are congruent with grief increase during subsequent pregnancy and may interfere with maternal-child relationship (Brost & Kenney, 1992: 461). Some women may separate themselves from their spouses and society. Moreover, these women feel fear and loss of their confidence in having next babies. (Beare & Myers, 1994: 419; Bobak & Jensen, 1992: 1219; Neugobauer, et. al., 1992: 104; Quirk, 1979, cited by Reed, 1990: 90; Robertson & Kavanaugh, 1998: 63)

In subsequent pregnancy, the mother who experienced prenatal loss may develop a higher level of stress and anxiety (Hunfeld, et al., 1996: 783-790; Franche & Mikhail, 1999: 1613-1623; Hughes, et. al., 1999: 1721-1724; Kala, 2001: 560). These feeling reduced prenatal attachments with the unborn baby during pregnancy and inappropriate parenting (Armstrong & Hutti, 1998: 183-189; Rillstone & Hutchinson, 2001: 291-298). The affectionate bond between mother and child is one of essential factors for enhancing the child's early survival and later capacity for getting along with others (Bowlby, 1969 cited by Armstrong & Hutti, 1998: 183-189).

Nowadays, the structure of Thai families has been changed from socioeconomic effect. Extended families are decreasing, where as nuclear families are increasing because of the changing roles of family to gain more income and join in social activities (Nittaya, B.E. 2540: 84-119; Yongyuth, B.E. 2540: 27-39). This situation limits the opportunities for attaching between mother and her fetus. Previous prenatal loss pregnant woman has more anxiety which might influence maternal-fetal attachment and involve the child's life in the future (Avant, 1981: 416; Gaffey, 1986: 91; Standley, et al., 1979: 22). These effects may generate many psychosocial problems such as divorce, broken home, child abuse, and drug addictions which we usually have seen more in our society (Thai News, 2001).

Prenatal loss increases anxiety and decreases maternal-fetal attachment in subsequent pregnancy. Therefore the health care personnel should provide maternal-fetal attachment during pregnancy in the second trimester since the fetus has become active and sensitive. Meanwhile, the fetus is both active and sensitive to its

environment during the prenatal period. Fetus can hear, see, taste, move, and respond to touch in utero during the seventh to ninth month of pregnancy. Parents can interact and begin bonding with the fetus (Broussand & Rich, 1990: 381-387). It is generally accepted that the fetus can hear and respond to the sounds from at least the twenty-fourth week of pregnancy (Liley, 1972: 99-105). By ultrasound scan, mothers were able to view the screen, hear their fetus's heart beat, report feeling of fetal movement early in pregnancy. They had higher maternal –fetal attachment scores and higher perception of fetal development scores (Heidrich & Cranley, 1989: 81-84).

Therefore, health care personnel should emphasize the maternal-fetal attachment during pregnancy, especially in the second trimester. This study aims to examine a prenatal attachment promoting program and its effect on the level of anxiety and maternal-fetal attachment in the women who were previously experienced prenatal loss. This program teaches and guides the mothers to learn about fetal development, attend to their movements by the ultrasound scan, and practice talking and touching to communicate with the fetus. The researcher believes that these activities can reduce the mothers' anxiety and increase maternal-fetal attachment in the current pregnancy. The expected benefit of this study is that health care provider can use this promoting program as an intervention to enhance maternal-fetal attachment and develop the infant's characteristics.

Theoretical Framework

This research uses the Parent-Infant Attachment (Klaus & Kennell, 1982) as a conceptual framework to investigate prenatal attachment in the pregnant women who have experienced prenatal loss. According to Klaus & Kennell, bonding or attachment is the term used for the process by which a unique relationship is established between two people. Maternal-fetal attachment is the continuous process created by nature.

The developmental process of maternal-fetal attachment

The developmental process of attachment begins prior to pregnancy and increases across gestation and after birth. Klaus and Kennell (1982: 9) identified the formation of a mother's attachment into three phases including (1) prior to pregnancy-planning the pregnancy; (2) during pregnancy-confirming the pregnancy, accepting the pregnancy, fetal movement and accepting the fetus as an individual; and (3) after

birth, seeing the baby, touching the baby and caring for the baby. This attachment is crucial to the survival and development of the infant. It is the major source of subsequent attachments and the formative relationship. The process of maternal-fetal attachment is influenced by many factors.

Factors influencing maternal-fetal attachment

There are several factors that affected the development of the maternal-fetal attachment. For example, mother's characteristics, maternal age, years of education, family income, gravida, number of living child, time interval since the loss represents experience with the previous pregnancy and planning to have a new child (according to Klaus and Kennell's concept). If this attachment process is interrupted, it would delay maternal-fetal attachment. Klaus and Kennell (1976: 12-17; 1982: 36-38) described the three major influences on parental behavior and the resulting disturbances as followed:

1. Parental background refers to a parent's care by his or her own parents, genetic endowment of parents, practices of the culture, relationship with the family, experiences with previous pregnancies, planning the course of, and events during pregnancy. The background is well ingrained in each of parents. If the women experience previous prenatal loss, her depression and anxiety may interfere maternal – child relationship in the current pregnancy.

2. Care practices refers to behavior of physicians, nurses, and health care personnel, care and support during labor and first day of life, separation of mother and infant, and rules of the hospital that prohibit unwrapping and exploring the infant decrease a mother's knowledge about her baby and restrict interaction. Pregnant women who have previously experienced prenatal loss may have more anxiety than normal pregnant women (Armstrong & Hutti, 1998: 186); therefore they need more than routine care from physicians and nurses.

3. Infant refers to infant's characteristic, behavior, response to stimuli, and health status.

Three major factors influence parenting behavior and the parent-child relationship as illustrated by Figure 1.

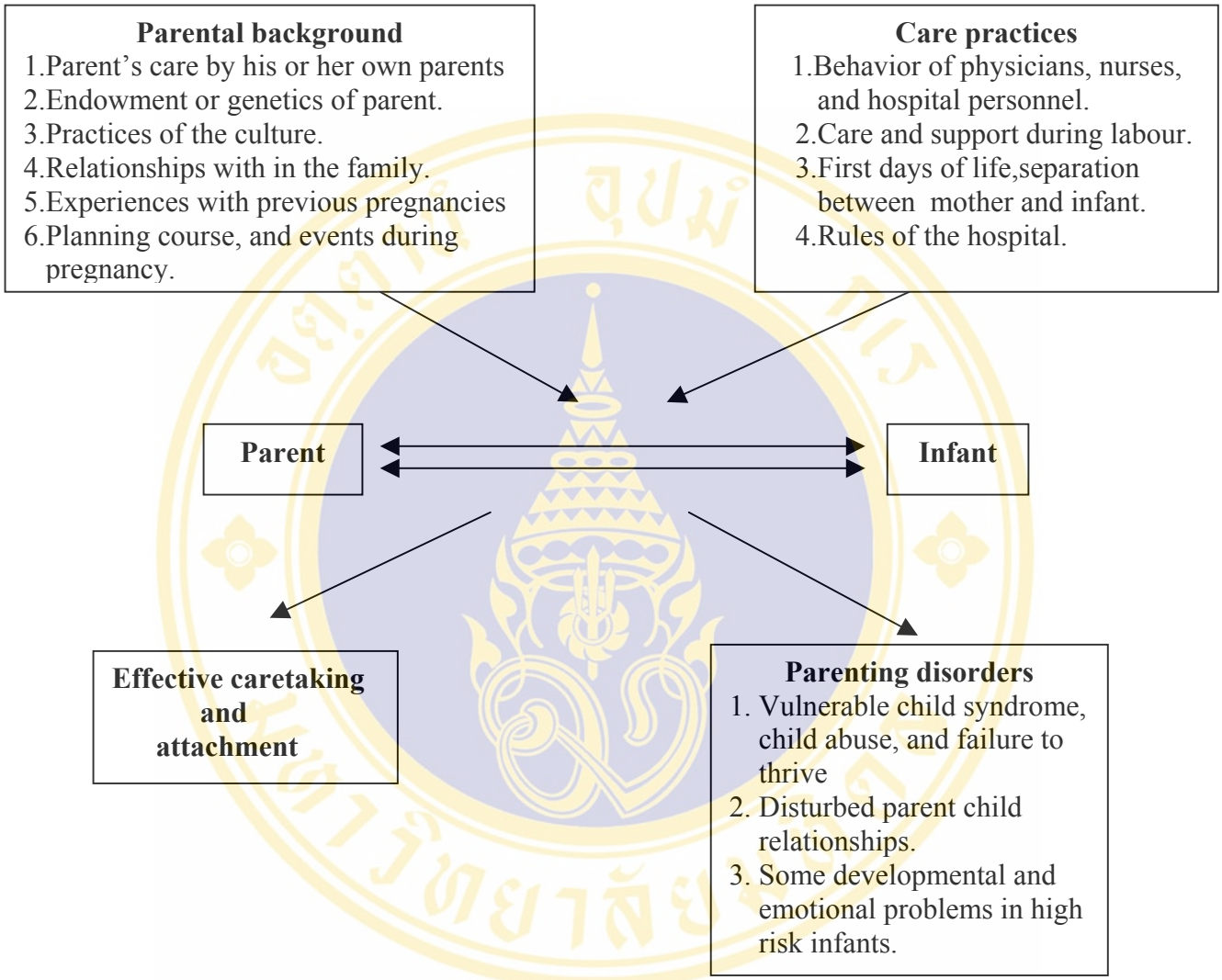

Figure1: Diagram of the major influences on parent-infant attachment and the resulting outcomes (Klaus & Kennell, 1982: 37).

In this study, the researcher aims to develop nursing care program and provide it for the pregnant women who experienced previous prenatal loss. It is hypothesized that the maternal characteristic such as maternal age, gravidity, years of education, family income, number of living child, time interval since the loss and planning to have a child affect the development of the maternal-fetal attachment. However, all of these factors can not be reorganized shortly in the real life. On the other hand, care practice is one good of the good choice to be adjusted for promoting maternal-fetal attachment. The pregnant women need to get rid of anxiety due to uncertain feeling about pregnancy, gain more knowledge about the effect of their anxiety on subsequent child. Therefore, strategies, which help mother to ensure about pregnancy, accept the fetus as individual and point out how to gain more attachment earlier during pregnancy, are essential to initiate in antenatal care practices. There is a report demonstrated that prenatal attachment promoting program, by sharing information about fetal development, helped the pregnant women develop bonding behavior to the fetus. (Cohen, Kenner and Hollingsworth, 1991: 378-414). Therefore, the researcher is interested in developing prenatal attachment promoting program which is composed of providing the knowledge of fetal development to help mothers comprehend the early stage of life, ensure pregnancy, and make more about the fetus as an individual. The conceptual framework of the study is presented in Figure 2.

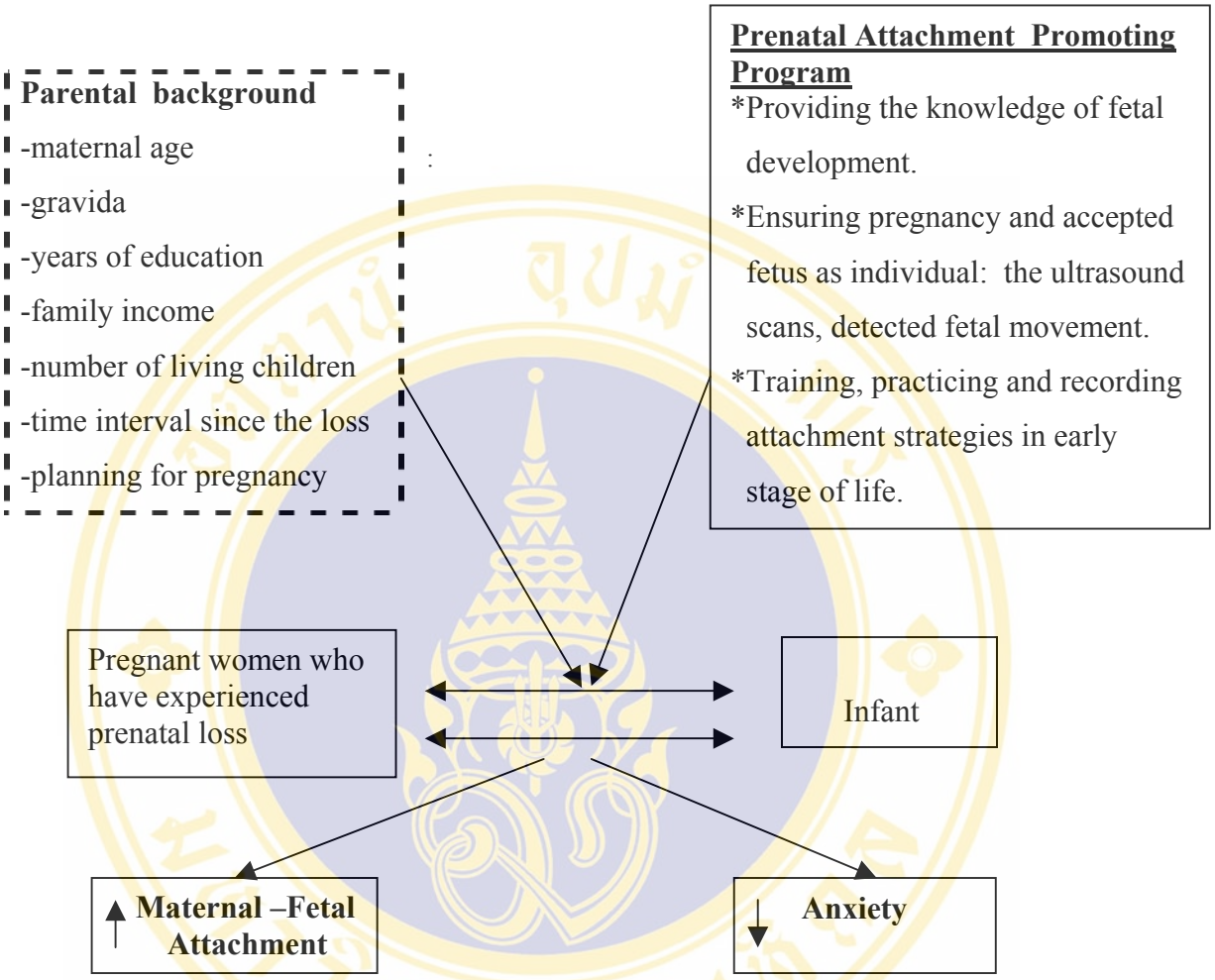

Figure 2: Conceptual framework of the study

Research Questions

"Does the prenatal attachment promoting program have the effect on anxiety and maternal-fetal attachment in women who have experienced prenatal loss?"

Objectives of the Research

1. To compare the mean scores of anxiety between pregnant women with a previous prenatal loss who received both prenatal attachment promoting program and usual prenatal care and those who received only usual prenatal care.

2. To compare the mean scores of maternal-fetal attachment between pregnant women with a previous prenatal loss who received both prenatal attachment promoting program and usual prenatal care and those who received only usual prenatal care.

Research Hypothesis

1. Pregnant women experiencing previous prenatal loss who received the prenatal attachment promoting program will have the lower mean scores of anxiety than those who did not.

2. Pregnant women experiencing previous prenatal loss who received the prenatal attachment promoting program will have the higher mean scores of maternal-fetal attachment than those who did not.

Scope of the Study

This study is an empirical study with application of a prenatal attachment promoting program for pregnant women who have experienced prenatal loss. The study was carried out at the antenatal of Ramathibodi Hospital by collecting the data from June to October 2004. The Pregnancy Outcome Questionnaire (POQ) by Theut, et. al., (1988) was used to measure anxiety scores and the Maternal-Fetal Attachment Scale (MFAS) by Cranley (1981) was used to measure prenatal attachment scores.

