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นางรัชตะวรรณ โอพาพิริยกุล

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STRUGGLING TO GET CONNECTED: THE PROCESS OF MATERNAL ATTACHMENT TO THE PRETERM INFANT IN THE NEONATAL INTENSIVE CARE UNIT

Mrs. Rachtawon Orapiriyakul

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การพักรักษาในหน่วยบริบาลทารกแรกเกิดของบุตรที่คลอดก่อนกำหนดเป็นภาวะวิกฤตสำหรับมารดาในการพัฒนาความรู้สึกรักใคร่ผูกพันต่อบุตร การศึกษาวิจัยเชิงคุณภาพนี้ จึงเพื่อความเข้าใจกระบวนการการพัฒนาความรู้สึกรักใคร่ผูกพันดังกล่าวของมารดาที่บุตรมีน้ำหนักแรกเกิดน้อยกว่า 1,500 กรัม ไม่มีความพิการแต่กำเนิด และกำลังพักรักษาในหน่วยบริบาลทารกแรกเกิดของโรงพยาบาลในจังหวัดสงขลา เก็บรวบรวมข้อมูลโดยวิธีการสัมภาษณ์เจาะลึกมารดาพร้อมบันทึกแถบเสียงการสัมภาษณ์ จนข้อมูลอิ่มตัวจำนวน 15 คน และสังเกตพฤติกรรมของมารดาขณะมีปฏิสัมพันธ์กับบุตรขณะเยี่ยมในหน่วยบริบาลทารกแรกเกิดพร้อมบันทึกภาพวิดิโอ จำนวน 4 ราย การวิเคราะห์ข้อมูลกระทำไปพร้อมๆกับการเก็บรวบรวมข้อมูล ข้อมูลจากการสัมภาษณ์และการสังเกตได้รับการถอดเทปและบันทึกเป็นลายลักษณ์อักษรและวิเคราะห์โดยวิธีการวิเคราะห์เชิงเปรียบเทียบและการให้รหัสข้อมูล

ผลการวิเคราะห์ข้อมูลพบว่ากระบวนการพัฒนาความรู้สึกรักใคร่ผูกพันต่อบุตรเกิดขึ้นด้วยความยากลำบากท่ามกลางภาวะวิกฤตจึงให้ชื่อว่า "กว่าจะรักและผูกพันกัน: การพัฒนาความรู้สึกรักใคร่ผูกพันของมารดาต่อบุตรคลอดก่อนกำหนดในหน่วยบริบาลทารกแรกเกิด" มี 4 ระยะได้แก่ 1) ระยะเริ่มพัฒนาความสัมพันธ์ 2) ระยะความสัมพันธ์ถูกชะงักงัน 3) ระยะฟื้นความสัมพันธ์ และ4) ระยะความรู้สึกรักใคร่ผูกพันระหว่างมารดาและบุตรพัฒนาสู่ปกติ การเปลี่ยนแปลงในแต่ละระยะของการพัฒนาความรู้สึกรักใคร่ผูกพันนี้ขึ้นกับ การตระหนักถึงภาวะของบุตร การปรับสภาพอารมณ์ต่อภาวะวิกฤต การสนับสนุนทางสังคม การมีประสบการณ์ชีวิต และการบริการด้านสุขภาพ การอภิปรายครอบคลุมบริบททางวัฒนธรรม ประโยชน์ต่อการพัฒนาการปฏิบัติพยาบาล การศึกษาพยาบาลและการพัฒนาการวิจัย

สาขาวิชา พยาบาลศาสตร์ ลายมือชื่อนิสิต

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ลายมือชื่ออาจารย์ที่ปรึกษาร่วม

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RACHTAWON ORAPIRIYAKUL: STRUGGLING TO GET CONNECTED: THE PROCESS OF MATERNAL ATTACHMENT TO THE PRETERM INFANT IN THE NEONATAL INTENSIVE CARE UNIT. DISSERTATION ADVISOR: PROF. VEENA JIRAPAET, DNSc., DISSERTATION COADVISOR ASST. BRANOM RODCUMDEE, PhD., 262 pp.
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Hospitalization of preterm infants in the NICU is crisis for mothers in developing an attachment process. The purpose of this grounded theory study was to explore how mothers in Thailand develop maternal attachment to infants born preterm, and requiring NICU hospitalization. Fifteen Thai mothers whose preterm infants had birth weights less than 1,500g, without congenital anomalies, and experienced mechanical ventilation were interviewed and audiotaped. Four mother-preterm infant dyads interaction were observed and videotaped. The audiotape and videotape were transcribed for analysis. Textual data were analyzed through the constant comparative method developed by Strauss and Corbin.

Findings indicate the basic social process of maternal attachment was "Struggling to Get Connected" through the crisis circumstance of preterm birth, composed of 4 phases of establishing the connections, disrupting of the connections, resuming to get connected, and becoming connected. The movement of actions/interactions of maternal attachment to the preterm infants in these phases depended on having concern for the baby, adjusting emotionally to the crisis, supporting connections, life experience, and health care system facilitating. Discussion included the cultural context. Understanding this process was valued in clinical practice and nursing education. Future direction of qualitative and quantitative investigation was recommended.

Field of study	Nursing Science	Student's Signature	R. Orapiril
Academic Year	2006	Advisor's Signature	Veena Jirapaet
		Co-advisor's Signature	Branom Rodcumdee

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CHAPTER I

INTRODUCTION

The purpose of this chapter is to present the background and significance in exploring the process of maternal attachment of mothers who experienced preterm baby hospitalization in the neonatal intensive care unit (NICU). This chapter begins with background and significance of the study, objectives of the study, research question, scope of the study and expected benefits.

Background and Significance of the Study

The rate of low birth weight birth infants (birth weight 2,500 grams or less) in Thailand has dramatically decreased in recent years. It dropped from 10.2 percent in 1990 to 8.1 percent in 2001 (Ministry of Public Health, 2001). However, the present rate is still higher than the target rate of The 9th National Economic and Social Development Plan (2002-2006) of no more than 7 percent (Ministry of Public Health, 2001). Importantly, the trend of child abuse and neglect has increased. However, the report of the actually whole numbers of child abuse and neglect cannot be found because of there are many organizations in Thailand responsible for children who are abused and neglected. Data from the Department of Social Welfare showed that by the year 1992-2000, the number of neglected children in the Babies' Home was range between 1,215 and 1,354. The newborn infants who were left in the Government Hospitals after birth gradually increased. These were 100, 90 and 120 per 100,000 livebirths in 1996, 1997 and 1998 respectively. Unfortunately, the actual number of children who were born prematurely and were abused and neglected is not known, rather, there are some interesting reports that show the numbers of neglected preterm and low birth weight infants. There were 45 of 300 children (15 %) born prematurely

(gestational age less than 37 weeks) at Pakkred Babies' Home (reported in Feb13, 2003, Pakkred Babies' Home) and 17 of 265 children (6.4%) were the low birth weight infants (birth weight 1,300-2,450 grams) at Rungsit Babies's Home (reported in Feb 14, 2003, Rungsit Babies's Home).

Many studies had shown that preterm infants are more likely to be abused and neglected. By the observation of the staffs of the intensive care nursery, the small preterm infants who were discharged from the hospital would sometimes re-hospitalize because of failure to thrive or battering by their parents (Bowlby, 1982). Leonard and associates (1990) observed 120 very low birth weight infants from birth to school age and found that 15% had referrals for abuse or neglect. Additionally, the incidence of physical and emotional abuse was greater among parents of preterm infants who had been separated from their infants for prolonged periods after birth (Klein and Stern, 1971; Fanaroff and Martin, 1997). Abusive parents saw childrearing were more difficult, less enjoyable, and were less satisfied with their children than were non abusive parents (Trickett and Susman, 1988). Mothers of preterm infants compared to mothers of full term infants were less actively involved with their infants, there were less body contact and less time face-to-face, and the mothers smiled at, touched and talked to, their infants less (Goldberg, 1978).

As Mercer (1990) suggested, the numbers of abused children can be greatly reduced if the social and health care systems can coordinate their efforts to provide support for parents, facilitate parents’ potential to develop their caring through attachment to the child, and nurturing abilities. Therefore, facilitating maternal attachment in mothers of preterm infants in the NICU is helpful for neonatal nurses in promoting mothers’ competency in mothering/nurturing their infants and subsequently in reducing the incidence of abuse and neglected infants born

prematurely. The concept of maternal attachment requires examination and exploration.

Theoretical Perspectives on Attachment

The concept of attachment was first described within a theoretical framework by Bowlby in the 1960s. This emotional tie was specified to be that of a child towards his mother. Subsequent theorists recognized the emotional bonding that developed by the mother for her baby during pregnancy and beyond. In this study, attachment is specified from mother to infant and will be referred to as “maternal attachment” for the sake of clarity.

The attachment theorists who described the emotional tie from mother to her child include Rubin (1977, 1984), Klaus and Kennell (1976, 1982, 1983, 2001), and Mercer (1986, 1990, 1995). In contrast, Bowlby (1969) and Ainsworth (1978) referred to attachment as the emotional tie from child to mother. Their work will be briefly summarized and dismissed.

According to Rubin’s theory of maternal identity (1977), binding-in or attachment is one of the four tasks mother work at during pregnancy: seeking safe passage for herself and her child through pregnancy, labor, and delivery; ensuring the acceptance of the child by significant persons in her family; binding-in to her child; and learning to give of herself. These tasks, the mother works on concurrently and equally throughout the three trimesters of pregnancy. Having problems in any one task is found to be directly related either to the loss of pregnancy such as in abortion or prematurity or to severe stress in maintaining the pregnancy such as in preeclampsia.

Rubin (1984) first described the process of maternal behavior in achieving a maternal role identity, beginning during pregnancy and extending through the

puerperium. Her research provided the core knowledge base from which researchers and clinicians have worked since that time. Rubin's ideas are based on data gathered from around 1940 to 1975. Much research has identified the process or facets of the process of maternal role attainment as continuing over the first year. Rubin (1977) used the term "binding-in" to describe the attachment that is a formative stage of the maternal-child relationship as a process that is "active, intermittent, and cumulative", occurring in progressive stages over a period of 12-15 months, three trimesters of pregnancy and two trimesters after delivery, with the origin and end-point of the process being in the maternal identity itself (Rubin, 1977: 67). Maternal identity and binding-in to the child are two major developmental changes, each dependent on the other. Developmental progress in maternal identity and binding-in is promoted or retarded by the infant itself and by society, particularly closely related family members (Rubin, 1977). Thus, Rubin also addressed the interaction of the parent, the environment, and the infant as influencing the development of the maternal identity and attachment (Rubin, 1984).

The initial stimulus for maternal binding-in is a physical one provided by fetal movement that produces an awareness of another. Various fetal movements, growth in size and weight, idiocrasies of the fetus's behavior in response to hers, and her accommodative changes in activities and preferences serve "to create a psychosocial and biological interdependent reciprocity, or symbiosis" between the mother and child during pregnancy (Rubin, 1977: 67).

After delivery, the maternal binding-in to the infant changes from symbiosis during pregnancy to identification of the infant as an individual with its own form, appearance and behavior; from complete feeling of her belonging to the infant to claiming of her infant in a social context; as well as from very significant

incorporation of the infant into her self system to conceptual separation or polarization of selves in the postpartum period. Postpartal binding-in is sufficiently unique in the development of maternal identity for the period of 1-3 months.

Identification of the infant, getting to know the infant's self and behavior, organizes maternal behavior and attitude and is affected by the infant's gender, size and condition. If these are all fine, binding-in through identification then continues and gradually increases in intensity. This process is generally completed by four weeks with a normal, healthy infant. Complete identification of the infant by mother occurs when the mother knows her infant by looking, touching, hearing or smelling. Claiming of the infant, pregnant woman developed strong attachment to the infant at the end of pregnancy by involvement, identification, and commitment formed during pregnancy. However, after birth, mothers claimed of her infants through identifying the characteristics and qualities in appearance and behaviors of the child with significant others in the social context. Polarization is the physical and conceptual separating-out process of the incorporated infant of pregnancy into a separate, external and constant entity after birth. As the infant becomes more active as in two or three months, the mother's awareness of the infant lives externally and constantly is stable.

Importantly, in the task of binding-in to the infant, there is no binding-in in the first trimester, the mother only binding-in to the idea of pregnancy. Change occurs in the secondary trimester caused by quickening- that is, the feeling of life within. It is a special, private, and warm experience. Hormonal change, estrogen and progesterone, positively reflects her appearance and conduct and feeling good that facilitate the evaluation of the infant within her. The infant's value and worth become more meaningful, and feelings of love are generated. This love becomes stronger in the

second trimester, delayed in the third trimester, then increases again as the infant responds to and thrives in her maternal care (Rubin, 1984).

The binding-in along with other three tasks the mother works on through during pregnancy is changed and developed to form “mothering” in which specific infant-care activities are produced. Binding-in to the child leads first to identification and claiming behaviors and then progressively to the interest and companionship with the infant. Ensuring safe passage becomes protectiveness toward the infant. Ensuring acceptance by the family develops further in the task of controlling, guiding and teaching the child those attitudes, values, behaviors, and skills that are socially acceptable. Also, giving of oneself becomes a sustained giving of infant’s time and interest in the form of nurturance, companionship and relief during times of stress.

Mercer’s work was influenced by Rubin. Mercer has developed concepts and definition drew from Rubin’s theoretical construct, role theory, ecological theory, and data gathering from 1965 to 1990 in order to bridge the continuation of maternal work of maternal role achievement after the puerperium. Mercer used role transition theory in describing the woman’s process of achieving satisfaction, harmony and confidence in her maternal identity and attachment to her infant (Mercer, 1995).

As Mercer’s stated, mothering is the maternal behaviors learned in interaction with the child, beginning in the process of achieving a maternal role identity and continuing throughout the child’s development. Maternal behaviors include the blend of nurturing, caring, teaching, guiding, protecting, and loving the child that enhance the infant’s physical, emotional, social, and cognitive development to adulthood. These behaviors are recognized through their pleasure of interaction with, expressed concern and need for, and continuing relationships with the child (Mercer, 1990).

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Mercer (1995) asserted that binding-in and the maternal identity are coordinates of the same process. Binding to the infant with a fusion of self and infant makes it difficult for the woman to separate self from infant because what happens to one happens to the other. Attachment is used as synonymous with Rubin's term "binding-in" as a process beginning during pregnancy. It is a strong emotional component of the maternal role identity and provides both motivation to achieve competence and satisfaction in the role (Mercer, 1977; 1990). Maternal attachment is a developmental process beginning during pregnancy and continuing over the months following birth in which the mother forms an enduring affection for and commitment to the child. Following birth, pleasurable bidirectional interaction between mother and infant enhances the process (Mercer, 1977; 1990). The infant's abilities to be alert to and track voices, to be quieted with caresses and voice tones, and to maintain eye contact influence maternal responses. A reinforcement of the maternal identity occurs as mother and infant develop irreplaceable attachment links through both identity and interaction bonds (Mercer, 1983).

Attachment, viewed from the parents' perspective, is a process in which an enduring affectional and emotional commitment to an individual is formed that is facilitated by positive feedback between partners through mutually satisfying experiences. By this definition, Mercer (1990) emphasizes three concepts of attachment. First, attachment is a process involving change over time. The changes, both affective and cognitive, occur gradually within each partner. Some events may make the process difficult. However, many factors interacting in the attachment process make the attachment progress despite any negative feedback from a partner that may occur. Second, attachment is facilitated by positive feedback in the interchange between attaching partners. Positive feedback indicates acceptance by the

attaching partner. Third is that attachment occurs through mutually satisfying experiences. The pleasurable are better than the displeasurable interactions in satisfying parent-infant interactions.

Early attachment begins during pregnancy, however, "with the birth of the infant, the process becomes transactional; each individual's behavior affecting the other through the visual that were not available before birth, physical touch becomes skin to skin rather than through an abdominal wall, and voice sounds are more direct" (Mercer, 1986: 57).

Additionally, Mercer proposed the theoretical framework from the state of knowledge about the variables affecting parenting and transition to the parenting role to approach to an at-risk situation. The proposition is that the early months after birth are a time of parental adaptation and adjustment to the parenting role including the attachment process and the infant's development. Factors influencing parenting, achievement of parental role, and child development and health status are the characteristics of the mother, the child, and the environment. These factors are the interactive and transactive forces of the mother, infant, and environment that determine ultimate parenting outcome. The mother's characteristics and her adaptation to the infant's demands and needs, the infant characteristics, and the living environment are constantly interacting. At any point in time, the overlapping represented by the interaction between mothers, environment and child is affected by all of these components (Mercer, 1990).

Favorable maternal characteristics for the development of attachment include emotional health, social support system, competent level of communication and caretaking skills, history of being loved and nurtured as a child, proximity to the infants, and maternal-infant fit. Infant characteristics include interactive competencies

illustrated to mother, difficult infant, and temperament. Environment characteristics include stress response to stressor and crisis situation, social support in the environment (Mercer, 1983).