Benefits of the Research

The results of this study would be beneficial to health care providers in term of:

1. Health care personnel, especially nurse, obtained new knowledge in Nursing Science to develop professional nursing in the future.

2. Health care personnel involved in nursing education, curriculum development or in service can use the result of this study as a working guide for the nurses who are receiving training on obstetrics unit.

3. The result of this study would also be useful for further study to promote the prenatal attachment in the pregnant women and families that previously have prenatal loss. This specific area is being more emphasized. Long-term (follow-up) researches in pregnancy, before and after delivery area are also included.

Definition of Terms:

Prenatal attachment promoting program refers to a nursing care program designed for the pregnant women who have experienced prenatal loss to gain more attachment with their fetuses. This program is composed of three main strategies 1) providing the knowledge about fetal development, fetal movement, the ultrasound scan, talking and touching with the fetus, 2) ensuring pregnancy and accepting fetus as individual by ultrasound and detect fetal movement, and 3) training, practicing and recording attachment strategies in early stage of life.

Usual prenatal care refers to the classical antenatal care by staff nurses during prenatal visits including information about health education physical change during pregnancy, food, rest, exercise. Tetanus toxiod is immunized twice during pregnancy. The subjects learn about abnormal signs during pregnancy and benefit of prenatal care in the first trimester. At the second trimester, they are educated about breast feeding and for the third trimester they learn about childbirth education, and preparation for the baby such as baby clothes, method of feeding, equipment and room.

Anxiety: refers to an unpleasant emotional experience characterized by a feeling of impending danger that might occur during pregnancy, labor and delivery. They may fear of pregnancy loss again. They may be preoccupied of well being of the fetus and their own health. Anxiety is assessed by the Pregnancy Outcome Questionnaire (POQ) of Theut, et al. (1988: 289-292) which is translated into Thai and modified by Kala (2002). It is a 4 point Likert- scale consists of 15 items which possible total score is 15 – 60. High scores indicate more anxiety, whereas low scores indicate less anxiety.

Maternal-fetal attachment: refers to the affectionate tie that the mother feels toward the fetus. This relationship is represented by mother's feeling and her behavior during the pregnancy course. Maternal-Fetal Attachment Scale (MFAS) of Cranley (1981) which is translated into Thai and modified by Kanokthip (B.E. 2530) is used to assess maternal-fetal attachment. It is a 5-point Likert-scale consists of 24 items which possible total score is 24 – 120. High scores indicate good maternal-fetal attachment, contrary to low scores that indicate poor maternal-fetal attachment.

Prenatal loss: refers to the pregnancy loss due to miscarriage either from spontaneous or induced causes. The term miscarrige is defined as the cessation of

pregnancy before 20 weeks of gestation which based upon the first day of the last menstrual period or the delivery of the fetus whose weight is less than 500 grams.

CHAPTER II
LITERATURE REVIEW

The literature review is presented as follows: prenatal loss, anxiety, prenatal attachment, prenatal attachment promotion.

Prenatal loss

Prenatal loss is defined as a pregnancy – related loss includes miscarriage and stillbirth. In this study, prenatal loss refers to the pregnancy loss due to miscarriage either from spontaneous or induced causes. The term miscarriage is defined as the cessation of pregnancy before 20 weeks of gestation which based upon the first day of the last menstrual period or the delivery of a fetus whose weight is less than 500 grams. Many authors divide prenatal loss into 2 types according to gestational age: early loss (before 20 weeks of gestation) and late loss (after 20 weeks of gestation). The cause of prenatal loss is varied. The frequent causes of early loss are fetal chromosomal aberrations while abnormalities of the uterus, endocrine systems, immune systems and infection are the possible causes of late loss (Cunningham, et.al. 1997: 597-605).

The incidence of prenatal loss is approximately 15-25 % of pregnancies (Poole & Simpson, 1993: 113; Cunningham, et al, 1997: 597-605; Woods & Woods, 1997 cited by Cote – Arsenault & Marshall, 2000:473-485). But the accurate number of the loss should be more than published data because many women may be unaware that they are pregnant or may interpret blood loss as a heavy period. Some investigators report that it may be closer to 50 % (Reed, 1990: 89-92; Wood & Esposito, 1987 cited by Armstrong & Hutti, 1998: 183-189).

Maternal grief after prenatal loss

Prenatal loss is a sudden and unexpected event that happens to the mother.The feelings and emotions associated with the bereavement and namely grief has been defined as a response following the loss. Although many authors showed a linear

progression of the grief experience. The process occurs in individualized ways, including regression and progression through the phases of grief. The effect of grief on the parent might take from 6 months to 2 years till they felt renewed and reorganized (Gilbert & Harmon, 1993: 115; Supa, B.E. 2539: 42). The length of the grief process is exceedingly individualize and can last for a number of years without maladaptive. Thompson, et al., (1986 cited by Town send, 1993: 347) described the acute phase of normal grieving as usually acting 6 to 8 weeks, but the complete resolution of grief response might take up to 3 years.

Factors influencing the grieving process: Numerous authors identified the following factors that influence the outcome of the grief response: Many people had difficulty passing through the stages of grief. Ward and associated (1993: 31) stated that if the people were opposed to let go or refuse to accept the loss or if they were not prepared to allow themselves to grief, had difficulties in communicating and expressing feeling about the loss, had financial problem or marital discord; they might have difficulties in grieving. Similarly, Beare & others' (Beare & Myers, 1994: 421, Kenner, et al. 1993: 90) suggested that grief could be pathological if there was no individual support systems or acceptance of assistance from the others.

Steen (1998: 62) stated that younger men and women suffered more intense grief, more symptoms, and more prone to physical and mental illness, than older men and women. In contrast, Supa, (B.E. 2539: 39) stated that teenage mothers might have less grief than the middle aged mothers because the younger women were not ready to have children. In addition, the women who had a history of prenatal loss could cope with such grief better than those without experienced prenatal loss. Brier (1999: 151) described some factors that could help predict and elevated degrees of emotional distress are including: (1) pregnancy was planned and desired, (2) long time or infertility treatments were needed to get pregnant (heightening fear that future pregnancy might not occur), (3) history of elective abortion and residual guilt (miscarriage possibly seen as a punishment), (4) no warning signs, little time to prepare, (5) loss occurring late in pregnancy, (6) history of losses (current earlier grief), (7) no living children to meet needs of current attempts at conception, (8) feeling of isolation due to the absence of social support, strain between partners, and

(9) history of poor coping skill, especially depression (which tends to be associated with self-blame and guilt).

Effect on subsequent pregnancy: While prenatal loss was followed by intense grief, about 50-80 % of these women became pregnant within 12 months after loss (Cote – Arsenault & Mahlanger, 1999: 274-282). The results of many studies indicated that it increased stress and anxiety which related to their pregnancy and also depression in the mothers who experienced previous pregnancy loss (Garel, et. al., 1993: 1005-1006; Hunfeld, et. al., 1996: 783-790; Franche & Mikhail, 1999: 1613-1623; Hughes, et al., 1999: 1721-1724; Kala, 2001: 50). The mother's concerns and fears often focused on the baby's well being. This maternal anxiety and stress made the mothers protect themselves by keeping the pregnancy secret from their families and friends until the pregnancy was beyond the time of a pregnancy loss or perception of fetal movement and maintaining more distant emotional attachment which can interfere their ability to focus on the psychological process involved in attachment and parenting (Brost & Kenney, 1992: 457-463; Statham & Green, 1994 cited by Jacob & Harvey, 2000: 22-26; Armstrong & Hutti, 1998; 183-189; Rillstone & Hutchinsen, 2001: 291-298). According to Bowlby (1969 cited by Armstrong & Hutti, 1998: 183-189), the affectional bond between mother and child is the essential factor for child growth and development.

Recent studies found that maternal anxiety and stress during pregnancy had deleterious effects on mother and infant. Maternal anxiety was associated with earlier birth, low birth weight, and impairment of fetal brain development (Lou, et. al., 1994 cited by Hughes, et. al., 1999: 1721-1724). Maternal stress during pregnancy was associated with poor pregnancy outcome, and children's psychiatric disorder (Hultunen & Niskanen, 1978 cited by Myhrman, et al., 1996: 637-640; Wadwa, et.al., 1993: 853-865; Copper, et al., 1996: 1286-1292). Factor related maternal grief after prenatal loss revealed that a live or dead fetus at time of loss and gestational ages had low positive correlation with maternal grief response while the years of education and marital relationship had low negative correlation with maternal grief response (Jultanmas, 2002: 71-73). In conclusion, pregnant women who experienced prenatal loss, was worried and afraid of danger, which might happen to their babies.

The feeling of stress or anxiety might re-occur, because of the fear for the recurrent loss.

Anxiety

Anxiety, as a concept and process, is one such potential factor. It has been studied and defined by many respected authors:

Cattel and Scheier (1958 cited by Gaffney; 1986: 94) described anxiety as an unpleasant emotional experience characterized by a feeling of impending danger. The consequences of anxiety are many and include an inability to communicate with love ones. Similarly, Light and Fenster (1974: 46) defined anxiety as an uneasiness of mind resulting from an emotionally stressful situation.

Kennerley (1990: 9) stated that anxiety is a normal and is experienced by everyone at sometime. It is a combination of negative affect and physiological arousal. Neurotic anxiety is viewed as a manifestation of conflicts in the unconsciousness. Anxiety is not a trait or personality characteristic, but is acquired through classical, operant, or vicarious learning and may develop as a result of real environmental danger or perceived danger. Wilson and Kneisl (1992: 85) defined anxiety as a state of uneasiness or discomfort experienced to varying degrees. Anxiety is a potent force because the energy it provides can be converted into destructive action, when anxiety can immobilize a person with problems or constructive action, when anxiety stimulates the action necessary to alter the stressful situation, fill a painful need, or arrange a compromise.

As mentioned above, anxiety is normal and experienced by everyone at sometime. It is associated with an unpleasant emotional experience, uneasiness, or discomfort resulting from a stressful situation. The consequence of anxiety can be constructive or destructive action, especially, the inability to communicate with loved ones.

Type of anxiety

Anxiety can be identified in two types (Fortnash & Holoday-Worret, 1996: 228-229; Speilfied, 1966 cited by Rawlins, et. al., 1993: 198) as follow:

1. **Trait anxiety** is a function of personality structure. As a part of developmental process or events, some individuals have more traumatic experiences

or have less success in coping with them, resulting in unresolved conflict or confusion. These people are described as having an anxiety diathesis, a predisposition to anxiety when stressed.

2. **State anxiety** develops in a situation identified as stressful or conflicted in which the individual experiences limited control.

Sources of anxiety

Anxiety is an inevitable result of the attempt to maintain equilibrium in a changing world. People experience anxiety in many different situations and interpersonal relationships. The stimulus varies with the individual. Wilson and Kneisl (1992: 85) classified the general cause of anxiety into two major kinds of threats:

1. Threat to biologic integrity: actual or impending interference with basic human needs, such as the need for food, drink, or warmth.

2. Threat to the security of self: (a) unmet expectations important to self-integrity, (b) unmet needs for status and prestige, (c) anticipated disapproval by significant other; (d) inability to gain or reinforce self-respect or to gain recognition from the others; and (e) guilt or discrepancies between the consideration of oneself and actual behavior.

Continuum of anxiety responses

The intensity of anxiety differs in individuals. It depends on personal perception. Peplau (1952 cited by Stuart & Sundeen, 1995: 208-209) identified four levels of anxiety and described the effect of each on the individual as follow:

1. **Mild anxiety** which is associated with the tension of day-to-day living. During this stage, the person is alert and his perceptual field is increased as he sees, hears, and grasps more than his previously did. This kind of anxiety can motivate learning and can produce growth and creativity in the individual.

2. **Moderate anxiety** in which the person focuses on immediate concerns and blocks out the periphery. His perceptual field is narrowed as he sees, hears, and grasps less. He thus experiences selective inattention but can attend to more if he is directed to do so.

3**. Severe anxiety** in which the person's perceptual field is greatly reduced. He tends to focus on a specific detail and does not think about anything else. All his behavior is aimed at getting relief and needs much direction to focus on another area.

4. **Panic** this is associated with awe, dread, and terror. At this time details are drawn out of proportion. Because the individual is experiencing a loss of control, he is unable to do things even with direction. Panic involves the disorganization of the personality. With panic, there is increased motor activity, decreased ability to relate to others, distorted perceptions, and loss of rational thought.

While, mild and moderate anxiety facilitates learning, creativity, and personal growth, severe anxiety focuses primarily on reducing anxiety rather than on coping with the environment. Consequently, the individual's functional level is impaired.

Anxiety in pregnant women

Many respected authors have studied, defined and described anxiety as it related to pregnancy.

During pregnancy, in general, anxiety in women was related to many factors including image, self-health, well-being of the fetus, labour and delivery or relationship with spouses, and involves the family economic status as well (Suvachai, B.E. 2544: 26-27). Some forms of anxiety are always present during pregnancy. Anxiety arises from unmet expectations and acquired needs relating to prestige, status, esteem, and consideration of oneself which might not be met by pregnancy and expected motherhood (Clark, et. al., 1979: 226).

The transition to motherhood is a stress-producing process involving adaptation under the most favorable circumstances (Mandeville & Troiano, 1999: 52). In the prenatal stage, women have fantasies. These involve the creativity of characteristics of the mental image of their unborn children, derived from the affiliation. The most frequently reported fantasies with negative content related to fetal abnormalities, violence and defective maternal caregiving (Sorenson & Schuelke, 1999: 92-97). However, it has been well established that all women experiences are increase in anxiety during their pregnancies. Although the degree of anxiety are varied depending upon the emotional make-up of the women and upon the specific meaning that the pregnancy has for her with its concomitant external factors, all patients experience anxiety at some time during pregnancy.

The emotional stress or anxiety in the mother during pregnancy may be associated with difficulty of labour and delivery and adverse effects upon the fetus and neonate (Light & Fanster, 1974: 46). Many researchers have reported the dimensions of prenatal anxiety and their influence on pregnancy outcomes such as premature labor, birth complications, low birth weight, and including long-term neurodevelopmental effects on the infant (Glover, 1997: 105; Paarberg, et al.1999: 834; Standley, et al., 1979: 22; Wadhwa, et al., 1993: 858). Significantly, pregnant women with high anxiety have low attachment to their babies, and also assume ineffective maternal role adaptation (Avant, 1981; 416-419; Gaffney, 1986: 91; Kanokthip, B.E. 2530: 78; Mercer, et. al., 1988: 92)

On reviewing the literature in pregnant women who have experienced prenatal loss, Theut and others (1988: 289-293) conducted the first empirical study in which data demonstrated the grief response in a subsequent pregnancy. In that study, 25 expectant couples who had experienced perinatal loss were compared with 31 first-time expectant couples. The results indicated that women with perinatal loss had more specific anxiety during pregnancy than the other group.

Hunfeld and others (1996: 783-790) conducted a study to determine the quality of life and anxiety in pregnancy during 18-21 weeks' gestation after late pregnancy loss (>16 weeks) comparing between 24 pregnant women with, and 26 women without a previous perinatal loss. The result showed that women who have experienced perinatal loss had a lower quality of life and greater anxiety related-pregnancy. This finding indicated a result similar to that of Theut and others (1988).

Additionally, Statham and Green (1994 cited by Brier, 1999: 153) found that pregnant women with a history of miscarriage and no living children were associated with a higher and more enduring level of anxiety. Hughes and others (1999: 1721-1724) conducted the cohort study to assess women's symptoms of depression and anxiety during pregnancy and the postpartum year in the pregnancy after stillbirth. The subjects were 60 pregnant women who had previous stillbirth after 18 weeks' gestation. The control group consisted of 60 pregnant women without history of perinatal loss. The result indicated that the third trimester pregnant women with previous loss were significantly more depressed and had greater anxiety than the control group. Moreover, if the women conceived less than 12 months after stillbirth,

they also were depressed at one year after delivery of a normal child. Kala (2001: 50) conducted the descriptive study to identify the predictability of selected factors and anxiety on prenatal attachment. The subjects were 130 women who have experienced perinatal loss. The result revealed that these pregnant women had a rather high level of anxiety. Similarity, Keawsiriwan (2002:44) found that 200 women who had experienced perinatal loss had moderate level of anxiety.