Klaus and Kennell (1976; 1982; 1998) defined attachment as a unique relationship between two people that is specific and endures through time. Strong attachment can persist during long separations of time and distance, even though often visible signs of their existence may not be apparent, and is crucial to the survival and the development of the infant. Its power is so great that it enables the mother to do everything necessary for the care of her infant. This original parent-child tie is the major source for all the infant's subsequent attachments and is the formative relationship for the child developing a sense of himself. Throughout his lifetime the strength and character of this attachment will influence the quality of all future ties to other individuals (Klaus and Kennell, 1976).

Maternal attachment develops throughout the prenatal, birth, and postpartum period (Klaus and Kennell, 1982). During pregnancy, a woman experiences physical and emotional changes within herself, and the growth of the fetus in her uterus. Feelings about these changes vary depending on whether she planned the pregnancy, is married, is living with father, or has other children, as well as the age of other children, occupation, memories of her childhood, and feeling about her parents (Klaus and Kennell, 1983). When becoming pregnant, many mothers are initially disturbed by feelings of grief and anger that influence her acceptance of the pregnancy (Klaus and Kennell, 2001). However, by the end of the first trimester, most mothers who initially rejected pregnancy have accepted it. That is the mother's identification of the growing fetus as an integral part of herself (Klaus and Kennell, 1983). The second trimester is marked by growing perception of the fetus as a separate individual,

usually occurring with the awareness of fetal movement. After quickening, a woman generally begins to have some fantasies about her baby and develops a sense of attachment and value toward the baby (Klaus and Kennell, 2001). Lastly, maternal attitudes about her labor may affect her reactions to the infant.

After birth, the mother begins comparing the infant to the fantasized child, claiming the infant as an individual and as a member of the family by seeing the infant. Eye contact between mother and her infant in the initial period after birth may be a positive release of maternal feelings of warmth, closeness, and caring. En face position enables the mother and infant to look directly into each other's eyes, to focus, and to regard each other. In addition, by touching, the mother explores the infant by systematically use finger contact with the infant's extremities, gradually progressing to palm contact with the infant's trunk that occurs within minutes of the first contact and then holding the infant in the cuddling position after gaining confidence and preliminary knowledge. Also, caretaking is important for psychic closure of the task of bonding. In caretaking, both mother and infant give and receive from each other. The physical and emotional needs of the infant are satisfied by maternal caretaking behaviors. Maternal capabilities to soothe and satisfy the infant provide the emotional satisfaction and positive feedback about the maternal competency as parenting. The infant’s expectation of the relationship with the mother is its need for comfort, maintenance of homeostasis, and relief from any painful experience. The infant experiences the world through the mother and learns that the environment is either nurturing and loving or hostile and non-responsive. Consistent, predictable nurturing and caretaking enable the infant to develop a sense of trust in the mother, the world, and self.

Thus, maternal attachment and caretaking behaviors are crucial not only for parenting and the well-being of the mother but also for the infant's physical, psychological and emotional health and survival, as well as the child's well-being as an adult and a potential parent for a subsequent generation.

The interaction of mother and infant contributes to their dyadic attachment relationship, Klaus and Kennell (1982: 72-82) described the interaction model in which the mother contributes “touch, eye-to-eye contact, high-pitched voice, entrainment, time-giving, lymphocytes and bacterial flora, odor and heat while the infant contributes eye-to-eye contact, crying, stimulating of oxytocin and prolactin production, odor and entrainment”.

Importantly, Klaus and Kennell (1982; 1983) suggested that there is a sensitive period for mother-infant contact in the first minutes, hours, and days of life which may alter the mother’s later behavior with that infant. Early contact with the newborn during the first minutes and hours of life was a major influential factor in human maternal-infant bonding. However, Klaus and Kennell (1982; 1983) concluded that although there is increasing evidence from many studies of a sensitive period that is significant to the bonding experience, this does not imply that every mother develops a close tie to her infant within a few minutes of the first contact. Each parent does not react in a standardized manner to environmental influences that occur during this period. Moreover, Klaus and Kennell (1998; 2001) mentioned the critical review by Thompon and Westrich (1989) that reached the conclusion regarding a sensitive period that no evidence suggesting that the restriction of early postnatal mother-infant interaction has any beneficial effects; in contrast, the available evidence suggests the plausible hypothesis that women of low socioeconomic status may be particularly vulnerable to the adverse effects of restricting contact.

Furthermore, Klaus and Kennell (1982; 1998) indicated that early neonatal separation may affect the subsequent development of child battering or failure to thrive without organic disease. The incidence is threefold to fourfold greater in infants who have been separated from their parent. However, additional mother-infant contact in the early period can reduced the incidence of child abuse, failure to thrive, abandonment, and neglect.

Additionally, Klaus and Kennell (1982; 1983; 2001) indicated three major influences on maternal attachment including parental background, care practices, and parenting disorders. These three factors influence the outcomes of parent-infant attachment such as effective caretaking and attachment or a parenting disorder. These are vulnerable child syndrome, child abuse, failure to thrive, and some developmental and emotional problems in the high-risk infant.

Mercer's work differs from the other work as mention above. She expanded more in concept and definition drawn from Rubin's theoretical construct, role theory, ecological theory and recent data gathering as well as extended Rubin's concept that focused largely on pregnancy and the first postpartal month to over the first year after birth. Mercer emphasized on feminine identity influenced the evolution and the development of a maternal role identity. Mercer described the father's role in the interaction between mother and infant as a microsystem within the evolving model of maternal role attainment in which the mother-infant attachment develops within the emotional field of the mother's and father's functioning. In addition, Mercer proposed the interactive model approached to an at-risk situation including when mother has a premature birth, facing an obstetrical risk situation, having a chemical abuse problem, as well as when the infant is born prematurely or has a congenital defect. Therefore, Mercer's work provides a useful theoretical orientation for this study that aims to

explore the process of maternal attachment to the preterm infant in the neonatal intensive care that is an at-risk situation. Because of the nature of the research method used for this study (grounded theory), there are no preconceived hypotheses. However, Mercer's conceptualized perspective can guide the researcher's thinking, sensitize the researcher to key concepts, and inform the researcher about issues. This research needs to understand what knowledge currently exists and where there is a knowledge gap, i. e. what others have learned about maternal attachment. Importantly, her conceptualized perspective can guide the researcher in developing the topics to be addressed during data collection, and in discussing the research findings of the study.

Preterm Birth in Context

Pregnancy has a predictable course and a predictable end and outcome (Mercer, 1990). In the case of preterm birth the gestation was ended before the completion of normal pregnancy. It is an unanticipated event and the mother lacks preparedness for the untimely birth and is uncertain of her preterm infant's survival and outcome. The mother must deal with events around the birth, to reconcile the image of her preterm baby with her fantasy image of a newborn during grieving her loss, to find hope for her infant's outcome, and to deal with the complex environment of the NICU (Mercer, 1990). In some cases, preterm birth leads to a critically ill infant for whom the hospital cannot provide the intensive care, and referral of the infant to the NICU of another hospital is necessary. So, the mother has to deal not only with these situations but also with the new unfamiliar environment, cost and distance. These cause most mothers to experience great stress, emotional strain and anxiety (Choi, 1973; Jeffcoate et al., 1979; Gennaro, 1988; Stjernqvist, 1992; Singer et al., 1999; Taylor, 2001).

Infants who are born prematurely before maturation of many body systems often exhibit several physical and neurological characteristics that place them at risk for complications including respiratory problems, problems with nutritional intake and weight gain, susceptibility to infection and so on (Wong, 2003). Preterm infants' physical appearances are generally looking so small and fragile; easily strained by environmental manipulation and able to achieve low level alertness only when physiological and motor integration are externally maintained (Als and Brazelton, 1981). Preterm infants display less motor maturity, behavioral organization and more deviant reflexes (Holmes et al., 1982). These are frightening and create uncertainty to some parents.

Additionally, most preterm infants, particularly those with birth weight less than 1,500 grams cannot independently sustain their lives without support from high-technological equipment and intensive care in the NICU after birth. The NICU environment is complex, structured to constantly maintain and support the infant to achieve the desired outcome of sustaining life. The focus of care is structured, technological and procedural. Additionally, the infant is separated from the parents and often parents are excluded from the NICU environment (Mott, James, and Sperhac, 1990). Also, there are many more strict rules for parents in taking care of their infants. These create stress and lead to limitation of physical and emotional contact to the parents.