Another study, Franche and Mikhail (1999: 1613), compared the emotional adjustment of 31 pregnant couples with and 31 without a history of perinatal loss. The couples were assessed between their tenth and twenty-fourth weeks of gestation. The findings revealed that couples with a history of loss reported significantly more depressive symptom and pregnancy-specific anxiety than couples in the comparison group. Pregnancy-specific anxiety in pregnant women with history of a previous loss of a child was associated with their belief that their behavior affects fetal health, and anxiety was not related to the number of previous losses. The study on effect of support group intervention in parents who have experienced perinatal loss found that there was no statistically significant grief reaction scores between the both groups ($p > 0.05$) (DiMarco, et. al.,2001: 135). In contrast, Pongrua's studies found that the mean score of anxiety in the experimental group after receiving nursing support and usual nursing care was statistically significant different between the control and experimental groups ($p < .001$) (Pongrua, 2000: 46).

In addition, many factors may influence anxiety in pregnant women involving themselves, unborn infants, significant persons, and economic status during pregnancy. With regard to pregnant women who experienced prenatal loss, it was found that pregnant women with a history of prenatal loss felt more anxiety than pregnant women without such a history. Health care providers should concern and pay more attention in this issue because anxiety can affect both of pregnant woman and her fetus including delayed or decreased prenatal attachment with the child in the current pregnancy (Armstron & Hutti, 1998: 183-189; Rillstone & Hutchison, 2001: 291-298). The most common responses of the nurse in contact with patients expressing their worries, are cheering up the patient, collecting information about the symptom and offering explanation of the symptom, including expressing one's own positive emotions and sharing empathy towards the patient (Motyka, et. al.,1997: 909-

912). The midwife must be ready to deal with problem of a psychological nature, in addition to her care of the physical well-being of the women and developing baby (Kargar, 1990: 12-18). The effects of nurse's counseling on anxiety level of criminal abortion patient showed that the anxiety score in the experimental group was signicantly lower than in the control group (Duangkamol, B.E. 2534: 73). In conclusion, after prenatal loss, parents may feel grieve in many years. The response of unresolved grief will increase anxiety in a subsequent pregnancy (Franche & Mikail, 1999: 1613-1623) and may interfere with maternal-child relationship (Brost & Kenney, 1992: 461).

Prenatal attachment

Cranley (1981: 281) stated that a mother's attachment to her child formed the basis for her part in the socialization of the child. Similarly, Gilbert and Harmon (1986: 71) stated that attachment was a process influenced by many complex factors.

Goulet and others (1998: 1073) described that the attachment process was characterized by the seeking and keeping of closeness; the reciprocity of verbal and non-verbal exchanges; as well as feeling that were generally positive. It is the effective component of the relationship between the parents and their infant that develops gradually. Klaus and Kennell (1976: 2; 1982: 2-3) defined attachment as the unique relationship between two people that was specific and endured through time.

Kemp and others (1990: 65) stated that maternal prenatal attachment was the affectionate tie that the mother felt toward the fetus which developed during the course of pregnancy. Similar to Mikhail and others (1991: 988) stated that maternal attachment to the fetus had been defined as the mother's affiliation and interaction with her unborn fetus. Moreover, Rubin (1977 cited by Goulet, et. al., 1998: 1073) defined binding-in to an infant as the affectionate and motivational component of the maternal role identity process. Maternal attachment, one of the tasks in attaining a maternal role process of, began during pregnancy.

In conclusion, prenatal attachment is a positive feeling developed from a mother's affiliation to an interaction with her fetus during the course of pregnancy. There are many influencing factors. It is developed gradually. In addition, initial

experiences of prenatal attachment influence the infant-developmental models of the self, of others, and of attachment relationships in general society.

Development of attachment

Attachment begins prior to pregnancy when a couple plans the pregnancy. After quickening, a woman feels more attachment with her fetus. This feeling continuously increases as gestation progresses. Klaus and Kennell (1976: 40-43; 1992: 16) described the stages that were important to the formation of a mother's bond to her infant in various phases as follow: (1) prior to pregnancy: planning the pregnancy, (2) during the pregnancy: confirming the pregnancy, accepting the pregnancy, fetal movement, accepting the fetus as an individual, and (3) after birth: seeing the baby, touching the baby, giving care to the baby. Later, in their second edition (1982), they added some events including labor and accepting the infant as a separate individual as phases of a mother's bonding to her infant.

Initially, this attachment takes the form of narcissistic love, which gradually changes to an appreciation of the fetus as a separate person, usually begins with the mother's awareness of the fetal movement. During pregnancy women have several attachment behaviors including talking to the fetus, calling the fetus by a pet name, offering the fetus food while eating, engaging the husband in conversations with the fetus, and pushing the fetus around to watch the movement so the husband can observe the movement (Cranley, 1981: 281; Deutsh, 1945 cited by Koniak-Griffin, 1988: 269). Those behaviors represent an affiliation and interaction with the unborn child. Klaus and Kennell (1992: 16) stated that unplanned or unwanted infants may now seem more acceptable by the end of the first trimester. Most pregnant women who initially reject pregnancy come to accept it because the mother perceives the growing fetus as a separate individual. After quickening, a pregnant woman generally begins to have fantasies about what the baby may be like.

Cranley (1981: 281-284) identified six aspects in the relationship between other and fetus.

1. Differentiation of self from the fetus: after quickening the mother perceives fetus growth that confirms the fetus as a separate individual.

2. Interaction with the fetus: the reaction of the mother, such as talking to the fetus, calling the fetus as a pet name, and poking the fetus to get it to poke back, showing her affiliation with her fetus.

3. Attributing characteristics and intentions to the fetus: the mother may have some fantasies about the baby, such as what the baby's personality will be like.

4. Giving of self: the mother takes the best things for her baby, such as selecting appropriate food to be sure that her baby gets a good diet.

5. Role taking: the attachment behaviors which the mother fantasizes about herself relating to her baby, such as feeding the baby and taking care of the baby.

6. Nesting: the mother who has attachment to the fetus may prepare things for the baby such as clothes, furniture and a room. In the Maternal-Fetal Attachment Scale, this subscale was eliminated because of unreliability, resulting in the Maternal-Fetal Attachment Scale having five subscales.

The mother's attachment behavior represents the strong link between a mother and her baby. However, some stress situations, such as previous abortions or loss of previous children, influence maternal fetal attachment (Klaus & Kennell, 1982: 18) Because these stress situations precipitate concern for the health and survival of either her baby or herself, the preparation for the baby may be delayed and bond formation retarded.

Prenatal attachment in pregnant women who have experienced prenatal loss

The development process of prenatal attachment is important during pregnancy; it can affect other obligations such as, accepting the pregnancy, accepting the fetus as an individual, giving of self and maternal role adaptation (Moore, 1983: 331-332). Prenatal attachment develops increasingly overtime, with the greatest rise occurring after quickening in general. But in case of the pregnant women who have experienced loss of children, hope, dream, and planning may not develop or may deviate to avoid the pain inflicted by loss. As a result, they protect themselves by not establishing relationship with babies because they may experience a great pain caused by loss.The pregnant women who experienced a previous late loss had decreased prenatal attachment compared with the primiparous group.(Armstrong & Hutti, 1998: 183). Experiencing in loss is critical and painful to a mother. These women who have experienced perinatal loss will get more worried and concerned for their next

pregnancy (Kala, 2001: 50; Hughes, et. al., 1996: 1721-1724; Hunfeld, et. al., 1996: 790). They are worried and afraid of danger, which may happen to their babies. So they protect themselves from being hurt again by resisting attachment to the baby in the current pregnancy (Cote-Arsenault & Mahlangu, 1999: 274-289), and also ineffective maternal role adaptation. The study of Carter-Jessop found a significant difference in the maternal bond scores between a group of mothers who had received intrauterine attachment and those who had not (Carter-Jessop, 1981: 107-112). Likewise, Nongnuch (B.E. 2536: 70) studied the effect of supportive-education nursing system on practice and maternal-infant bonding, found no statistically significant differences in maternal-infant bonding between both groups ($p > 0.05$), while Davis & Akridge (1987: 435) found no significant differences in maternal-infant attachment scores between both groups after received promoting intrauterine attachment ($p > 0.05$).

Factors that influencing to prenatal attachment

Klaus and Kennell (1982: 36-37) found three factors which affect prenatal attachment as follow:

1. Parental background: such as mother's care by her own mother, endowment or genetics of the mother, cultural practices, relationship with family, experiencing with previous pregnancies, planning, course, and event during pregnancy.

2. Child factors: such as congenital abnormalities or even slight imperfection in the infant may cause acceptance or rejection by the mother. Preferences in sex could also be included.

3. **Hospital factors**: such as the behaviors of doctors, nurses, and health care providers, regulations of hospital such as separation of mother and infant on the day of delivery. Policies that prohibit unwrapping and exploring the infant decrease a mother's knowledge about her baby and restrict interaction. The other factors have been described as follow: (Gilbert & Harmon, 1986: 71; Klaus & Kennell, 1982: 36)

Physical problems resulting from the pregnancy, the relationship with her mother, other person in family, the mother's own parenting experiences, marital relationship, attitude and self-concept of the pregnant women, grieving over a significant loss and stress event, lack of a positive support, previous experience with childbirth, health of child. Many variables have been identified in literature as

affecting the prenatal attachment. Physical problems also relate to prenatal attachment as demographic-socioeconomic characteristic of the pregnant women which the literature revealed the impact on maternal-fetal attachment.

Demographic-socioeconomic characteristic of the pregnant women

Maternal age: The age of the mother may also greatly affect her psychological adaptation to the pregnancy and her developing relationship with her fetus (Leppert & Pahlka, 1984: 121; Russo, 1984 cited by Bloom, 1995: 284-285). The social acceptance of the maternal role as an adult role is inappropriate for the psychosocial immaturity (Mercer, 1981: 74). Twenty to thirty years of age is the best time for motherhood (Jariyawat & Udom, B.E. 2523: 113). Having an infant before the age of 20 has been linked with child abuse (Bolton, Laner & Kane, 1980 cited by Mercer, 1981: 74). Adolescents have more difficulty than adults in forming a prenatal attachment to the fetus (Bloom, 1997: 421; Gaffney, 1988: 108; Kemp, et. al., 1990: 63-65; Ruja, B.E. 2541: 112-114). Some authors described older mothers as having conflicts between the mother's role and progress in their jobs (Supa, B.E. 2541: 111; Pilliteri, 1995: 450). No significant difference in the prenatal attachment of adolescent and adult mothers was found (Kemp, Sibley & Pond, 1990: 70). Similarly, Kala (2001: 65) and Keawsiriwan (2002: 51) found no relationship between prenatal attachment and age; they found that age cannot predict prenatal attachment. In particular, a few researcher found that age cannot predict prenatal attachment in pregnancy adolescents and low risk pregnancies (Koniak-Griffin, 1988: 273; Mikhail, 1991: 989). In contrast, Rees (1980 cited by Mercer, et. al., 1988: 83), Kemp and Page (1987: 202), Kaewboonruang (2001: 53) reported negative correlation between maternal age and prenatal attachment in pregnancy women. Wiggins (1983 cited by Mercer, et. al., 1988: 84) studied non hospitalized high-risk women and found that age was a predictor of prenatal attachment.

Gravida: Fuller, Moore, & Lester (1993: 453-460) found negative correlation between gravida and maternal-fetal attachment and the gravida can predict maternal-fetal attachment in pregnant women. Similarly as Mercer, et. al., (1988: 89) found the number of children, was a predictor of maternal fetal attachment in low risk women. Mercer and Ferketich (1994: 349) reported that experienced mothers had statistically significant higher fetal attachment mean score than unexperienced mothers. But

Milkhail and associates (1991: 989) found nulliparous pregnancy with decreased attachment scores and that gravida could not predict maternal-fetal attachment in low risk women. Kanokthip (B.E. 2530: 74) found high risk women who had different gravida, had different maternal-fetal attachment too. But several studies found no correlation (Grace, 1989: 230; Kemp & Page 1987: 202; Kulwattana, 2000: 59; Heidrich & Granley, 1989: 83) found that the pregnant women who differed in gravida did not reveal significant difference in maternal –fetal attachment.

Years of education: Education enhances mother's cognitive development so highly educated mothers usually have a chance for seeking knowledge and problem – solving techniques and the resources to cope with the critical events. Furthermore, they can learn and utilize available coping mechanisms in response to loss, including prenatal loss more successfully (Lasker & Toedter, 1991: 510-522). Mikhail, et. al. (1991: 989) found that years of education can not predict maternal-fetal attachment in low–risk pregnancies. However, there was a trend correlating lower educational levels with decreased prenatal attachment scores in the pregnant women. In particular, Fuller, Moore, & Lester (1993: 456) found a positive correlation between educational levels and maternal-fetal attachment in the pregnant women. In contrast, prenatal attachment had negative correlations with years of education (Kemp & Page, 1987: 202; Muller, 1996: 164). But Grace (1989: 230) and Pornphan (B.E. 2540: 50) found that no relationship between educational levels and maternal-fetal attachment and that educational levels cannot predict maternal-fetal attachment in adolescent mothers. Koniak-Griftin (1988: 283) found the same. But Mercer, et. al., (1988: 89) found that educational level was the predictor of maternal-fetal attachment in high–risk women. In Thai, Apron (B.E. 2538: 79) found the educational levels could significant predict maternal-fetal attachment in normal primiparous adolescents. However, the publish studies focusing on the years of education and maternal-fetal attachment in pregnant women who have experienced prenatal loss were limited.

Family income: Some research studies found that family income related positively to prenatal attachment. This factor would have an effect on an individual, both physiological and psychological. An earning problem would cause more anxiety and decrease prenatal attachment. Women who have insufficient family income are limited in learning and seeking useful information for health (Raviwan, B.E. 2540: 9;

Aporn, B.E. 2538: 9; Khanitha, B.E. 2533: 103). In contrast to other researchers indicated that no significant relationship between Maternal-Fetal Attachment Scale score and family income (Cranley, 1981: 284; Grace, 1989: 230). Thailand, in 2002 the statistics of family income is estimate equal 10,889 bahts per month (Office of the National Statistics, 2002).

Number of living children: Mercer's and associates (1988: 83-95) and Grace (1989: 230) conducted the research on attachment in women, the result was significant relationship between number of pregnancy and attachment-fetal attachment scores tended to be lower as the number of children increased. In contrast some studies found that there was no significant relationship between these two variables (Cranley, 1981: 281-284; Kemp & Page, 1987: 179). The previous research indicated that the women with a history of previous loss, who had a child or children at home, had more difficult to cope with loss (Laroche, et. al., 1984: 14-19) while Friedman & others found the opposite; the women who did not have children at the time of loss showed more intense grief reaction (Friedman & Gath, 1989: 810-813; Graham, 1984: 254; Jenssen, et. al., 1997: 60). Then a number of children relate to grief reaction, it might affect prenatal attachment in the pregnant women who had previously experienced prenatal loss.

Time interval since the loss: The researchers (Davis, et. al., 1989: 481-483; Woods & Esposito, 1987: 248) believed that, if a woman became pregnant too soon after prenatal loss, her grief might be suspended during the anticipation of the next baby. The feeling of stress or anxiety might re-occur because they fear for the recurrent loss. Investigators defined the different times that take the grief to the phase of reorganization. Klaus & Kennell (1982: 298) explained that it was difficult to develop attachment with a new baby at the same time on grieving of the previous perinatal loss, so they asked the parents to wait six months to a year before planning for another baby. While Gilbert and others (Gilbert & Harmon, 1993: 115; Supa, B.E. 2539: 42) stated that the effect of grief on the parents might take from 6 months to 2 years. Moreover, Thompson, et al. (1986 cited by Townsend, 1993: 347) described that the complete resolution of grief response might take up to 3 years.

In addition, as reported in research literature, many women who experienced prenatal loss decided to conceive again within 12 months after the loss. Forrest's

study found that 32% of women became pregnant again within 6 months and 50% wait until 12 months. (Forrest, et. al., 1982: 1477). This finding similar to Hughes's study which found that 52% of 60 women with such history became pregnant again within 12 months (Hughes, et. al., 1999: 1722). Davis studied in 24 women who delivered living children within 1-10 years after perinatal loss. The finding was that 71% of women decided to wait less than 6 months before trying to conceive again, while only 17% waited for 6 months or more according to the doctor advice (Davis, et. al., 1989: 481-487).

Rowe and others (1978: 166-170) studied in 26 families who had experienced perinatal loss within 10 to 22 months, and found that 23% of women had prolonged grief reaction (12 to 22 months). The mothers who had no living children were more likely to become pregnant again, those with subsequent pregnancy less than five months following perinatal loss. They were at a higher risk for a prolonged grieving period than those who became pregnant more than six months later. Moreover the investigators observed that the mothers had some problems to develop attachment with their new babies. This finding was similar to another studies, Cain & Cain (1964 cited by Kerkley-Best & Kellner, 1980: 423) found that pathological grief associated with the rush into another pregnancy, usually within a year of the loss. Women frequently have been encouraged to become pregnant in order to forget the loss by becoming busy with another child. The mother has never worked out her original grief, searched for her loss of the child and found it in the replacement child, so there are problems that painfully evident for both mothers and children.

Planning for pregnancy: Planning for pregnancy is highly related to positive attitudes toward pregnancy (Leifer, 1977: 55-96). It is the event that is important to the formation of a mother's bond to her infant (Klaus & Kennell, 1982: 9). This shows a desire for the pregnancy and the infant (Gilbert & harmon, 1993: 101) therefore, the women who planned their pregnancies are pleased with their pregnancies and develop attachment to their children (Lumley, 1982 cited by Bobak & Jensen, 1993: 248) Zaccardi and others (1993: 799-804) studied grief in miscarrying mothers found that 97% of wanted pregnancy group reported the feeling of grief while only 40% of unwanted pregnancy group felt grief. In contrast, several studies, found no relationships between planning for pregnancy and grief (Graham, et. al., 1987: 254-

257; Siebel & Kraves, 1980 cited by Zaccardi, et. al., 1993: 799-804). They explained that when the women pregnant, all of them develop affectionate bond regardless of the desire of pregnancy.

In conclusion, the women who experienced prenatal loss feel more anxiety and less prenatal attachment. Therefore prenatal attachment should be promoted as it will enchance postnatal attachment and is crucial for a child's development.

Prenatal attachment promotion

Cohen, Kenner and Hollingsworth (1991: 378-414) suggested the mean to promote the family's prenatal attachment with the fetus. During prenatal visits, health care providers should share information about fetal development with the family, help the family to identify fetal heart tones, position, and movements when the woman feels fetal movements for the first time. Because fetal movements are a sign of good health and may dispel the fear of spontaneous abortion, the woman almost always experiences the first flutter of movement positively, even when the pregnancy is unwanted. The woman may demonstrate bonding behaviors, such as stroking and patting her abdomen, talking to the fetus, engaging her partner in conversations with the fetus. Many women receive ultrasound scan and the recording their fetus's first picture. The ultrasound scans increase the woman's bond with the fetus and the woman's health promotion behaviors.

Heidrich and Cranley (1989: 81-84) found that the effects of fetal movement, ultrasound scans, and amniocentesis on maternal-fetal attachment and perception of fetal development in normal pregnancy during the second trimester. Women who reported feeling fetal movement early in the pregnancy had higher maternal-fetal attachment scores and higher perception of fetal development scores. Ultrasound scans had no effect on either variable.

Gelman and others. (1982: 484-485) found that fetal movements responsed to sound stimulation in the pregnant women in the third trimester. This study demonstrated a significant increase in the activity of the fetus after a sound stimulus of 2000 cps. (110 decibels) had been applied briefly (1 minute) to the maternal abdomen. These data confirmed that the fetus perceived some extra uterine environmental

sounds and also suggested that a sound-stimulated and sound-quantified fetal movement test might be developed which could indicate the condition of the fetus.

Fletcher and Evant (1983: 392-393) described the effect of ultrasound as positive and increasing their feeling of attachment to the fetus, similar to Kohn and others (Nelson & Weiner, 1980: 77-80; Milne & Rich, 1981: 15-39).

Broussard and Rich (1989: 392-93) described the infant stimulation techniques to the pregnant women during six months, partners and grandmothers as follows:

Auditory Stimulation**;** childbirth educators should describe the fetal auditory sense and the effects on the fetus. The instructors provide information about auditory preference (Vivaldi and Mozart). Childbirth educator can encourage parents to make audio tapes of their own voices in forms of talking, singing, or reading a story. The parents can play the voices or music by placing an earphone over the lower uterine segment, where the fetus can hear more accurately. Audio tapes also can be used after birth at any lengthy period of the parent and the infant separation. Once the parents learn that the fetus can hear the maternal heartbeat and is soothed by heartbeat sounds after birth, (Salk, 1966: 295-304) some women arrange to have audiotapes made of their own cardiac sounds.

Tactile stimulation**;** Childbirth educators explain to the parents that the thinned uterine wall allows the pregnant woman and her partner to feel and identify fetal parts more easily. The fetus also can sense the parents stroking and patting through the abdominal wall and often will respond with movement toward the stimulus. (Freeman, 1987: 25-42)

Visualizing the Fetus; Childbirth educators can teach the mothers a relaxation technique of visualizing a calm, serene scene. Visualizing the unborn infant in the womb can heighten parental awareness of the fetus. Instructors can use this visualization exercise in class to teach the parents about the fetal behaviors. Instructors can describe the fetus as lying calmly inside, all flexed, sucking the thumb, swallowing amniotic fluid, and opening its eyes to look toward the sunlight filtering though the abdominal wall.

The relationship between the parents and the infant can begin before the day of birth. During the seventh to ninth months of pregnancy, the parent can interact and begin bonding with the fetus. The fetus can hear, see, taste, move and respond to touch

in utero. If the mother massages her own abdomen, she stimulates the fetus' sense of touch. When parents play classical music or a verbal taped message at the same time everyday, the fetus experiences auditory stimulation. The fetus provides self-stimulation by swirling around in amniotic fluid, sucking and swallowing, and listening to the mother's heartbeat and intestinal sounds.

In this study, the pregnant women who experienced prenatal loss felt fetal movements for the first time. It was a sign of healthy fetus and the pregnant women might dispel the fear of spontaneous abortion. The information about fetal development, fetal heart tone, and position, reinforced bonding behavior. Visualizing the fetus by ultrasound scan increases perception of the pregnant women that their fetuses were alive and healthy. In addition, talking and touching the fetus through the pregnant women's abdominal wall increases parental-fetal attachment.

From the above, five methods to promote prenatal attachment were suggested: Cohen, Kenner and Hallingsworth; Heidrich and Cranley, Gelman & others, Fletcher and Evant; and Broussard and Rich.

The summary of each method is shown in Figure3.

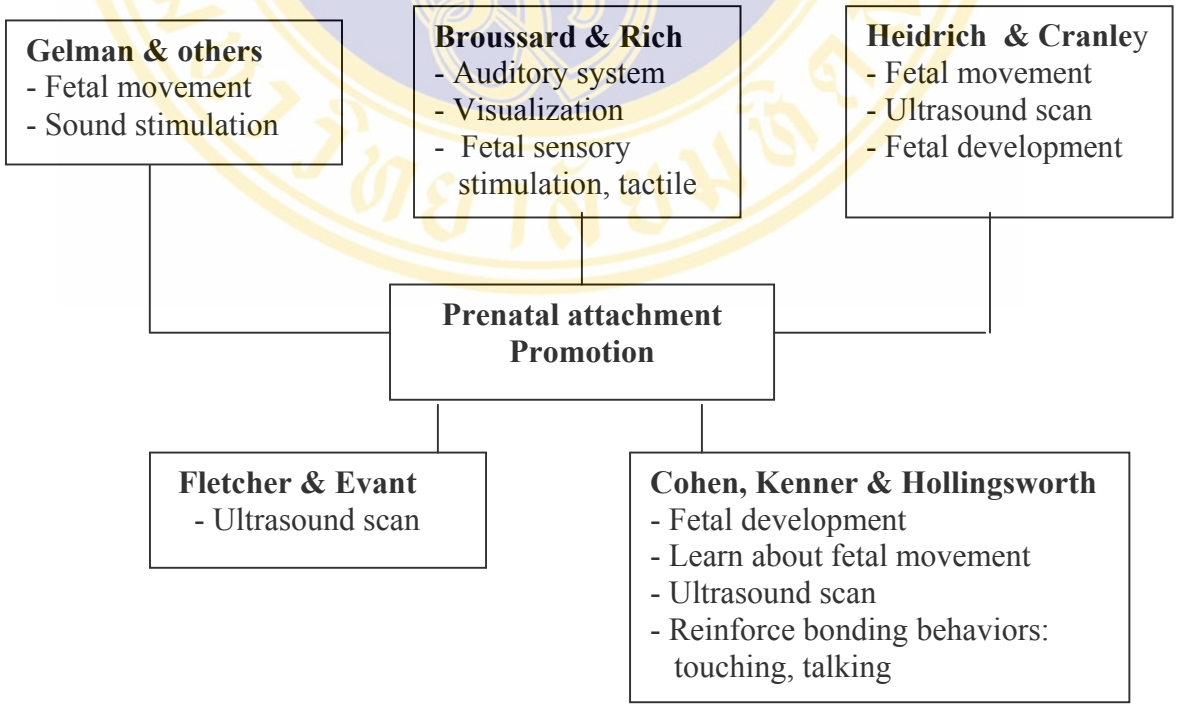

Figure 3 Summary of studies related to prenatal attachment promotion

The effectiveness of prenatal attachment promotion, the experiment group showed a significantly greater increase in mean sores of paternal-and maternal-fetal attachment than the control group (Kwarat, 2002: 95-98). Of the sixty-one couples with a prior history of habitual abortion, thirty-seven of these pregnant mothers were allocated to an experiment group for intensive “tender loving care” during pregnancy and the remaining twenty-four mothers served as controls and received routine antenatal care. The study found that in the experimental group, thirty-two mothers gave birth to live, healthy, term babies whereas in the control group only eight mothers had a successful outcome. This difference in the success rate between both groups was found to be highly statistically significant ($p < .001$) (Stray-Peterson & Stray-Peterson, 1984: 144).

Therefore, it can be said that prenatal attachment promotion can be a good strategy to promote health of mothers and their fetuses.

CHAPTER III
MATERIALS AND METHODS

This study was a quasi – experimental research to compare mean scores of anxiety and maternal-fetal attachment in pregnant women experiencing previous prenatal loss between the experimental group who received both prenatal attachment promoting program and usual prenatal care and the control group who received only usual prenatal care.

Population and Sample

The population of this study was the pregnant women who experienced previous prenatal loss and attending the antenatal clinic at Ramathibodi Hospital. Purposive sampling was used. Data were collected during June to October 2004.

The inclusion criteria of the subjects were:

1. stay with spouse.
2. age between 20 to 35 years
3. a gestational age between 18-22 weeks at the beginning of the study
4. experienced prenatal loss within 3 years
5. ability to speak, understand, and communicate in Thai.
6. willing to participate in this study

The exclusion criteria for terminating from the study were as follows:

1. High-risk pregnancy and complication had developed during the period of the study such as: pregnancy induced hypertension, gestational diabetes mellitus.
2. Preterm delivery.

According to Polit and Hungler (Polit & Hungler,1995: 243), the experimental research should have sample size at least 20-30 cases. For the case of comparison, the number of sampling in each group should not be less than 10 cases; however, to keep

data to the minimum error, a greater sample size is more suitable for keep data to generalization. Therefore, the sample size for this study was 60.

Setting

The area at this study was the antenatal clinic, Department of Obstetrics and Gynecology, Faculty of Medicine Ramathibodi Hospital, carried out the prenatal care on Monday, Wednesday and Friday. The pregnant women were advised to attend the clinic at least four times. During this time they also received health education 3 times by staff nurses. The first trimester about physical change during pregnancy, food, rest, exercise, tetanus vaccine was immunized twice, abnormal signs during pregnancy and benefit of prenatal care. The second trimester they are educated about breast feeding and for the third trimester they learned about childbirth education, and preparation for the birth of the baby such as baby clothes, methods of feeding, equipment and room. All data assessment was performed at the antenatal clinic on Monday, Wednesday and Friday at 8.00 a.m. – 12.00 a.m. and a prenatal attachment promoting program was taught at the education room, antenatal clinic on Monday, Wednesday and Friday at 8.00 a.m. – 9.00 a.m.

Instruments

The instruments used in this study are, the instrument for intervention and the instrument for data collection.

Instrument for intervention

1. The prenatal attachment promoting program (Appendix) operated to promote maternal- fetal attachment. This program consisted of activities, as follows:

1.1 Providing the knowledge by the researcher at 18 to 22 weeks of gestation about fetal development from the first to the ninth months, how and when fetal movement begins, what ultrasound scan and its benefit is, community with the fetus by talking and touching as group education. The time for each session is 45 minutes.

1.2 Training, practicing and recording strategies in early stage of life (18 to 22 weeks of gestation); training how to talk, touch with the fetus and observe fetal movement including activity record by the pregnant women. The pregnant women

demonstrate bonding behavior to their partners such as patting her abdomen and talking to the fetus, engaging her partner in talking and touching with the fetus when they stay at home.

1.3 Ensured pregnancy and accepted fetus as individual; by the ultrasound scan when the weeks of gestation 18 to 22, an obstetrician, the first assistant researcher, explained and pointed out anatomical fetus, especially seeing the movement, hearing their baby's heartbeat and Polaroid picture given to the pregnant women.

1.4 Fetal development picture copied and magnified from the text book, Maternal–Child Nursing. (McKinney and et. al., 2000: 247-272)

1.5 Handbook made by the researcher for distributing to the pregnant women in the experimental group. These handbooks consist of: knowledge about fetal development, fetal movement, ultrasound scans, talking and touching with the fetus.

1.6 Practice and activity record form; "activities that the parent performed with their fetus about talking, touching and observing fetal movement."

The pregnant women can call the researcher for help concerning this program.

Validity of prenatal attachment promoting program

The content validity and appropriation of Thai language was evaluated by five experts in maternity and newborn nursing involved: two experts from Siriraj Hospital, three experts from Ramathibodi Hospital, Mahidol University.

2. Instrument for data collection

In this study the questionnaires for data collection had three parts: (1) the Demographic Data Form, (2) the Pregnancy Outcome Questionnaire, (3) the Maternal – Fetal Attachment Scale.

2.1 **The Demographic Data Form**(Appendix) This form was developed by the researcher to collect the following information: (a) maternal age, (b) gravida, (c) years of education, (d) family income, (e) number of living children, (f) time interval since the loss, and (g) planning for pregnancy.

2.2 **The Pregnancy Outcome Questionnaire (POQ)** (Appendix) The anxiety of the pregnant woman who have experienced prenatal loss would measure from this questionnaire. Theut and others (1988: 289-292) developed the original POQ, which consists of 15 items with responses scores of the four point Likert scale. The alternatives ranged from : almost never, occasionally, frequently to almost all with the

scoring of 1 to 4, for negative questions (11 items no 2-5, 7-10, 12 and 14-15), opposite to this rating scale which is the positive questions (4 items - no. 1, 6, 11 and 13). Kala (2001: 44) translated the POQ into Thai. Possible range of scores are between 15 to 60. Low scores are indicated less anxiety whereas high scores are indicated high anxiety.