The experience of having a baby in the NICU is frightening and creates uncertainty for families. Padden and Glenn (1997) revealed that most mothers were shocked by the preterm birth, one-third were distressed at the appearance of the infant when they saw their babies for the first time and saw the technological environment of the NICU. Some mothers expressed fear, shock, and apprehension when seeing the

technology and equipment (Bennett, 1990). Some may be terrified to touch the infant for fear of disturbing the equipment and causing harm (Graham, 1995). They revealed that the incubator was a barrier to normal contact (O'Shea and Timmins (2002). Also, the mothers of sick or preterm infants are much more hesitant in their early interactions and they take longer to establish physical contact with their infant (Rushton, 1991) and bonding behaviors including touching, stroking, kissing, and gazing eye contact (Cusson, 1993).

Therefore, hospitalization of a preterm infant in NICU is a crisis situation for developing attachment behaviors (Harrison, 1997). Maternal attachment to the preterm infants while in the NICU is delayed (Jeffcoate, Humphrey and Lloyd, 1979; Bialoskurski, Cox, and Hayes, 1999) and some times, in the case of severe prematurity, is problematic (Bialoskurski, Cox, and Hayes, 1999). Mothers may not be emotionally ready for attachment due to feelings of shock, panic, anxiety, guilt, fear, resentment, anger, and helplessness. Expectation that the infant may die prematurely caused the mother to be reluctant to develop a close attachment to the infant (Moore, 1983). Separation of the preterm infant from the mother after the birth for prolonged hospitalization because of unsustainable life independently causes the loss of opportunity for early interaction in the sensitive period and the mother cannot closely interact with her infant. Having no parental proximity to the preterm infant may discontinue the maternal-infant attachment process. Attachment at this time is fragile (Olds, London, and Ladewig, 2000). Separation caused the mother to have delayed feelings of "ownership" of their infant (O' Shea and Timmin, 2002). Additionally, the preterm neonate's physical appearance, disorganized behavioral responses, and variable physiologic response can cause much anxiety in the parents as they attempt to interact with their infant (McGrath, 2003). Also, the stress of postnatal

illness may affect infant's behaviors as well as the mother's behaviors toward the infant. These create an ineffective mutually satisfying experience for the mother. Thus attachment is affected (Mercer, 1982). The appearance of a preterm infant may inhibit the effective attachment through a failure to release innate affective responses. The disorganized behaviors of the preterm infant may disrupt patterned interaction sequences with the mother. Then, the attachment may be delayed because the infant is not able to play his part in the establishment of attachment (Bialoskurski, Cox, and Hayes, 1999). Mothers may fear harming their small, fragile infant, and progress from fingertip to palm touching may take hours, days, or several visits. Some mothers of normal preterm infants followed a sequence of touching, but at a slower rate, and not using their palms even at the third visit (Klaus et al., 1970). Some mothers hesitated to engage in active interaction with their infants but primarily spent time looking at them during their first two visits, and general handling occurred on the third visit after the infant was about 2 weeks old and the survival of the infant was possible (Minde et al., 1978).

In conclusion, the interruptions in the early acquaintance process and the uncertainty about the preterm infant's survival may delay the process of maternal attachment to the infant or become problematic after preterm birth. As mentioned above, maternal attachment affect parenting that subsequently leads to the child's growth and development. Therefore, delayed or problematic attachment in the context of preterm birth and in the NICU can lead to the growth and developmental problems, particularly child abuse and neglect is focused in this studied phenomenon.

The Knowledge Gap

The existing knowledge on maternal attachment during the preterm infant hospitalization in NICU is limited. Most studies have been of cross-sectional design,

studying phenomena of maternal attachment behaviors at a fixed point in time. The studies on the inference about the process of maternal attachment behaviors such as Minde et al. (1978; 1980) addresses the process of attachment after the infants have recovered from serious illness and remain in the nursery unit through 3 months after discharge and are specific to the observation of standard feeding. Among the existing qualitative studies, Bialoskurski, Cox, and Hayes (1999) described the nature of attachment in NICU in a borough of London using an ethnonursing approach. Cox and Bialoskurski (2001) combined a qualitative ethnonursing approach and quantitative studies to identify some factors that facilitate and hinder family attachment, particular mother-infant attachment, and explored the problems associated with communication caused by family and mother-infant separation, while the infant is being cared for in a NICU in a district general hospital in London. Both studies described the nature of maternal attachment in a specific group of mothers and the latter described only the factor of communication related to the attachment. Moreover, the population groups studied in most studies were those mother-infant dyads comprising healthy mothers and relatively good infants.

Although there is a study on maternal attachment behaviors in Thai mothers (Tilokskulchai et al., 2002), it is specific to the first visitation during preterm infant hospitalization at neonatal unit and is a cross-sectional study, not a process of phenomena throughout hospitalization, and also the condition of the preterm infants was relatively good.

Among existing studies, no research has been conducted to describe how the mothers develop the maternal attachment during their preterm infant hospitalization in NICU in Thailand from birth until discharge. Therefore, the objective of this study is to gain more understanding of the actual process of maternal attachment that occurs

from the mothers' perspective. Because little is known about this phenomenon and the study aims to explore the attachment process occurring in the lives of mothers, grounded theory is particularly appropriate for the study. It can generate the substantive theory grounded from data gathered from mothers' perspectives and experience that constantly explain the studied phenomenon.

A major nursing goal in the NICU is to optimize parenting skill and discharge an intact family unit (Mcgrath, 2003). So, nurses in the NICU need to be skilled, not only in the physical care of the high-risk newborn, but also in the psychological aspects of working with frightened grieving families. Nurses focused on family centered care (FCC) are in a key position to promote positive interactions and to identify and help resolve early problems in the developing parent-infant relationships. Therefore, in order to promote normal patterns of a family's life at home and community, empowering and enabling the family to nurture and support their child's development by participation in caretaking and decision making since admission are necessary. Promoting the maternal attachment process during a preterm infant's hospitalization in the NICU, as the way of promoting mother-infant relationship, is one important issue for nurses' responsibilities in facilitating parenting skills of the mothers. So, the foundation of knowledge from this study that conceptualized the maternal attachment process of mothers to their hospitalized preterm infant, especially from their own perspective, can be used by nurses as a strategy to assess and promote the maternal attachment process toward their preterm infant during infant's hospitalization in the NICU. Empowering and supporting mothers in developing their maternal attachment process during hospitalization lead to the achievement of the optimal goal of nursing in NICU, the effective early parenting skills, and discharging an intact family, and then enabling the mother to nurture and support development of

their infants at home. Importantly, the foundation of knowledge gained from this study can be used as a strategy in the health care system to provide tools that can be assessed in mothers. These will lead to more focused care in promoting mothers in establishing attachment to their infants that can enhance effective parenting and subsequently lead to the achievement in reducing the incidences of child abuse and neglect.

Objectives of the Study

The objective of this study is to discover the substantive theory of the developmental process by which maternal attachment develops for mothers with preterm infants during hospitalization in the NICU. Specifically, the priority goal is to understand the basic social process of maternal attachment development to preterm infants during hospitalization in the NICU.

Research Question

How do mothers develop maternal attachment to their preterm infants during hospitalization in the NICU?

Scope of the Study

This study will describe the process of maternal attachment of the mothers to their preterm infants during hospitalization in the NICU using grounded theory. The perception and experience of the mothers about maternal attachment to their preterm infants in NICU will be explored. The maternal attachment behaviors to their preterm infants will be collected and interpreted from the mother's perception and symbols related to their responses to the infants within their social context. Using constant comparative analysis, the substantive theory of maternal attachment explaining the studied phenomena will be developed.

Expected benefits

The substantive theory of the process of maternal attachment to the preterm infants in the NICU developed in this study will not only describe the development of maternal attachment to the preterm infant in the NICU but also be of benefit to nursing science. This substantive theory will aid in:

1. Assessing, empowering, and supporting the mothers in developing a maternal attachment to preterm infants in the NICU.
2. Identifying conditions or variables influenced the development of maternal attachment to the preterm infant for future quantitative investigation.
3. Building tools for measuring maternal attachment to the preterm infant in the NICU.
4. Enhancing the middle range theory of maternal attachment in nursing.

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CHAPTER II

LITERATURE REVIEW

The purpose of this chapter is to review the maternal attachment, characteristics and health problems of the preterm infants, neonatal intensive care unit environment, psychological aspect of preterm infants' mothers and the studies on maternal attachment. In addition, the connecting theory, knowledge and methods, and the theoretical framework using in this study are discussed.