Validity of the POQ

The information on the POQ was obtained by interviewing expectant mothers after perinatal loss, and their spouses. Discriminant Validity tested in two different groups of the pregnant women, with and without experienced of perinatal loss. Theut's results showed that the POQ significantly differentiated between the two groups of the pregnant women. Kala (2001:44) translated the POQ into Thai, which retranslated into English by two bilingual experts. The original version was compared with the retranslation versions by a native English consultant at Prince Songkhla University, Thailand. And also seven experts in areas of maternity nursing, psychiatric nursing, obstetrician, and psychiatrist examined the content validity of POQ (Thai version). The content validity index of the POQ in the Thai version was 1.00.

Reliability of the POQ

In Theut's study the alpha coefficient for the POQ was .80 (Theut, et. al., 1988: 290). Armstrong and Hutti (1998: 183-189) reported an alpha coefficient of .89. After that, the instrument was tested among 130 women who met the subject's criteria to test the internal consistency. The Cronbach's alpha coefficient was .82 (Kala, 2001: 43). In the later study of 200 women, the Cronbach's alpha coefficient was .78 (Keawsiriwan, 2002: 320). In this study, the researcher examined the internal consistency with 30 women who have the same characteristics as the subject. The Cronbach's alpha coefficient was 0.79. In the current study of 60 pregnant women, the Cronbach's alpha coefficient was 0.75.

2.3 **The Maternal–Fetal Attachment Scale (MFAS)** (Appendix) This part of questionnaire was used to measure prenatal attachment. Cranley (1981: 281-284) developed the original questionnaire and translated into Thai by Kanokthip (B.E. 2530). The MFAS consists of 24 items with each response scored on a five point Likert scale. All of its alternatives range from definitely no, no, uncertain, yes to definitely yes, with scoring of 1 to 5 for positive questions (23 items – no. 1-21 and

23-24), opposite to this rating scale of one item (no. 22) which was the negative question. This instrument divided into five subscales : differentiation of self from fetus (4 items – no. 3 , 5, 10 and 13), interaction with the fetus (5 items; no 1, 7, 17, 20 and 24), attributing characteristics and intention to the fetus (6 items – no. 6, 9, 12, 14, 16 and 21), giving of self (5 items-no. 2,11,15 and 22-23), and role taking (4 items – no.4, 8 and 18-19). The possible range of scores is between 24 and 120. Low scores are indicated poor prenatal attachment, conversely, high scores are indicated good prenatal attachment.

Validity of the MFAS

The content validity of the Thai version was evaluated by seven experts in maternity, psychiatric nursing, obstetricians, and psychiatrist

Reliability of the MFAS

The reliability of this instrument by Cronbach'salpha was .85 (Cranley, 1981: 282). In Thai version reliability of this instrument was .97 (Kanokthip, B.E. 2530). Several researchers chose this tnstrument in their projects, and the Cronbach's alpha was .89-.97 (Duangkamol, B.E. 2534: 47; Khanitha, B.E. 2535: 42; Maneekorn, B.E. 2536: 51-52; Kala, 2001: 44; Kaewboonruang, 2001: 37; Keawsiriwan, 2002: 29). In this study, the researcher tested the internal consistency with 30 women who had the same characteristics as the subject. The Cronbach's alpha coefficient was 0.84. In the current study of 60 women, the Cronbach's alpha coefficient was 0.87.

Protection of human right

This study was permitted by the Faculty of Graduate Studies, Mahidol University, administrators of Ramathibodi Hospital, and the Committee on Human Right Related to Researches Involving Human Subjects. Potential participants were informed about the purpose of the study and their right to decline participation or to withdraw from the study at anytime. There was no risk from taking part in this study. However, they had to spend an hour to learn prenatal attachment promotion program and complete the questionnaires, which might cause inconvenience for them. There was no cost, nor was there any payment to participate in the study.

Assistant Researcher Preparation

The first assistant researcher, an obstetrician, was asked to explain and point out anatomical fetus, detect fetal movement and take Polaroid picture after doing ultrasound given to the pregnant women in all the experimental groups.

The second assistant researcher, a registered nurse in Obstetrics Nursing, was prepared to understand the Pregnancy Outcome Questionnaire (POQ) and the Maternal-Fetal Attachment Scale (MFAS) by receiving an explanation of the detail of each item. To decrease bias of data, the assistant researcher approached all the subjects for the second data collection of the Pregnancy Outcome Questionnaire (POQ) and the Maternal-Fetal Attachment Scale (MFAS) and checked the second data collection for completion of answers.

Data Collection

1. A request letter from the Dean of the Faculty of Graduate Studies to the Director of Ramathibodi Hospital was submitted asking for permission to collect data and implement.

2. The researcher met the Head nurse of the Prenatal Clinic to explain the purposes of this study and the data collection procedure.

3. Data were collected from June to October 2004. The approximate times to collect data were set as follows: Monday, Wednesday and Friday at 7.00 a.m. – 12.00 a.m. the researcher selected eligible subjects according to the inclusive criteria from patients' file.

4. The researcher selected subjects by using purposive sampling, met the pregnant women at the prenatal care unit, then, explained the research objectives and asked whether the pregnant women and spouse lived together. The pregnant women who met the criteria were invited to participate in the study after receiving information about the study. The pregnant women would be asked to sign the consent form. The subjects were selected by convenience.

5. Data collection and implementation were as follows:

5.1 **The control group**

The first data collection was performed when the pregnant women were

between 18 to 22 weeks' gestation. The pregnant women completed questionnaires on the Demographic Data Form, the Pregnancy Outcome Questionnaire and the Maternal – Fetal Attachment Scale by the researcher. The routine ultrasound scan was done by the obstetrician. An appointment for follow-up was six or eight weeks and the second data collection will perform.

The second data collection was done when the pregnant women had gestational ages of 24 to 30 weeks. The researcher placed on the sticker on clip of the patient's file as a marker for second data collection. After checked-up, the subjects completed both the Pregnancy Outcome Questionnaire and the Maternal–Fetal Attachment Scale by the second assistant researcher.

After completing the first and the second data collection in the control group, the researcher started in the experimental group to prevent contamination between groups.

5.2 **The experimental group.**

The researcher selected eligible subjects according to the inclusive criteria from patients' file which their gestational age between 18 to 22 weeks for prenatal attachment promoting program.

The pregnant women received routine nursing care:

-recorded body weight, blood pressure, urine examination for protein and sugar

-health education about breast feeding and prenatal care in the second trimester

-the first tetanus vaccine immunization

The first data collection was performed immediately before the researcher taught a prenatal attachment promoting program. The pregnant women completed questionnaires on the Demographic Data Form, the Pregnancy Outcome Questionnaire and the Maternal – Fetal attachment Scale.

The prenatal attachment promoting program; nursing care program composed of:

1). Providing the knowledge about fetal development, fetal movement, ultrasound scan, touching and talking to the fetus and practicing were performed, including handbook were distributed at the end of group education. Procedures were

according to the education for 45 minutes to all groups by the researcher. A group education of 2-3 pregnant women was performed at the education room, antenatal clinic, Ramathibodi Hospital.

2). Ensuring pregnancy and accepted fetus as individual by ultrasound scans and detected fetal movement by the obstetrician (the first assistant researcher) who explained and pointed out anatomical fetus, especially on seeing it moved, heard their baby's heartbeat and a Polaroid picture given to the pregnant women at the conclusion of the examination. The researcher was nearby the pregnant women and talked with them during the procedure. An appointment for follow-up was six or eight weeks and the second data collection will perform.

3). Training, practicing and recording attachment strategies in early stage of life; training how to talk, touch with the fetus and observe fetal movement include recording an activity record form by the pregnant women. The pregnant women demonstrated bonding behavior to their partners such as patting her abdomen and talking to the fetus, engaging her partner in talking and touching with the fetus when they stayed at home. The pregnant women got practice and activity record forms to the researcher when they follow up 6-8 weeks at prenatal clinic.

The second data collection was done when the pregnant women have gestation ages of 24 to 30 weeks. The researcher placed on the sticker on clips of the patient's file as a marker for second data collection same as the control group. The second assistant researcher gave questionnaires to the pregnant women to complete the Pregnancy Outcome Questionnaire and the Maternal – Fetal Attachment Scale.

6. After completing the first data collection, prenatal care was followed up at sixth or eighth weeks. The second data collection was completed, an appointment for the control group was fixed on Monday and the experimental group was appointed on Wednesday, and Friday until the control group was completed in labor room 30 cases. The appointment for the experimental group was Monday, Wednesday, and Friday to prevent contamination between groups.

7. The researcher checked the first data collection and the assistant researcher checked the second data collection for completion of answers. If some items were not completed, the subjects would be asked for completion. The researcher thanked them for their cooperation afterwards.

The data collection method is summarized as illustrated in following diagram Figure 4.

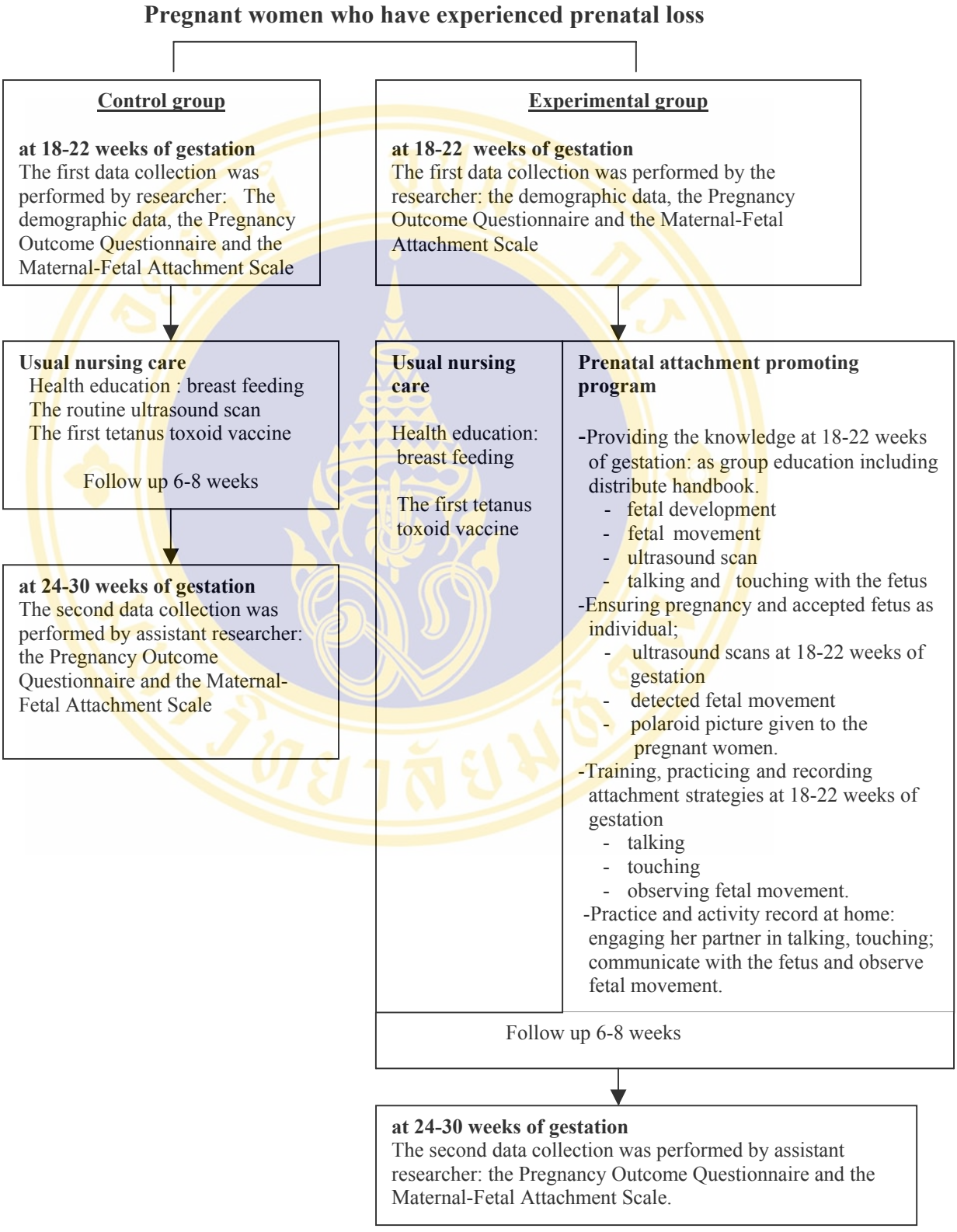

Figure 4. Data collection procedure

Data Analysis

1. Descriptive statistics were used to describe the subject's characteristics: frequency, percentage, mean, and standard deviation. Grouped t-test and Chi-square test were used for comparison.

2. Comparison of anxiety scores and maternal-fetal attachment scores in pretest and posttest of both groups were shown by range, mean, and standard deviation by independent t-test .

3. To analyze the difference of posttest anxiety scores between groups, ANCOVA (Analysis of Covariance) is used for comparison and use pretest anxiety scores as covariate.

CHAPTER IV
RESULTS

This study was a quasi-experimental research designed to test the effect of a prenatal attachment promoting program on anxiety and maternal-fetal attachment in the pregnant women who experiencing previous prenatal loss. Its results are presented according to the study objectives as follows: characteristics of the subjects, anxiety scores maternal–fetal attachment scores and the results of hypotheses testing.

Characteristics of the sample

The total subjects in this study were 60 pregnant women who had experienced of prenatal loss and attended the Prenatal Clinic at Ramathibodi Hospital. The subjects were divided into two groups, experimental and control. Each group composed of 30 pregnant women. The expected factors that related to anxiety and maternal-fetal attachment in pregnant women were analyzed to reveal the distribution and test their homogeneity between the studied groups. The results are shown in Table1 and Table 2.

Table 1: Min-max, mean and standard deviation and t-scores of the samples' characteristics

Variable	Experimental group (n = 30)			Control group (n = 30)			t
	min-max	$\bar{x}$	SD	min-max	$\bar{x}$	SD	
1. Maternal age	20-35	28.40	3.84	21-34	28.00	3.58	.42^{ns}
2. Gravida	2-4	2.53	0.73	2-4	2.47	.63	.38^{ns}
3. Time interval since the loss (months)	1-36 median = 24	20.60 mode = 36	12.58	1-36 median= 16	19.53 mode = 36	11.68	.34^{ns}
4. Years of education	6-16	11.75	4.05	6-16	10.30	3.29	1.50^{ns}
5. Family income	7000-50000 median=15000	17266.67 mode = 10000	10387.94	7500-30000 median=15000	15276.67 mode = 15000	5255.85	.94^{ns}

The results in Table 1 showed that age of the pregnant women were very similar in range, mean score, and standard deviation between the experimental and control group (min-max = 20-35, $\bar{x}$ = 28.40, SD = 3.84 and min-max = 21-34, $\bar{x}$ = 28.00, SD = 3.58, respectively). Both groups had equate range of gravida (min-max = 2-4) and very similarity of mean and standard deviation ($\bar{x}$ = 2.53, SD = .73 and $\bar{x}$ = 2.47, SD = .63, experimental and control group respectively). Likely, the number of living child ranged from 0-1 in both groups. An average of time interval since the prenatal loss was 20.60 months in the experimental group (SD = 12.58, min-max = 1-36, median = 24) and 19.53 months in the control group (SD = 11.68, min-max = 1-36, median = 16). The mean of education in the experimental group was 11.75 years (SD = 4.05), and the control group was 10.30 years (SD = 3.29). For monthly family income, both groups were quite similar in median (Median = 15000). The group t-test was used to test the homogeneity between those sample characteristics and found that there were no statistically significant difference between the experimental and control groups ($p > .05$). The distribution and homogeneity testing of other characteristics which were categorized in level of measurement are presented in Table 2.

Table 2: Number and percentage of subject's characteristics and homogeneity testing by Chi-square test. (χ^2)

Variable	Experimental group (n = 30)		Control group (n = 30)		χ^2
	N	%	N	%	
1. Family economic status					
Sufficient	27	90	24	80	1.18^{ns}
Insufficient	3	10	6	20	
2. Number of living child					
0	22	73.3	20	66.7	.32^{ns}
1	8	26.7	10	33.3	
3. Gestational age of previous loss (weeks)					
< 16	28	93.3	30	100	2.07^{ns}
16 - 20	2	6.7	0	0	
4. Planning for pregnancy					
Current pregnancy					
Planned	28	93.3	26	86.7	.74^{ns}
Unplanned	2	6.7	4	13.3	
Last pregnancy with prenatal loss					
Planned	11	36.7	11	36.7	.00^{ns}
Unplanned	19	63.3	19	63.3	

ns = p > .05

The results in Table 2 showed that over 80 % of the control and 90 % of the experimental group rated family economic status as sufficient. Most of them had previous loss less than 16 weeks of gestation (100 % in control group and 93.3 % in experimental group). The number of the pregnant women in the control and the experimental group who had planned was less than had not planned pregnancy in previous pregnancy with prenatal loss and had equal proportion of percentage (36.7 %

and 63.3 % respectively). While in current pregnancy, they are mostly planned to have a baby (86.7 % and 93.3 % in the control and experimental group respectively).

The sample's characteristics were analyzed to test the homogeneity between the control and experimental groups by using Chi- square test. The results showed that family economic status, gestational age of previous loss and planning for pregnancy were not statistically significant difference between the control and experimental groups ($p > .05$).

Table 3: Comparison of pretest and posttest mean scores of anxiety and maternal-fetal attachment between the experimental and control groups by independent t- test

Characteristics	Experimental group (n = 30)			Control group (n = 30)			t (1-tailed)
	min-max	$\bar{x}$	SD	min-max	$\bar{x}$	SD	
Anxiety							
Pretest	22-47	37.63	6.07	27-57	39.30	6.93	.99^{ns}
Posttest	20-48	35.00	7.28	22-54	37.50	6.58	.70^{ns}
Maternal-fetal attachment							
Pretest	64-111	89.20	12.87	57-116	91.77	11.14	.88^{ns}
Posttest	76-117	97.00	12.26	70-118	93.57	11.44	-.56^{ns}

ns = $p > .05$

Comparison of the anxiety and maternal–fetal attachment mean scores between experimental and control groups was performed by using independent t-test. The results are revealed in Table3.

The pretest anxiety mean scores were rather high and equal in both groups ($\bar{x}$ = 37.63, SD = 6.07 in the experimental and $\bar{x}$ = 39.30, SD = 6.93 in the control group). Similarly, the posttest anxiety mean scores were rather high in both groups ($\bar{x}$ = 35.00, SD = 7.28 in the experimental and $\bar{x}$ = 37.50, SD = 6.58 in the control group). Of the maternal-fetal attachment, the pretest mean score of the experimental group ($\bar{x}$ = 89.20, SD = 12.87) was as high as the pretest mean score of the control

group ($\bar{x}$ = 91.77, SD = 11.14). Likely in posttest, the maternal-fetal attachment mean scores were nearly the same ($\bar{x}$ = 97.00, SD = 12.26 in the experimental and $\bar{x}$ = 93.57, SD = 11.44 in the control group). However, there were no statistically significant differences among posttest anxiety scores and posttest maternal-fetal attachment scores between both group ($p > .05$) when the independent t-test was performed (Table 3).

The results of hypothesis testing

Hypothesis 1 state that "*Pregnant women with previous loss who received attachment promoting program will have the lower mean scores of anxiety than those who did not*".

Though, the posttest anxiety mean score revealed no statistically significant difference between groups (Table 3). However, the influence of pretest anxiety mean score on posttest anxiety mean score should be verified and eradicated to test the hypothesis. Histogram and Normal P-P Plots were used to examine the baseline characteristics of anxiety scores of the subjects in both groups. They showed a normal distribution. Regression analysis showed a statistically significant influence of pretest on posttest anxiety ($b = .685$, $t = 7.170$, $p < .001$). The homogeneity of regression across groups of pretest anxiety on posttest anxiety was tested by analysis of variance (ANOVA) and revealed that there was no interaction effect between group and pretest anxiety ($F_{1,57} = .006$, $p > .05$) (Munro,1997: 190-192; Kalaya, 2544: 128). Thus, it led to treat the pretest anxiety as a covariate and adjusted its effect to test the hypothesis by analysis of covariance (ANCOVA) as show in Table 4.

Table 4: Comparison of posttest anxiety mean scores between the experimental and control groups by analysis of covariance (ANCOVA).

Source of variate	df	SSy	MSy	F	Sig
Covariates (pretest anxiety)	1	1287.63	1287.63	48.74	.000***
Main Effects	1	24.70	24.70	.94	.338^{ns}
Residual	57	1505.87	26.41		
Total	60	81731.00			

* $p < .05$; *** $p < .001$

The result confirmed the significant influence of pretest anxiety on posttest anxiety ($F_{1,57} = 48.74$, $p < .001$) but there was no significant difference of posttest anxiety between the two groups of pregnant women ($F_{1,57} = .94$, $p > .05$) (Table 4). It means that after receiving prenatal attachment program the pregnant women with previous loss did not have lower anxiety scores than those who received only usual prenatal care. Therefore, the result did not support hypothesis 1.

Hypothesis 2 stated that "*pregnant women with previous prenatal loss who received prenatal attachment promoting program will have the higher mean scores of maternal-fetal attachment than those who did not*."

According to Table 3, there was no statistically significant difference of the posttest maternal-fetal attachment between the experimental and control group. Similar to testing hypothesis 1, all possible other effects should be eradicated. Thus, the influence of pretest maternal-fetal attachment on posttest maternal-fetal attachment was firstly tested.

The regression analysis showed that there was statistically significant influence of pretest on posttest maternal-fetal attachment ($b = 0.664$, $t = 6.762$, $p < .001$) involved considerations of residual scatter-plots. However, the assumption of homogeneity of regression across groups of pretest maternal-fetal attachment was not supported ($F_{1,57} = 26.09$, $p < .001$). It means that the pretest maternal-fetal attachment could not be treated as a covariate since it had not parallel of the linear regression across groups. Thus, it led to comparison of posttest scores in pregnant women

between the experimental and control groups by group t-test which yielded no statistically significant difference of the maternal-fetal attachment between both groups as shown in Table 3. That is, pregnant women with previous prenatal loss who received prenatal attachment program did not have the higher mean scores of maternal-fetal attachment than those who received only usual prenatal care. Therefore, hypothesis 2 was not supported.

CHAPTER V

DISCUSSION

This research was designed to study the effects of prenatal attachment promoting program on anxiety and maternal-fetal attachment in pregnant women experiencing previous prenatal loss. The findings are discussed according to the homogeneity between control and experimental groups and testing of the hypotheses' results of the research.

Homogeneity testing

The literature review revealed that there are many individual factors that have an impact on anxiety and maternal-fetal attachment in pregnant women, who have experienced prenatal loss, such as age, gravidity, years of education, family income, number of living children, time interval since the loss and planning for pregnancy. Thus, in this research, the researcher tried to control these factors by selecting sample purposively. For the similarity in the sample in both groups, the test of homogeneity of the samples by Chi-square analysis and t-test were done. The results showed that the samples were not statistically and significantly different between the control and experimental group ($p > .05$) (table 1 and table 2). It could be said that all samples had been the same condition before the prenatal attachment promoting program was assigned.

Hypotheses testing

Hypothesis 1 stated that "*pregnant women with previous loss who received prenatal attachment promoting program will have the lower mean scores of anxiety than those who did not."*

The finding in this study demonstrated that the pretest anxiety mean scores of pregnant women were 37.63 and 339.30 while the posttest anxiety mean scores were 35.00 and 37.50 in the experimental and control groups, respectively (Table 3).

However, there was no statistical significance between the anxiety of the subjects in both groups after receiving the studied nursing intervention (table 3). The analysis of covariance was conducted to confirm that result by comparing the anxiety of pregnancy by adjusting pretest scores as covariate. The results showed that anxiety of the experimental group was not statistically significantly different from the control group ($F_{1, 57} = .94$, $p > .05$) (table 4).

It may be explained that, **first,** most of the subjects have gestational age at previous loss less than 16 weeks of gestation (93.3% and 100% in the experimental and control groups, respectively) (Table 2). But, of this present pregnancy, they were at second trimester (a gestational age between18 to 22 weeks at the beginning of the study). Cote-Arsenault and Mahlang (1998: 278) reported that the pregnant women felt more confident to have the baby when they passed the certain period of previous loss. Therefore, they might be confident that they would have the positive outcome of pregnancy. That is why the posttest anxiety scores seem to be stable in both groups. **Second,** the pregnant women experiencing previous prenatal loss would not let anyone know about their pregnancy until they feel the fetal movement (Brost & Kenny, 1992:457-463). Fetal movement in the second trimester makes a mother happy and knows that a baby was alive, being a part of her life. In addition, hearing the heartbeat or feeling fetal movement, the pregnant women would be reassured that things are progressing well. It was very likely to decrease anxiety and they can do to stay positive (http: //www. babycenter.com). However, by the antenatal care at Ramathibodi hospital both groups of the sample received routine ultrasound scan between 18 to 22 weeks of gestation for check up. This ultrasound scan could not be control in the control group according to the human right. Then, all the samples were confirmed for the baby existing, movement and their heartbeat. Therefore, there was no difference of anxiety score between groups. **Third**, the mean of time interval since the loss in the experimental and control groups were 20.60 and 19.53 months respectively. Gilbert and others (Gilbert & Harmon, 1993: 115; Peaugthes, 1996: 37-43) stated that the recovery period from grief is about 6 months to 2 years, normally. In the women who conceived after a longer time since the loss, who were 18 or more months after loss when assessed in the third trimester, were no more depressed or anxious than the control group (Huges, Turton & Evans, 1999: 1723). It was possible

that these pregnant women had complete resolution of grief response to the loss, so they could cope as well as an individual without a history of prenatal loss and adapt with their new role during pregnancy (Kala, 2001:59). **Forth,** when considering the two highest items of anxiety scores in both groups " I have been extremely diligent about precaution during pregnancy, e.g. concerning weight, sex, smoking, drinking , activity, diet" and "I am cautious about making preparation for the new baby (room, supplies, birth announcement, etc.)." This was supported by another study, which indicated that this situation might result from the fear of the recurrence of loss. These pregnant women also attempted to take very good care for their fetuses (Keawsiriwan, 2003: 45). Kala and Keawsiriwan used the same instrument to measure the anxiety of the pregnant women who have experienced perinatal loss. The results of both studies found that the two highest items of anxiety scores were similar to this study.

Moreover, the researcher talked to the pregnant women after completing the data collection process, and asked them why they still felt anxious at the post test. Someone said that even though they saw fetal movement, heard their babies' heartbeat from the ultrasound, no one could assure them with certainty that their fetus would survive until the birth of a healthy child. It appeared that the anxiety during pregnancy after perinatal loss persists even after the birth of a healthy child (Theut, et. al., 1992 cited by Cote-Arsenault & Marshall, 2000: 457; Agterberg, et. al., 1997: 216-218). Though one of the subjects said that the fetus's first picture by ultrasound scan was not clear enough as she could not see the whole body of her fetus. The Polaroid picture might increase anxiety about abnormal fetus.

The above reasons showed that the subjects in this study had the moderate anxiety before the experimentation. After receiving prenatal attachment promotion program and usual prenatal care, the pregnant women with previous loss had not lower mean scores of anxiety than those who did not. Furthermore, these anxieties still persisted through the time of study. Health care providers need to be aware of these dynamics, giving more educations and reassurance as pregnancy progresses (O'Leary, 2004).

Hypothesis 2 state that "*pregnant women with previous prenatal loss who received prenatal attachment promoting program will have the higher mean scores of maternal –fetal attachment than these who did not".*

The results of the study showed that the posttest maternal-fetal attachment mean score of the pregnant women in the experimental group was 97.00, while the control group was 93.57, so that they were very close. However, when it was analyzed by t-test, the result indicated that maternal-fetal attachment scores in the experimental group was not significantly higher than those in the control group ($t = -.56$, $p > .05$) (table 5), therefore, the hypothesis 2 was not supported.

It could be explained that the maternal–fetal attachment increases as gestation progresses (Grace, 1989: 228-232; Heidrich & Cranley, 1989: 81-4). Throughout pregnancy, pregnant women had adjusted for development into motherhood. According to Jensen, Lowdermilk & Bobak (1995: 113-114), maternal task during pregnancy are composed of accepting the pregnancy, accepting the fetus as a separated individual, and preparing for labor and parenting. Klaus and Kennell (1982: 9-13) stated events that were important to the formation of attachment during pregnancy are composed of confirming the pregnancy, accepting the pregnancy, fetal movement, and accepting the fetus as an individual. These maternal tasks and these events occur as gestation progresses. Likely to Kullwatana's study (2000: 64), which found that mothers who were in their third trimester had higher maternal-fetal attachment scores than those who were in their second trimester ($p < .05$). All subjects of this study had a gestational age more than 18 weeks, which classified them to be in the second trimester. The second trimester was the period which pregnant women perceive the growth of their fetuses throughout their enlargement abdomen and quickening. The sensation of fetal movements was a powerful aid to help women to accept their fetuses as a real person and might trigger the beginning of the maternal–fetal attachment. Imagine the appearance of the fetus includes hair, eye color, and personality, talking to the fetus, calling the fetus by a pet name, touching and stroking fetal part as they are outlined against their abdomen, and imaging the role of mother (Sherwen, et. al., 1999: 498). Cranley & Heidrich (1989: 81) found that women who reported feeling of fetal movement early in pregnancy had higher maternal-fetal attachment scores and higher perception of fetal development scores.

Most of the subjects wanted to be pregnant (93.3 % and 86.7 % in the experimental and control groups, respectively) (Table 2). The child would be the bond of the couple's relationship was which will bring happiness to their families.

Therefore, the child was a desire for the couple (Kullwatana, 2000: 64). These agreed with the developmental process of attachment of Klaus & Kennell (1982: 9) which identified the formation of mother's attachment started prior to pregnancy-planning the pregnancy. Parental background, relationships with in the family, is related to prenatal attachment. A good relationship will make pregnant women feel emotionally secure, stable and are ready to transfer that feeling to their child. Furthermore, the two groups had highly educational level (mean = 11.75 and mean = 10.30 in experimental and control groups, respectively). People who are better educated are enable to recognize associations between factors more readily, which facilitates transference of knowledge and utilization of previously learned and successful behavior (Jalowiec & Powers, 1981: 14). Moreover, the pregnant women might receive information related to prenatal attachment promoting program from television, radio, and magazines since the relevant campaigns can be easily access presently. Besides, the pretest with the Maternal-Fetal Attachment Scale might have contributed to maternal practices. This agreed with the study of Davis and Akridge (1987: 430-7), which studied the effect of promoting intrauterine attachment in primiparas on post delivery attachment. The results revealed that mothers in the experimental and control groups had no significant differences in maternal-fetal attachment scores. Likely as Nongnuch (B.E. 2536: 70) studied the effect of supportive-education nursing system on practice and maternal-infant bonding, found no statistically significant differences in maternal-infant bonding between the both groups ($p > .05$).