Maternal Attachment

Definition

Definitions of attachment vary considerably. Attachment is sometimes confused with or is used interchangeably with bonding (Gay, 1981; Walker, 1992). By general consensus, bonding is a tie from parent to infant and attachment is a tie from infant to parent, whereas, Klaus and Kennell used the term attachment in both ways (Klaus and Kennell, 1976; 1982). Moreover, in 26 nursing research studies on parental and infant bonding/attachment in a review of nursing research 1981-1990, the authors did not define these two terms (Coffman, 1992).

Klaus and Kennell (1976; 1982) defined attachment as a unique relationship between two people that is specific and endures through time. Ainsworth (1972) defined attachment as an affectionate tie or bond that one individual forms between himself and another. Lancaster (1986) described attachment as the quality of the bond or affectionate tie between parent and their infant. Also, Behrman, and Kliegman (1998) indicated attachment as reciprocal feelings between parent and infant.

Focusing on the feelings of the mother to her infant, Carson and Virden (1984) defined attachment as an emotional and affectional tie that a mother feels toward her

child that develops through their interaction. However, the term "maternal attachment" was conceptualized in terms of maternal statements that reflected a developing growth of positive feelings on the part of mother toward her infant and included such dimensions as wanting to possess, to prolong, or to seek contact, and to be proud of and to love her infant (Gottlieb, 1978). Schroeder (1977) defined maternal attachment as the extent to which a mother feels that her infant occupies an essential position in her life, while Avant (1981) defined it as an affectionate tie formed between a mother and her child which endures through time and is manifested by specific maternal behavior.

Attachment behaviors

Attachment behavior is behavior through which a discriminating, differential, affectionate relationship is established with a person or object and which in turn tends to evoke a response from the object, initiating a chain of interaction which serves to consolidate a relationship (Ainsworth, 1969 cited in Dizon, 1984). Ainsworth (1972 cited in Gay, 1981) reported that behaviors occurring between the objects of attachment differ from the behaviors exhibited towards others. Proximity-seeking or maintenance behaviors are required by individuals to the attachment figure. Behaviors to maintain or restore proximity are utilized as indicators of attachment behaviors. In addition, attachment implies strong affection within significant relationships. Thus, love, tenderness and caring are implicit in attachment. In addition, Klaus and Kennell (1976) described an interaction in which the mother and infant contribute together to their relationship. The mother contributes touch, eye-to-eye contact, high pitched voice, entrainment, time-giving, lymphocytes and bacterial flora, odor and heat. The infant contributes eye-to-eye contact, crying, stimulation of oxytocin and prolactin production, odor and entrainment. Also, Cannon (1977) described maternal

attachment behaviors as the mothers progressed through the orderly sequence of touching as described by Klaus and Kennell (1982). Moreover, Avant (1979) described maternal attachment behavior according to the theoretical criteria of attachment, comprising visual contact between the person and the object of attachment, touch by the person to the object of attachment at some time during the process of attachment, positive affect associated with the object of attachment, reciprocal interaction between the two parties in attachment, and vocalization by at least one of the two parties supporting the attachment process. Recently, Gay (1981) and Lobar and Phillips (1992) reported mothers display attachment behaviors through five senses including visual, tactile, verbal, auditory and olfactory and characterize awareness of and respond to their infants by speech patterns, attentive concern, and soothing abilities.

Maternal Attachment Process

The attachment process has been described differently. Attachment process is active, intermittent, and cumulative, occurring in progressive stages over 12-15 months since pregnancy with the origin and end point to maternal identity (Rubin, 1977). Also, it is linear, beginning during pregnancy, intensifying during the early postpartum period, and being constant and consistent once established. It is critical to mental and physical health across the life span (Park and Stevenson-Hinde, 1982 cited in Bobak et al, 1995).

According to Klaus and Kennell (1982), the maternal attachment process develops throughout the prenatal, birth, and postpartum period. Nine steps of the process are 1) Planning the pregnancy, 2) Confirming the pregnancy, 3) Accepting the pregnancy, 4) Fetal movement, 5) Accepting the fetus as an individual, 6) Labor and Birth, 7) Seeing 8) Touching, and 9) Caretaking.

According to Gay (1981) and Lobar and Phillips (1992), attachment is an interactional process that begins with the acquaintance stage and develops towards attachment. Acquaintance required an opportunity for interaction. Given the opportunity, the mother collects information about her infant through five senses: visual, tactile, verbal, auditory, and olfactory. Success in gaining information about the infant and developing a positive parent-infant relationship can result in the continued data collection to permit an attachment to form to the infant. In the attachment phase, information gathering continues and the mother begins to identify her infant's needs, desires, and biological clock. Getting to know the infant, the mother uses speech patterns, attentive concern, enfolding behaviors, and soothing abilities. As the reciprocal relationship continues, the two individuals become linked in a coordinated and constructive relationship. This bond is the tie that links mother and infant throughout their lifespan (Gay, 1981).

Additionally, Mercer (1977) described the development of maternal attachment as a process in which an enduring affectionate bond to a specific infant is developed through pleasurable, satisfying mother-infant interaction. Both mother and infant experience affective and cognitive change in the contingent relationship, sensitive responses to signals lead to a synchrony of social communication. The affectionate bond provides enjoyment to the mother who is responsible for the dependent infant care and places the infant's needs above her own for years, while the infant derives warmth and security (Bretherton, 1992).

Origin/Intensity of Maternal Attachment

The origin of attachment had been described differently. The ultimate origin of a mother's relationship to her child may begin when she is a child identifying with her own mother (Caphan, 1959 cited in Mercer and Ferketich, 1994). Rather, Klaus and

Kennell (1982) found that the period when a mother falls in love with her baby was not easily identified. It was common for the mothers to experience distress and disappointment if they did not experience the feeling of love for their infants in the first minutes or immediately after birth. Many mothers developed feelings of affection for their infants within the first week, however, this may be delayed if labor was painful or the mother had received narcotic drugs for pain relief. However, Troy (1993) found that a relationship between mother and infant occurred when the infant was first held regardless of how long after delivery the holding occurred. The mothers were found to develop feelings of maternal attachment towards their infant anywhere from 10 minutes to 2.5 days after the delivery.

Moreover, Cranley (1981) and Rubin (1984) reported that women first develop an attachment to their children during pregnancy and the quality and intensity of the attachment increase with the progression of pregnancy. Also, Rubin (1977, 1984) and Mercer (1995) stated that maternal attachment begin during pregnancy. The process of bonding to the child during pregnancy leads to postpartum attachment and provides the motivation to achieve competence and satisfaction in the role.

Recently, Littleton and Engebretson (2002) reported that in the period after birth, the mother-infant acquaintance begins as the infant is compared to the child who was perceived in the womb. This getting-to-know-you period is characterized by behaviors that initiate the attachment process.

After initial establishment, the quality and the intensity of maternal attachment may change over time. Hauck (1985) reported that attachment developed in a quadratic pattern, with the lowest points prenatally and 6 months after birth, and the highest points occurring at 1 week and 1 month after birth, although the changes in scores were relatively small. Additionally, Mercer (1985) found that maternal

attachment was significantly higher at 4 months after birth than at 1, 8, or 12 months; however, changes in scores were small. Moreover, based on long range studies over five years, Klaus and Kennell (1976) concluded that mothers who were more attached to their infants early in the pospartum period behaved in a significantly more affectionate way toward those children as long as five years later.

However, Crouch and Manderson (1995) reported that the ideal birth experience does not always occur and the expectations of women regarding bonding with their newborn may be incongruent with the actual experience, causing feelings of guilt and anxiety. They also point out that maternal attachment develops over an extended period and because the physical and emotional state of a mother can be adversely affected by exhaustion, the absence of support persons, or an unwanted outcome, delay or block in the attachment process can occur.

Criteria for the Establishment of Attachment

There are some criteria needed for the establishment of attachment. Gewirtz (1972, cited in Avant, 1979) listed several criteria including orienting, and visual tracking, touching, clinging, crying, smiling, vocalizing, and separation anxiety necessary for attachment formation. Ainsworth (1972 cited in Gay, 1981) identified six criteria crucial to attachment formation: specificity, duration, level of maturity, affective implications, proximity-seeking/maintenance behaviors and learning.

Clark and Affonso (1976, cited in Avant, 1979) described the need for reciprocal interaction between mother and infant as a means of fostering attachment. Also, Ambrose (cited in Avant, 1979) indicated that reciprocal interaction is critical to developing attachment and suggested a pattern in which the infant's smile or cry initiates action by the mother, usually accompanied by her vocalization. The sound of

the mother and the tactile stimulation given to the infant releases the responses in the infant and initiates eye-to-eye contact that stimulates further interaction.