The result was not congruent with the study of Kwarat (2002: 83-84) who found that the parent who received prenatal attachment promotion showed a significantly greater increase in the mean scores of paternal and maternal attachment than those who did not ($p = 0.004$ and $p = 0.024$, respectively). Differences between Kwarat's study participants and the pregnant women who participated in the current study included: 1) women in Kwarat's study were primigravida, ages between 20 to 30 years, a gestational age between 25 to 30 weeks at beginning; 2) in the current study, the pregnant women experiencing previous loss, ages between 20 to 35 years, a gestational age between 18 to 22 weeks at beginning. This disagreement was probably affected by differences in the sample, attachment promotion method, the start time for promotion, and the time and method of attachment assessment.

As a result pregnant women in the experimental group practiced talking to the fetus and touching the fetus as follows: talking ($\bar{x}$ = 3.5, SD = 2.0), touching ($\bar{x}$ = 4.7, SD = 2.2) and observing fetal movements ($\bar{x}$ = 7.3, SD = 4.8). These practices could enhance maternal–fetal attachment. The few of pregnant women in this study might be shy to talk with the unborn baby and their partners talked and touched to the fetuses less than the pregnant women did. One of the pregnant women said that her partner did not decide on a name for a baby before birth. Therefore, after the experiment, the pregnant women in the experimental group showed no significantly difference for maternal–fetal attachment than those in the control group, particularly in the attributing characteristics and intentions to the fetus dimension. This result was in disagreement with the study of Mikail, et. al., (1991: 988-91), which studied the effect of fetal movement counting on maternal attachment to the fetus. The results revealed that mothers who counted fetal movement had higher maternal–fetal attachment scores than the control group ($p < .05$). Similarity as, the study of Carter-Jessop (2001: 239-44) which found a significant difference in the maternal bonding scores between a group of mothers who had received intrauterine attachment intervention and those who had not.

Furthermore, the effect of ultrasound as positive and as increasing their feelings of attachment to the fetus (Fletcher & Evans, 1993: 392-393). On the other hand, two studies found no effects of ultrasound. Grace (1984: 42-45) reported no differences in postpartum attachment behaviors between women who had prenatal ultrasound and those who had not. Kemp and Page (1987: 179-784) studied high- and low-risk women in third trimester and also found no differences in prenatal attachment scores accompanied ultrasound. The pregnant women who experiencing previous loss in this study received the ultrasound scan only one time as same as the pregnant women have not experienced previous loss. The pregnant women and their partners may need more ultrasounds to see that they are really carrying a baby (in the first weeks, until movement is felt and later to help them attach to a different baby) (O'Leary, 2004).

A prenatal attachment promoting program

A prenatal attachment promoting program was started at 18 – 22 weeks of gestational age. The pregnant women in second trimester feel more confident a baby is alive and quickening. The sensation of fetal movements was a powerful aid to help women to accept their fetuses as a real person and might trigger the beginning of the maternal-fetal attachment. The developmental process of attachment began prior to pregnant – planning the pregnancy. Therefore if a prenatal attachment promoting program started in the first trimester, it would affect the development of the maternal-fetal attachment. Most of the samples have gestational age at previous loss less than 16 weeks of gestation. The certain period of previous loss was in the first trimester, so the ultrasound scan in the first trimester should be help the samples feel more confident a baby and dispels the fear of spontaneous abortion. The obstetrician might do more ultrasound scan to see that the pregnant women are really carrying a baby. A Polaroid picture might increase anxiety about abnormal fetus; therefore the pregnant women should be explained and pointed out anatomical fetus by an obstetrician

Additional Finding (Appendix)

Though, the results of this study revealed that the pregnant women in the experimental group had no statistically significant higher scores of maternal-fetal attachment and lower scores of anxiety than those in the control group. The result in Table 5 (Appendix D) compared by paired t-test showed that mean scores of pretest and posttest of anxiety and maternal-fetal attachment in the experimental group were statically significant different ($t = 2.41$, $p < .05$, $t = - 4.07$, $p < .001$ respectively). However, when the gestation progresses, the attachment scores in the control group showed no statistically significant difference ($t = - 1.21$, $p > .05$) while the anxiety scores had statistically significant difference ($t = 2.08$, $p < .05$), In conclusion that, the anxiety can be reorganized when the gestation progresses while the attachment can not be increased unless they received the more usual prenatal care as a prenatal attachment promoting program.

CHAPTER VI

CONCLUSION

This study is quasi-experimental research aimed to determine the effect of a prenatal attachment promoting program on anxiety and maternal-fetal attachment in pregnant women experiencing previous prenatal loss. This study used the parent-infant attachment concept (Klaus & Kennell, 1982) as a framework to investigate prenatal attachment in the pregnant women, who have experienced prenatal loss and attending the prenatal clinic at Ramathibodi Hospital, from June to October, 2004. The sample size was 60 pregnant women divided into two groups (30 pregnant women in each group). The control group received only usual prenatal care, whereas the experimental group received both prenatal attachment program and usual prenatal care. The purposive sample was selected under inclusion criteria; 1) being married and stay with spouse, 2) age between 20 to 35 years, 3) a gestational age between 18 to 22 weeks at the beginning of the study, 4) experienced prenatal loss with in 3 years, 5) ability to speak, understand, and communicate in Thai, and 6) willing to participate in this study. The exclusion criteria were pregnant women who have high-risk pregnancy and pre-term delivery.

The instruments were composed of two parts, instrument for intervention and instrument for data collection. The instrument for intervention or the prenatal attachment promotion program were group education with the prenatal attachment lesson plan, fetal development pictures and handbook, training how to talk, touch with the fetus and observe fetal movement by the researcher including the record activity that the parent performed with their fetus in an activity record form, and the ultrasound scan by an obstetrician who was the first assistant researcher. Another is an instrument for collecting data, which consisted of the Demographic Data Form, the Pregnancy Outcome Questionnaire (POQ), and the Maternal-Fetal Attachment Scale (MFAS).

Data were gathered in the control group first in order to prevent contamination of nursing care. Between 18 to 22 weeks of gestation, both groups signed a consent form after receiving an explanation of the purposes and the data collection procedures. The

pregnant women were asked to complete the Demographic Data Form, the Pregnancy Outcome Questionnaire, and the Maternal-Fetal Attachment Scale by the researcher. The control group received only usual prenatal care. After finishing the control group, the researcher provided nursing care by prenatal attachment program for the experimental group after the first data collection was performed. On the gestational ages of 24 to 30 weeks, both groups were reassessed by completion the Pregnancy Outcome Questionnaire and the Maternal-Fetal Attachment Scale. Data were analyzed by SPSS/FW version12.

The results revealed that the pregnant women with previous loss, who received prenatal attachment promoting program, had neither lower mean scores of anxiety and nor higher mean scores of maternal-fetal attachment than those who did not ($p > .05$).

Recommendation

Nursing practice

1. Prenatal attachment promoting program should be included as guideline in nursing practice. In addition, nurses need to be aware in pregnant women experiencing previous prenatal loss who have high anxiety by giving more education, psychological support and reassurance as pregnancy progresses. Thus, it's significant to emphasize in a conference or seminar of nursing to develop more effectiveness of nursing care.

2. An individual nurse should be assigned to take care of pregnant women experiencing previous prenatal loss exclusively as Nurse Practitioner. They have more anxiety than normal pregnant women; therefore they need more than routine care from physicians and nurses. Nurse can apply prenatal attachment promoting program combined with the prenatal usual care.

3. Nurse should be concerned with and assess the pregnant women's anxiety by questionnaires to help the pregnant women who feel uncertain and have problems about pregnancy, to ensure about pregnancy and gain more attachment earlier during pregnancy. In addition, nurses should collaborate with other personnel for providing effective care and support such as more ultrasounds to see that the pregnant women are really carrying a baby (in the first visit, until movement is felt, and later to help them attach to a different baby).

Nursing education

1. Prenatal attachment promoting program should be included in educational programs for nursing students and nurses who work in maternal and newborn nursing facilities. It may help the healthcare provider concern the pregnant women experiencing previous loss more than before.

2. Nursing students should be assigned to practice clinical experience, such as individual nursing care for the pregnant women experiencing previous prenatal loss in order that they can apply prenatal attachment promoting program to manage an appropriate nursing care plan.

Nursing research

1. Study the effect of a prenatal attachment promoting program on satisfaction of nursing is recommended.

2. Apply the use of a prenatal attachment promoting program in the first trimester of pregnancy, the unwanted pregnancy and the other groups such as stillbirth, neonatal death and pregnancy of multiples who have had the loss of one should be performed.

3. Nursing research is needed for further study to promote the prenatal attachment during pregnancy and after delivery.

Limitations of the study

To prevent the cross contamination of nursing care, the data collection was firstly carried out in the control group and then in the experimental group. This resulted in a difference of environmental situation that may affect the anxiety scores and the maternal-fetal attachment scores in both groups. The population was not randomized but was selected by purposive sampling. As such, the results could be generalize to a population similar to the samples but not to other population groups. Additionally, the researcher could not control the routine ultrasound scan in the control group.

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APPENDIX

คำชี้แจงและพิทักษ์สิทธิ์ของผู้เข้าร่วมวิจัย

<u>กลุ่มควบคุม</u>

สวัสดีค่ะ ดิฉันชื่อ นางนฤมล ศรีอินทราวานิช นักศึกษาปริญญาโท สาขาการพยาบาล มารดาและทารกแรกเกิด คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี มีความสนใจที่จะศึกษาผลของโปรแกรมการส่งเสริมความผูกพันต่อความวิตกกังวลและความผูกพันระหว่างมารดาและทารก ในหญิงตั้งครรภ์ที่เคยสูญเสียบุตร เพื่อนำผลการศึกษาไปปรับปรุงวิธีการให้บริการของพยบาลให้เหมาะสมและมีประสิทธิภาพมากยิ่งขึ้น จึงใคร่ขอความร่วมมือจากท่าน ในการเข้าร่วมการวิจัยครั้งนี้ ซึ่งการศึกษาครั้งนี้จะไม่ก่อให้เกิดอันตรายหรือผลเสียให้แก่ท่านและครอบครัว ตลอดการตั้ง ครรภ์ท่านจะได้รับความรู้จากบริการปกติของโรงพยาบาล จำนวน 3 ครั้ง ในเรื่อง การปฏิบัติตนในระหว่างตั้งครรภ์ช่วง 3 เดือนแรก การเตรียมมารดาให้เลี้ยงบุตรด้วยน้ำนมตนเอง และการเตรียมตัวเพื่อการคลอด ดิฉันใคร่ขอให้ท่านตอบแบบสอบถาม จำนวน 3 ชุดดังนี้ 1) แบบสอบถามข้อมูลทั่วไป 2) แบบสอบถามวัดความวิตกกังวล 3) แบบสอบถามวัดความรักใคร่ผูกพันระหว่างมารดาและทารกในครรภ์ โดยในช่วงอายุครรภ์ 18-22 สัปดาห์ ขอให้ท่านตอบแบบสอบถาม ชุดที่ 1, 2, 3 และในช่วงอายุครรภ์ 24-30 สัปดาห์ เมื่อแพทย์นัดตรวจครรภ์ครั้งต่อไป ขอให้ท่านตอบแบบสอบถามชุดที่ 2, 3 โดยใช้เวลาในการตอบประมาณ 20 นาที

ท่านมีสิทธิ์ที่จะปฏิเสธหรือยกเลิกการเข้าร่วมวิจัยได้ตลอดเวลา โดยไม่มีผลกระทบใดๆต่อการรักษาพยาบาลที่ท่านได้รับอยู่ สำหรับข้อมูลทั้งหมดที่ได้จะถือเป็นความลับ และไม่มีการเปิดเผยชื่อของท่านให้ผู้อื่นทราบและข้อมูลที่ได้จะนำไปวิเคราะห์และสรุปในภาพรวมเท่านั้น

ถ้าท่านมีข้อข้องใจหรือมีความกังวลเกี่ยวกับวิธีดำเนินการวิจัยของโครงการวิจัยนี้ ท่านสามารถติดต่อได้ที่ ประธานกรรมการจริยธรรมการวิจัยในคน คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี งานบริการวิชาการและวิจัย ชั้น๕(ห้อง๕๑๐) ศูนย์การแพทย์สิริกิติ์ โทรศัพท์ ๐๒-๒๐๑๑๕๔๑ ในเวลาราชการ

หวังในความกรุณาของท่าน และขอขอบคุณที่ท่านให้ความร่วมมือเป็นอย่างดีมา ณ โอกาสนี้ด้วย

.....

(นางนฤมล ศรีอินทราวานิช)

ผู้วิจัย

สำหรับ ผู้ที่เข้าร่วมการวิจัย

ข้าพเจ้าได้อ่านหรือได้รับคำอธิบายตามรายละเอียดข้างบนอย่างครบถ้วน มีความเข้าใจเป็นอย่างดี และยินดีที่จะเข้าร่วมในการวิจัยครั้งนี้

ลายเซ็น.....

( )

วันที่.....เดือน.....พ. ศ.....

<u>กลุ่มทดลอง</u>

สวัสดีค่ะ ดิฉันชื่อ นางนฤมล ศรีอินทราวานิช นักศึกษาพยาบาลปริญญาโท สาขาการพยาบาลมารดาและทารกแรกเกิด คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี มีความสนใจที่จะศึกษาผลของโปรแกรมการส่งเสริมความผูกพันต่อความวิตกกังวลและความผูกพันระหว่างมารดาและทารก ในหญิงตั้งครรภ์ที่เคยสูญเสียบุตร เพื่อนำผลการศึกษาไปปรับปรุงวิธีการให้บริการของพยาบาล ให้เหมาะสมและมีประสิทธิภาพมากยิ่งขึ้น ซึ่งการศึกษาครั้งนี้จะไม่ก่อให้เกิดอันตรายหรือผลเสียให้แก่ท่านและครอบครัว แต่ท่านจะได้รับสิ่งที่มีคุณค่าเป็นประโยชน์ต่อท่านและบุตร จึงใคร่ขอความร่วมมือจากท่านในการเข้าร่วมการวิจัย ถ้าท่านเต็มใจที่จะเข้าร่วมในการวิจัยครั้งนี้ ในช่วงอายุครรภ์ประมาณ 18-22 สัปดาห์ ท่านจะได้รับความรู้เกี่ยวกับ การพัฒนาการของทารกในครรภ์ การดิ้นของทารกในครรภ์ การตรวจทารกด้วยคลื่นเสียงความถี่สูง การสัมผัสและการพูดกับทารกในครรภ์ ร่วมกับการปฏิบัติการสัมผัส การพูดและการสังเกตการดิ้นของทารกในครรภ์อย่างต่อเนื่องเมื่อกลับบ้าน โดยใช้เวลาประมาณ 45 นาที

ในการเข้าร่วมการวิจัยครั้งนี้ ดิฉันใคร่ขอให้ท่านตอบแบบสอบถามจำนวน 3 ชุดดังนี้ 1) แบบสอบถามข้อมูลทั่วไป 2) แบบสอบถามวัดความวิตกกังวล 3) แบบสอบถามวัดความรักใคร่ผูกพันระหว่างมารดาและทารกในครรภ์ โดยในวันนี้ขอให้ท่านตอบแบบสอบถามชุดที่ 1, 2, 3 และในช่วงอายุครรภ์ 24-30 สัปดาห์เมื่อแพทย์นัดตรวจครรภ์ครั้งต่อไป ขอให้ท่านตอบแบบสอบถามชุดที่ 2, 3 โดยใช้เวลาในการตอบประมาณ 20 นาที

ท่านมีสิทธิ์ที่จะปฏิเสธหรือยกเลิกการเข้าร่วมวิจัยได้ตลอดเวลา โดยไม่มีผลกระทบใดๆต่อการรักษาพยาบาลที่ท่านได้รับอยู่ สำหรับข้อมูลทั้งหมดที่ได้จะถือเป็นความลับและไม่มีการเปิดเผยชื่อของท่านให้ผู้อื่นทราบ และข้อมูลที่ได้จะนำไปวิเคราะห์และสรุปในภาพรวมเท่านั้น

ถ้าท่านมีข้อข้องใจหรือมีความกังวลเกี่ยวกับวิธีดำเนินการวิจัยของโครงการวิจัยนี้ ท่านสามารถติดต่อได้ที่ ประธานกรรมการจริยธรรมการวิจัยในคน คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี งานบริการวิชาการและวิจัย ชั้น๕(ห้อง ๕๑๐) ศูนย์การแพทย์สิริกิติ์ โทรศัพท์ ๐๒-๒๐๑๑๕๔๑ ในเวลาราชการ

หวังในความกรุณาของท่าน และขอขอบคุณที่ท่านให้ความร่วมมือเป็นอย่างดี ณ. โอกาสนี้ด้วย

…….