Corter (cited in Avant, 1979) concluded that proximity-seeking behaviors are the basis of attachment formation and classified these behaviors as visual contact, vocalizations, clinging and touching.

Mercer (1977; 1990) described the maternal-infant attachment as being developed through pleasurable, satisfying mother-infant interaction.

Goulet et al. (1998) concluded that the attachment process is characterized by seeking and keeping the closeness, the reciprocity of verbal and non-verbal exchanges, as well as positive feeling. They are the effective components of the relationships between parents and their infants that develop gradually. The pleasure and synchrony in the interaction serve as catalysts for further exploration of the relationship and its evolution toward a durable attachment (Gottlieb, 1978; Gay, 1981; Brazelton and Cramer, 1990; Mercer and Ferketich, 1990).

Recently, Lowdermilk, Perry, and Piotrowski (2003) concluded that attachment is developed and maintained by proximity and interaction with the infant, through which the parent becomes acquainted with the infant, identifies the infant as an individual, and claims the infant as a member of the family. Attachment is facilitated by positive feedback. Attachment occurs through a mutually satisfying experience. The infant displays signaling behaviors such as crying, smiling, and cooing, that initiate the contact and bring the caregiver to them. These behaviors are followed by executive behaviors such as rooting, grasping that maintain the contact. The caregiver is attracted to an alert, responsive and cuddly infant and repelled by and irritable, apparently disinterested infant. Attachment occurs more readily with the infant whose temperament, social capabilities, appearance, and sex fit the parent's

expectations. If the child does not meet the expectations, resolution of the parent's disappointment can delay the attachment process.

More importantly, by concept analysis of parent-infant attachment, Goulet et al. (1998) indicated that the attributes of mother-infant attachment include proximity, reciprocity and commitment. Proximity comprises three dimensions including: contact, emotional state, and individualization. Reciprocity is described by two dimensions: complementarity and sensitivity. Additionally, commitment comprises two aspects: centrality and parent role exploration.

Characteristics and Health Problems of the Preterm Infants

Preterm infants are those born before the completion of 37 weeks of gestation (American College of Obstetricians and Gynecologists and American Academy of Pediatrics, 1997 cited in Lowdermilk, Perry, and Piotrowski, 2003). They are born before maturation of many body systems. They often exhibit several physical and neurological characteristics that place them at greater risk for complications. Preterm infants display behaviors and respond individually depending upon the physiologic status, gestational age, and extrauterine experience. Generally, preterm infants have a number of distinct characteristics at various stages of development. The physical appearance changes as fetus progresses to maturity. Preterm infants are very small and thin with minimal subcutaneous fat deposits and have a proportionate large head in relation to the body. Skin is bright pink, smooth, and shiny, with small blood vessels clearly visible under the thin epidermis. Lanugo hair is abandon over the body but is sparse, fine, and fuzzy on the head. Soles and palms have minimal creases. Ear cartilage is soft and easily shaped, skull and ribs feel soft. Eyes may be closed. Male infants have few scrotal rugae, and the testes are undescended; the labia and clitoris are prominent in female. Preterm infants are inactive and listless. The extremities

maintain extension and remain in the position they are placed. Reflex activity is partially developed. Sucking, swallow, gag, and cough reflexes are absent or weak and other neuro signs are absent or diminished. Physiologically immature, preterm infants are unable to maintain body temperature, have limited ability to excrete solutes in the urine, and have increased susceptibility to infection. Pliable thorax and immature lung tissue and regulatory center lead to periodic breathing and frequent apnea. They are susceptible to biochemical alteration such as hyperbilirubinemia and hypoglycemia (Wong et al., 2003).

According to Yecco (1993), the behaviors of preterm infants with gestational age ≤ 32 weeks are generally shown regular neurobehavioral development of active and quiet sleep state (active sleep decrease while quiet sleep increase), increase in alert awake time with decrease in drowsy state, increase in motor tone with less flexion, smooth motor movements and improved head control. For preterm infants with gestational age ≤ 30 weeks, their behaviors include alert and drowsy state are fleeting and not robust, frequent sleep, rapid eye movement, continuous tonguing, chewing and mouthing, irregular breathing with mainly abdominal, eyelids flutter, limb twitch, tremor in jerky movements, easily taxed by environmental stimuli, brief waking period, poor visual acuity with little accommodation, unable to coordinate sucking, swallowing, and breathing, flaccid of muscle tone, and present of smiling reflex and startle reflex.

Preterm infant is more easily strained by environmental manipulations, is more fragile, and able to achieve low-level alertness only when physiological and motor integration are externally maintained (Als and Brazelton, 1981). Preterm infants tended to show less gaze aversion with mother than with siblings or father (Field, 1981). Preterm infants also showed less motor maturity, more deviant reflexes,

and a general flattening of affect at the time of discharge from the hospital than term infants (Holmes et al., 1982). Gorski, Davidson, and Brazelton (1979) identified three stages of behavioral organization in high-risk neonates. In the first stage, physiologic organization, infants develop sufficient internal stability and integrity before they are able to use caregiver support and input. Handling may disturb the infant's physiological state, resultant disorganized behavior (pallor, cyanosis, respiratory distress) contributes to parental feelings of inadequacy and seeing the infants as unrewarding. The second stage, organized behavioral responsiveness, begins when the baby is no longer acutely ill and is able to breathe effectively and to absorb calories and gain weight. Many infants are unable physically to tolerate eye-to-eye contact or close cuddling in the early weeks. The third stage, reciprocity between infant and social environment, occurs when the infant is strong enough to breathe without help, feed, and respond to caregiver behaviors in a predictable way; however, the infant continues to be handicapped. If the environment becomes over-stimulating, the infant may withdraw from the overload. The infant is difficult to rouse, and when aroused, presents unrewarding responses to the parent.

The common problems found in preterm infants are respiratory distress syndrome, apnea of prematurity, bronchopulmonary dysplasia, intraventricular hemorrhage, necrotizing enterocolitis, and retinopathy of prematurity. However, preterm infant gestational age more than 32 weeks are far more mature and experience fewer complications than infants who are born earlier (Korner et al., 1989). Moreover, preterm infants are at greatest risk of dying during infancy and are at significant risk of morbidity during childhood (National Commission to Prevent infant mortality, 1990 cited in Behrman and Shiono, 2002). Most preterm infants, particularly those birth weights less than 2,500 g, are 40 times more likely to die than

normal infants. Infants whose birth weight is less than 1,500g have a 200 times greater risk for neonatal death. They usually cannot independently sustain life without support from high technological equipment and intensive care in the NICU after birth. Surviving infants also have an increased incidence of disability including respiratory illness, neurodevelopmental handicaps, and injuries as a result of neonatal intensive care. Also, they often have a diminished ability to adapt socially, psychologically, and physically to an increasingly complex environment (Behrman and Shiono, 2002).

Neonatal Intensive Care Unit Environment

The environment in NICU is different both from the environment of a fetus in utero and from that of a full-term newborn at home. The NICU environment is complex, structured to constantly maintain and support the infant to achieve the desired outcome of sustaining life. The focus of care is structured, technological and procedural. It contains frequent aversive procedures, excess handling, disturbing of rest, noxious oral medications, noise, and bright light. These conditions are sources of stress and sensory stimulation, both of which may affect morbidity such as apnea, bradycardia, vasoconstriction, and decreased gastric motility (Glass, cited in Avery, Fletcher, and MacDonald, 1999). Additionally, the infant is separated from the parents and often parents are excluded from the NICU environment (Mott, James, and Sperhac, 1990). Also, the environment in the NICU is full of technological equipment that surrounds the tiny infant, the light and sound of the monitoring equipment and alarm and much more strict guidelines or rules for practice in providing care for parent such as hand-washing, clothing, and, visiting time. These create stress and lead to limitation of physical and emotional contact to the parent.

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Psychological Aspect of Preterm Infants' Mothers

Preterm birth is a developmental and accidental or unexpected crisis event of the family (Kenner and Lott, 2003). Most mothers experienced psychological tasks dealing with crisis events related to labor and delivery; anticipatory grieving and withdrawal from the relationship established during pregnancy; acknowledgment of feelings of guilt and failure; adaptation to the intensive care environment; resumption of the relationship with the infant that had been previously disrupted; and preparation to take the infant home (Kaplan and Mason, 1960; Merenstein and Gardner, 1989).