(นางนฤมล ศรีอินทราวานิช)

ผู้วิจัย

สำหรับผู้เข้าร่วมการวิจัย

ข้าพเจ้าได้อ่านหรือได้รับคำอธิบายตามรายละเอียดข้างบนอย่างครบถ้วน มีความเข้าใจเป็นอย่างดีและยินดีเข้าร่วมในการวิจัยครั้งนี้

ลายเซ็น ……

( )

วันที่….. เดือน…….. พ.ศ……....

แบบสอบถามเพื่อการวิจัย เรื่องผลของการส่งเสริมความผูกพันต่อความวิตกกังวล และความรักใคร่ผูกพันระหว่างมารดาและทารกในครรภ์ในหญิงตั้งครรภ์ที่เคยสูญเสียบุตร

คำชี้แจง แบบสอบถามที่ใช้ในการวิจัยครั้งนี้ แบ่งออกเป็น 3 ตอน ดังนี้

ตอนที่ 1 แบบบันทึกข้อมูลส่วนบุคคลของหญิงตั้งครรภ์ที่เคยสูญเสียบุตร

ตอนที่ 2 แบบวัดความวิตกกังวลของหญิงตั้งครรภ์ที่เคยสูญเสียบุตร จำนวน 15 ข้อ

ตอนที่ 3 แบบวัดความผูกพันระหว่างมารดาและทารกในครรภ์ จำนวน 24 ข้อ

ลำดับที่…….. วันที่…….

ตอนที่ 1 แบบบันทึกข้อมูลส่วนบุคคลของหญิงตั้งครรภ์

คำชี้แจง: โปรดเติมข้อความลงในช่องว่าง หรือเครื่องหมาย (/) ลงในหน้าข้อความที่เป็นจริงเกี่ยวกับตัวท่าน

1. อายุ……ปี
2. ท่านตั้งครรภ์ครั้งนี้เป็นการตั้งครรภ์ครั้งที่……
3. จำนวนปีที่ได้รับการศึกษา……..ปี (นับจากชั้นประถมปีที่ 1 เป็นปีแรก)

ระดับการศึกษาสูงสุดของท่าน

( )1. ประถมศึกษา

( )2. มัธยมศึกษาต้น

( )3. มัธยมศึกษาปลาย

( )4. อาชีวะศึกษา

( )5. ปริญญาตรีหรือสูงกว่า

4. รายได้ของครอบครัวต่อเดือน (ของตนเองและสามีรวมกัน)ระบุ…….บาท/เดือน

( )1. รายได้ไม่เพียงพอ ( )2. รายได้เพียงพอ ( )3. มีเงินเหลือเก็บ

5. ปัจจุบันท่านมีบุตร…….คน

6. ท่านเคยแท้งบุตรเมื่ออายุครรภ์……สัปดาห์ ครั้งสุดท้ายนาน……ปี…….เดือน

เป็นการตั้งครรภ์ที่ ( ) 1. วางแผน ( ) 2. ไม่วางแผน

7. การตั้งครรภ์ครั้งนี้ท่าน ( ) 1. วางแผน ( ) 2. ไม่วางแผน

…….สำหรับผู้วิจัย Cause of prenatal loss……

Week of gestation……

ตอนที่ 2 แบบวัดความวิตกกังวลของหญิงตั้งครรภ์

คำชี้แจงในการตอบแบบสอบถาม

แบบวัดนี้สร้างขึ้นเพื่อวัดความรู้สึกของหญิงตั้งครรภ์ โปรดอ่านข้อความในแต่ละข้อแล้ว ทำเครื่องหมายถูก (√) ลงในช่องที่ตรงกับความรู้สึกของท่านขณะตั้งครรภ์มากที่สุด เพียงคำตอบเดียวในแต่ละข้อ และกรุณาตอบทุกข้อ คำตอบของท่านไม่มีถูก ไม่มีผิด การเลือกตอบถือเกณฑ์ดังนี้

คำตอบ

บ่อยครั้งมาก หมายถึง ข้อความในประโยคนั้นตรงกับความรู้สึกของท่านบ่อยครั้งมาก
บ่อยครั้ง หมายถึง ข้อความในประโยคนั้นตรงกับความรู้สึกของท่านบ่อยครั้ง
เป็นบางครั้ง หมายถึง ข้อความในประโยคนั้นตรงกับความรู้สึกของท่านเป็นบางครั้ง
น้อยครั้ง หมายถึง ข้อความในประโยคนั้นตรงกับความรู้สึกของท่านน้อยครั้ง

ตัวอย่าง

ข้อความ	บ่อยครั้งมาก	บ่อยครั้ง	เป็นบางครั้ง	น้อยครั้ง
ก. ฉันรู้สึกลูกในท้องของฉันจะไม่ปลอดภัย		√		

หมายความว่า ความรู้สึกดังกล่าวเกิดขึ้นกับท่านบ่อยครั้ง

แบบสอบถาม ท่านมีความรู้สึกตรงกับข้อความต่อไปนี้มากน้อยเพียงใด

ข้อความ	**บ่อยครั้งมาก**	**บ่อยครั้ง**	**เป็นบางครั้ง**	**น้อยครั้ง**
1. ฉันมั่นใจว่าการตั้งครรภ์ครั้งนี้จะผ่านไปได้โดยไม่เกิดปัญหาที่ยุ่งยากมากกว่าปกติ				
2. ฉันรู้สึกเป็นห่วงว่าความกังวลใจของฉันจะมี ผลต่อการตั้งครรภ์ได้				
3. ฉันรู้สึกกังวลใจเกี่ยวกับสุขภาพของลูกอยู่ในท้อง				
4.ในระหว่างตั้งครรภ์ ฉันมักจะครุ่นคิดหมกมุ่นว่าผลของการตั้งครรภ์จะเป็นอย่างไร				

ข้อความ	บ่อยครั้งมาก	บ่อยครั้ง	เป็นบางครั้ง	น้อยครั้ง
5.....				
6.....				
7.....				
8.....				
9.....				
10.....				
11.....				
12.....				
13.....				
14.....				
15. ฉันเอาใจใส่ดูแลสุขภาพ ในเรื่องที่ควรระมัดระวังขณะตั้งครรภ์อย่างมากที่สุด เช่น เกี่ยวกับน้ำหนักตัว อาหาร การมีเพศสัมพันธ์ การออกกำลัง การหลีกเลี่ยงการสูบบุหรี่ หรือเครื่องดื่มที่มีแอลกอฮอล์				

<u>ตอนที่ 3</u> แบบวัดความผูกพันระหว่างมารดาและทารกในครรภ์

คำชี้แจงในการตอบแบบสอบถาม

แบบวัดนี้ต้องการทราบความรู้สึกนึกคิด และการกระทำของท่านที่มีต่อทารกในครรภ์ตลอดระยะเวลาที่ตั้งครรภ์ปัจจุบัน โดยมีข้อความให้ท่านอ่านเพื่อพิจารณาว่าท่านมีความรู้สึกนึกคิดและการกระทำตรงกับข้อความในแต่ละข้อมากน้อยเพียงใด

โปรดอ่านข้อความในแต่ละข้อ แล้วทำเครื่องหมายถูก (✔) ลงในช่องที่ตรงกับความรู้สึกหรือการกระทำของท่านมากที่สุด เพียงคำตอบเดียวในแต่ละข้อ และกรุณาตอบทุกข้อ คำตอบของท่านไม่มีถูก ไม่มีผิดการเลือกตอบถือเกณฑ์ดังนี้

คำตอบ

เป็นจริงมากที่สุด	หมายถึง	ท่านเห็นว่าข้อความในประโยคนั้นตรงกับความรู้สึกและการกระทำของท่านมากที่สุด
เป็นจริงมาก	หมายถึง	ท่านเห็นข้อความในประโยคนั้นตรงกับความรู้สึกและการกระทำของท่านเป็นส่วนมาก
เป็นจริงปานกลาง	หมายถึง	ท่านเห็นว่าข้อความในประโยคนั้นตรงกับความรู้สึกและการกระทำของท่านเพียงครึ่งหนึ่ง
เป็นจริงเล็กน้อย	หมายถึง	ท่านเห็นข้อความในประโยคนั้นตรงกับความรู้สึกและการกระทำของท่านเพียงเล็กน้อย
ไม่เป็นจริงเลย	หมายถึง	ท่านเห็นข้อความในประโยคนั้นไม่ตรงกับความรู้สึกและการกระทำของท่านเลย

ตัวอย่าง

ข้อความ	เป็นจริงมากที่สุด	เป็นจริงมาก	เป็นจริงปานกลาง	เป็นจริงน้อย	ไม่เป็นความจริงเลย
ก. ฉันดีใจเมื่อแพทย์บอกว่าลูกในท้องแข็งแรง			✔		

หมายความว่า ความรู้สึกนี้เกิดขึ้นกับท่านเพียงครึ่งหนึ่ง

ข้อความ	เป็นจริงมากที่สุด	เป็นจริงมาก	เป็นจริงปานกลาง	เป็นจริงน้อย	ไม่เป็นความจริงเลย
1. ขณะลูกในท้องดิ้น ฉันพูดคุยกับลูกในท้องของฉัน					
2. ฉันรู้สึกว่าถึงแม้การตั้งครรภ์จะทำให้ฉันลำบาก แต่ฉันก็เต็มใจที่จะเสียสละความสุขส่วนตัวเพื่อลูก					
3. ฉันเฝ้ามองดูหน้าท้องขณะที่ลูกดิ้นอย่างมีความสุข					
4. ฉันนึกถึงภาพตนเองขณะที่กำลังให้นมลูก					
.....					
.....					
.....					
.....					
24.ขณะลูกดิ้นฉันขยับตัว เพื่อให้เขาดิ้นได้อย่างสบาย					

แผนการสอน

เรื่อง พัฒนาการ, การดิ้นของทารกในครรภ์ การตรวจครรภ์ด้วยคลื่นเสียงความถี่สูง การสัมผัสและการพูดกับทารกในครรภ์

กลุ่มเป้าหมาย หญิงตั้งครรภ์ที่เคยสูญเสียบุตรในครรภ์จำนวนครั้งละ 2 - 3 คน

วัตถุประสงค์ทั่วไป

1. ผู้เรียนมีความรู้เกี่ยวกับพัฒนาการของทารกในครรภ์
2. ผู้เรียนมีความรู้เกี่ยวกับการสังเกตและบันทึกการดิ้นของทารกในครรภ์ และสามารถปฏิบัติได้ถูกต้อง
3. ผู้เรียนมีความรู้ที่ถูกต้องเกี่ยวกับการตรวจครรภ์ด้วยคลื่นเสียงความถี่สูง
4. ผู้เรียนมีความรู้เกี่ยวกับการสัมผัสทารกในครรภ์ และสามารถปฏิบัติได้ถูกต้อง
5. ผู้เรียนมีความรู้เกี่ยวกับการพูดกับทารกในครรภ์ และสามารถปฏิบัติได้ถูกต้อง

ระยะเวลา 45 นาที

สถานที่ หน่วยตรวจครรภ์ โรงพยาบาลรามาธิบดี

ผู้รับผิดชอบ นาง นฤมล ศรีอินทราวานิช

เนื้อหาในการสอน

พัฒนาการของทารกในครรภ์ ตั้งแต่ช่วง 4 เดือน ถึง 9 เดือน มารดาได้ทราบว่าทารกในครรภ์มีการเจริญเติบโต และมีความสามารถในการรับรู้ เช่น การได้ยิน การมองเห็น ตั้งแต่ยังอยู่ในครรภ์ การสังเกตและบันทึกการดิ้นของทารกในครรภ์ ซึ่งจะช่วยให้เกิดความผูกพันกับทารกในครรภ์และลดความวิตกกังวลเมื่อทราบว่าทารกในครรภ์แข็งแรง เป็นปกติจากการตรวจครรภ์ด้วยคลื่นเสียงความถี่สูง ในช่วงอายุครรภ์ 18 - 22 สัปดาห์ การสัมผัสและการพูดกับทารกในครรภ์ โดยมีการฝึกปฏิบัติอย่างต่อเนื่องที่บ้าน โดยให้บิดามีส่วนร่วมด้วย

แบบบันทึกกิจกรรมที่บิดามารดาปฏิบัติกับทารกในครรภ์

<u>คำชี้แจง</u> เพื่อประโยชน์ที่ได้จากการศึกษาครั้งนี้ โปรดบันทึกกิจกรรมที่ท่านได้ปฏิบัติกับทารกในครรภ์ตามความเป็นจริงโดย

1. ในช่องวัน เดือน ปี ที่ปฏิบัติ ให้บันทึกวัน เดือน ปีที่ปฏิบัติลงไป โดยเริ่มบันทึก ตั้ง แต่วันถัดไปหลังได้รับคำแนะนำ จนถึงวันนัดครั้งต่อไป
2. ในช่องกิจกรรมที่ปฏิบัติให้ลงจำนวนครั้งที่ปฏิบัติให้ตรงกับกิจกรรมว่าพูด, สัมผัส, สังเกตการดิ้นของลูกในครรภ์

<u>ตัวอย่าง</u>

วัน เดือน ปี	พ่อ		แม่		
	พูดกับลูก	สัมผัสลูก	พุดกับลูก	สัมผัสลูก	สังเกตการดิ้นของลูก
1 เม.ย. 47	II	II	III	III	III

หมายความว่า วันที่ 1 เมษายน 2547 พ่อพูดและสัมผัสลูก 2 ครั้ง แม่พูด, สัมผัส และสังเกตการดิ้นของลูก 3 ครั้ง

คู่มือมารดา
การส่งเสริมความรักใคร่ผูกพันแม่-ลูก

นฤมล ศรีอินทราวานิช

หลักสูตรพยาบาลศาสตร์มหาบัณฑิต

สาขาวิชาการพยาบาลมารดาและทารกแรกเกิด

ผู้เรียบเรียง

อาจารย์ที่ปรึกษา

รศ.อรพินธ์ เจริญผล

ผศ.ดร.ศรีสมร ภูมนสกุล

Additional Finding

Table5: Comparison of pretest and posttest scores of anxiety and maternal – fetal attachment in the experimental and control groups by paired t-test

Characteristics	Pretest			Posttest			t (2-tailed)	t (1-tailed)
	Min-max	x	SD	Min-max	x	SD		
Anxiety								
Control gr. (n=30)	27-57	39.30	6.93	22.54	37.50	6.58	2.08*	1.04^{ns}
Experimental (n=30)	22-47	37.63	6.07	20-48	35.00	7.28	2.41*	1.20^{ns}
Attachment								
Control gr. (n=30)	57-116	91.77	11.14	70.118	93.57	11.44	-1.21^{ns}	0.61^{ns}
Experimental (n=30)	64-111	89.20	12.87	76-117	97.00	12.26	-4.07***	2.034^{ns}

* $p < .05$, *** $p < .001$

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