Comparing with normal fullterm birth mothers, several studies revealed that mothers who had preterm birth or low birth weight infants experienced greater stress, emotional strain, and anxiety (Choi, 1973; Gennaro, 1988; Stjernqvist, 1992; Singer, et al.,1999; Taylor, et al., 2001). Jeffcoate et al. (1979) found that mothers of preterm infants reported more anxiety, depression, sadness, failure, shame, guilt, fear, helplessness, and inadequacy than mothers of full-term infants. Trause and Kramer (1983) also found that preterm parents cried, felt helpless and guilty, and worried about losing touch with reality more than mothers with healthy full-term infants.

The most common responses the mother revealed were anxiety, helplessness and loss of control; and fear, uncertainty and worry about the outcome of their infant. Mothers also reported guilt and shame; depression and sadness; and a sense of failure and disappointment. Harper et al. (1976) reported that parents of preterm infants displayed a high level of anxiety throughout the infant's hospitalization. Blackburn and Lowen (1986) reported that both grandparents and parents experience shock at the initial appearance of the infant and feelings such as anxiety, unhappiness, guilt, failure, disappointment, grief, fear, frustration, loss of control, envy, and helplessness. Pederson et al. (1987) found that having a preterm infant was emotionally stressful for

most mothers even if the infant was not ill. Mothers reported feeling emotionally upset, disappointment, alienation, resentment, and concern about survival and long-term prognosis. Casteel (1990) found that parent of a preterm infant identified major emotions including anxiety as uneasiness or uncertainty about the infants; helplessness as an inability to control the fate of the infant or affect the care; and sadness as unhappiness particularly related to the infant crying. Also, Affleck et al. (1991) found that during hospitalization the parents reported experiencing distress, feelings of detachment, uncertainty and regret.

The sources of stress of the mothers of preterm infants were reported in many studies to central around parenting difficulties or alteration in parental role during hospitalization of their infants (Miles et al., 1989; Werceszczak et al., 1997, cited in Miles and Holditch-Davis, 1997; and Yamanantakul, 1995). Miles et al. (1989) found that changes in the parental role and the appearance and behavior of their infants are the highest sources of stress. In addition, Affonso et al. (1992, cited in Miles and Holditch-Davis, 1997) found that separation from the infant was the source of the greatest stress, followed by pregnancy and labor issues, emotional stress, communication with the nurses, infant health concerns, and infant appearance and behaviors.

Among Thai mothers whose preterm infants hospitalized in NICU, Tangtongkum (1990), Danyuthasilpe (1998), and Suwannaten (1999) found that maternal anxiety was at a moderate level. Maternal role inadequacy was the most significant stressor the mothers experienced (Yamanantakul, 1995) followed by the infant's appearance; the NICU environment; staff communication and behavior; and finance.

The Studies on Maternal Attachment Process

Descriptive studies on the process of maternal attachment toward their preterm infants during hospitalization are limited. Minde et al. (1978) found that at the first five visits of two-times-a-week visiting in the premature nursery mothers revealed behaviors of talking to others, holding, feeding, and instrumental touch depended on size and medical state of infant; and other behaviors such as noninstrumental touch, smiling, looking, looking en face, and talking to the infant depend on direct control of mother herself. Mothers visited longer and increased their caretaking behaviors over the visits and remained consistent in rank order of their caretaking behavior over time. Again in 1980, Minde et al. found that maternal interaction with the infants increased over the first five visits of two-times-a-week visiting during hospitalization in all categories of touching, smiling, vocalizing, and looking en face, but not looking, and gradually increased the length of visits. During 3 months at home, maternal behaviors changed little from visit to visit.

Bialoskurski et al. (1999) described the nature of maternal attachment to infant during hospitalization in NICU, using Leninger's ethnonursing approach. Mothers with preterm infants revealed delay in establishing attachment. The factors associated with delayed attachment included the infant's appearance and behaviors, poor maternal health, and lack of social support.

In addition, Levy-Shiff, Sharir, and Mogilner (1989) described the attachment behaviors of mothers as demonstrating more care-giving, talking, and holding during initial contact but differences in interaction decreased with time except that care-giving by mothers was still more than by father. At discharge, fathers equaled mothers in all activities. Mothers perceived their infants to be more difficult than did fathers.

Moreover, there was association between infant's behavioral states, parental feelings, and perceptions and parental behavior.

Kussano and Maehara (1998) described the maternal bonding behaviors towards preterm infants of 19 Japanese compared to 16 Brazilian mothers. The Japanese visited longer, smiled more frequently and tended to be en face, talk, and head touch more often than Brazilian mothers. Brazilian mothers exhibited more bonding behavior and higher frequency of gazing, finger touch, extremity touch, and caring, and tended to touch with palm and touch the baby's trunk more often. Japanese mothers touched after a mean of seven minutes after meeting their infants while Brazilian mothers touched in the first minute. Japanese mothers spent more time in looking without touching while Brazilian mothers spent more time to contact with their infants.

Moreover, Miller, and Holditch-Davis (1992) described the interaction behavior of parents with high-risk preterm infants. They spent more time with infants and spent time differently, parents had more contact time but nurses spent more time in routines. In addition, parents and nurses provided different types of stimulation, parents were more likely to hold, talk to, move and touch the infants affectionately while nurses more likely to engage in procedural care.

Factors / Predictors Concerning Maternal Attachment Behaviors

Several factors were found to facilitate or hinder the maternal attachment behaviors during periods of separation in NICU. From qualitative studies, Cox and Bialoskurski (2001) identified that communication problems can have an impact on formation of attachment. The factors associated with attachment included maternal factors such as lack of self-help group for peer support and provision of information; incomplete recovery from traumatic child birth and early discharge of mother from

hospital; a long, slow journey for the mother impacts on visiting the infant; lack of public transport to visit infant; strangers, rather than healthcare professionals, engaging the mother in conversations which are confusing; limited social support for the mother at home; perceived excessive stress level of the mother. Infant-related factors associated with attachment were lack of reliable up-to-date information from professionals; absence of infant making motherhood unreal and an intermittent phenomenon; prolonged stay of the infant in the stressful neonatal intensive care unit environment; reality gap between ideal-real infant; and fear to form attachment with an ill and/or premature infant.

In addition, from quantitative studies, the activity level of mothers was related to their responsibility to behavioral cues from the infants. High activity mothers took longer to feed than low activity mothers. The activity level of mothers was predictive of caretaking patterns at home (Minde et al., 1980).

The major predictors of maternal attachment were found as follows (Mercer and Ferketich, 1990). At first week postpartum, maternal competence explained 16% of variance, fetal attachment 7%, socioeconomic status 6% and antepartal worry 3%. At 8 months following birth, maternal competence explained 20% of variance, and pregnancy risk 10%. Rather, Minde et al. (1980) found that the best predictor was psychological factors (44%). However, among individual items, relationship with their own mother explained 47% of the variance, relationship with father of the infant 33%, and mother having had a previous abortion 28%.

The Studies on Maternal Attachment to the Preterm Infant in Thailand

The studies on maternal attachment to the preterm infant in the NICU in Thailand are limited. 9 out of 26 studies on parent-infant attachment since 1973-2004 were maternal attachment to the preterm infants. 8 out of 9 studies on maternal

attachment to the preterm infant were quantitative research focusing on modifying interventional program to facilitate the formation of maternal attachment (Numprasert, 1996; Lojanawongsagorn, 1998; Trisayaluk, 1999; Charoensri, 2002), describing the factors affecting maternal attachment to the preterm infant (Rodchompoo, 1992; Chaisup, 1997), and comparing maternal attachment between mothers of fullterm and preterm infants (Laohapensang, 1983; Authaseree et al., 1992). Only one qualitative study described the maternal attachment behaviors in Thai mothers (Tilokskulchai et al., 2002).

Tilokskulchai et al. (2002) described attachment behaviors in Thai mothers during first visiting their preterm infants hospitalized in a neonatal care unit. Most mothers revealed attachment behaviors such as inspection, facial expression, touching, verbal expression and eye-to-eye contact except holding during their first visit. The most frequent behavior was touching followed by inspection, verbalization, and facial expression. Only one mother had eye contact with her infant, and one mother did not verbalize to her infant. However, some mothers spent little time with their infant. The factors related to maternal attachment behaviors are maternal responsive behaviors to mother-infant attachment (Rodchompoo, 1992); characteristics of the mothers, preterm infant's birth order and duration of the infant being kept away from the mother (Chaisup, 1997).

Connecting Theory, Knowledge, and Methods

As mentioned above, maternal attachment is a developmental process that begins during pregnancy and continues over the months following birth, in which the mother forms an enduring affection for and commitment to the child. Following birth, pleasurable bidirectional interaction between mother and infant enhances the process. In the case of preterm birth, the mothers must deal with crisis events, uncertainty of

the preterm infant's health and the complex environment of the NICU that causes most mothers to experience stress. Also, hospitalization of preterm infants in NICU leads to limitation of physical and emotional contact with the mother. So, the on-going process of maternal attachment may be delayed or become problematic. What is not clear is how this process of maternal attachment occurs under these difficult circumstances, what it looks like, and is this different from maternal attachment as it has been previously described? Additionally, from the existing knowledge, no research has been conducted to describe the process of maternal attachment to the preterm infants in NICU in Thailand. Therefore, the grounded theory method will be used for this study. The results of the study will provide a theoretical model that will explain the developmental process of maternal preterm infant attachment in NICU.

Theoretical Framework

Grounded theory is used as the framework of this study. Grounded theory was originally developed by two sociologists, Barney Glaser and Anselm Strauss. It is a methodology used for developing theories or conceptual frameworks that are grounded in data that are systematically gathered and analyzed through the research process (Strauss and Corbin, 1998). Grounded theory focuses on the richness of human experience and seeks to understand a situation from the subject's own frame of reference. Since it is drawn from data, grounded theory is likely to offer insight into the human interaction processes, enhance conceptual understanding, and provide a meaningful guide to action (Strauss and Corbin, 1998).

Grounded theory is based on symbolic interaction theory that focuses on the meaning of events or realities and the symbols used to convey this meaning (Chenitz and Swanson, 1986). Symbolic interaction theory explores how people define reality and how their beliefs are related to their actions. Reality is created by people through

attaching meaning to situations. Meaning is expressed in terms of symbols such as words, religious objects, and clothing. These symbolic meanings are the basis for actions and interactions (Burns and Grove, 2001). Blumer (1969, cited in Chenitz and Swanson, 1986) elaborated that symbolic interactionism rests on three basic premises. First, human beings act toward physical objects, ideas, and other people in their environment and on the meanings that these things have for them. Second, the meanings of such things are derived from social interactions that an individual has with other people. Third, these meanings are handled and modified by each individual through an interpretative process. People will develop the meanings and concepts and thus communicate. He also stated that symbolic interactionism requires that the researchers view the situation as perceived by the actor, observe what the actor takes into consideration and how he or she interprets it.

Grounded theory is an appropriate framework for this study because it affords the opportunity to gain an understanding of the participants' experiences in the context of their activities, and to understand their experiences by identifying and analyzing the verbal and nonverbal behaviors that provide clues about their perceptions. In this study, the maternal attachment behaviors to their preterm infants will be collected and interpreted from the mother's perception and symbols related to their responses to their infants within their social context.

CHAPTER III

METHODOLOGY

The purpose of this chapter is to describe the foundation for understanding qualitative research by addressing the use of grounded theory in this study and the methods used in data collection and analysis, as well as to describe the establishing trustworthiness of the findings and ethical consideration for human subjects.

Design

The objective of this study was to discover the substantive theory of the developmental process by which maternal attachment developed for mothers with preterm infants during hospitalization in the NICU. Understanding the basic social process of maternal attachment development to the preterm infant during hospitalization in NICU, grounded theory was used. The perception and experience of mothers about maternal attachment to their preterm infants in NICU were explored. The maternal attachment behaviors to their preterm infants were collected and interpreted from the mothers' perception and symbols related to their responses to the infants within their social context. Using constant comparative analysis, the substantive theory of maternal attachment that explained the studied phenomena was developed.

Grounded theory is a comparative research methodology used for developing a theory that is systematically gathered and analyzed through the research process (Strauss and Corbin, 1998). The focus of the analysis process is on organizing many ideas that have emerged from analysis of the data. It is a style of doing qualitative analysis that includes a number of distinct features such as theoretical sampling,

constant comparisons and the use of a coding paradigm to ensure conceptual development and density (Strauss, 1987).

Constant comparative analysis: is an important methodological technique in grounded theory research in which every piece of data is compared with every other piece (Burns and Grove, 2001). It involves the generation and plausible suggestion of many categories, properties, and hypotheses about general problems. Also, it involves the use of explicit coding and analysis procedures (Glaser and Strauss, 1967). There are three levels of coding procedures including open, axial, and selective coding.

Open coding: the process aims to identify the concepts and discover their properties and dimensions in data; data are broken down into discrete parts, closely examined, and compared for similarities and differences. Events, happenings, objects, and actions/interactions that are found to be conceptually similar in nature or related in meaning are grouped under more abstract concepts termed "categories". Closely examining data for both differences and similarities allows for fine discrimination and differentiation among categories (Strauss and Corbin, 1998). There are several different ways of doing open coding. Doing line-by-line coding enables the researcher to generate categories quickly and to develop those categories through further theoretical sampling along dimensions of a category's general properties.

Axial coding: the process aims to reassemble data that were fractured during open coding; categories are related to their subcategories along the line of their properties and dimensions to form more precise and complete explanations about the phenomena (Strauss and Corbin, 1998). The researchers begin looking at how categories crosscut and link. A paradigm model was used to link subcategories to a category in a set of relationships denoting causal conditions, phenomena, context,

intervening conditions; action/interaction strategies; and consequences (Strauss and Corbin, 1998).

Selective coding: the process of integrating and refining the theory. In integration, categories are organized around a central/core category that represents the main theme of the research. In other words, the categories are systematically linked with a central/core category to form an explanatory statement of relationships (Strauss and Corbin, 1998). The techniques used to facilitate the integration process include telling or writing the storyline, using diagrams, sorting and reviewing memos, and using computer programs. Once the theoretical scheme is outlined the researcher refines the theory, trimming off excess and filling in poorly developed categories. Poorly developed categories are saturated through further theoretical sampling. Some ideas that do not fit the theory or are extraneous concepts should be dropped. Finally, the theory is validated by comparing it to raw data or by presenting it to participants for their reactions (Strauss and Corbin, 1998).

Coding for process: Process is a series of evolving sequences of action/interaction that occur over time and space. It may be orderly, interrupted, sequential, or coordinated, or, in some cases, a complete mess (Strauss and Corbin, 1998). Bringing process into the analysis is an essential part of approach to theory building (Glaser, 1978; Strauss and Corbin, 1998). The goal of analyzing for process is to account for change in the social phenomenon being studied over time. Process analysis involves ordering and linking the loosely formulated categories into a logical whole and provides direction and order (Fagerhaugh, 1986). Process has a time dimension, stages, and turning points. A given process may have subprocesses and may be linked with other processes. The extent to which all these elements of a

process can be adequately integrated, the greater is its generalizability and explanatory power (Fagerhaugh, 1986).

Coding for process occurs simultaneously with coding for properties and dimensions and relationships among concepts. It is part of axial coding and the building of categories. The researcher is purposefully looking at action/interaction and noting movement, sequence, and change as well as how it evolves in response to changes in context or conditions (Strauss and Corbin, 1998).

Theoretical sampling: A process of data collection whereby the researcher jointly collects, codes, and analyzes data and decides what data to collect next and where to find them in order to maximize opportunities to compare events, incidents, or happenings to determine how a category varies in terms of its properties and dimensions (Glaser, 1978; Strauss, 1987; Strauss and Corbin, 1998). Theoretical sampling is based on the need to collect more data to examine categories and their relationships and to assure that representativeness in the category exists (Chenitz and Swanson, 1986).

Memo writing: The researcher's written records of the analytical process. They show the theory developing step by step, allow the researcher to keep a record of and to order the results of the analysis, and also enable the researcher to know now where he/she has been and needs to go in the future of research (Chenitz and Swanson, 1986). Memos are the theorizing write-up of ideas about codes and their relationships as they strike the researcher while coding. Memos lead naturally to abstraction. It is the core stage in the process of generating theory (Glaser, 1978).

Memoing is a constant process that begins when first coding data and continues through reading memos or literature, sorting and writing papers or monograph to the very end. Memo writing continually captures the frontier of the

researcher's thinking as he goes through either, his data, codes, sorts or writes (Glaser, 1978). Memos can take several forms, including code notes, theoretical notes, operational notes, and subvarieties of these. A single memo may contain elements of any of these different types (Strauss and Corbin, 1998).

Memo writing and diagramming are important elements of analysis. They should begin with initial analysis and continue throughout the research process. They are important documents because they contain process, thoughts, feelings, and directions of the research and researcher. If they are sparsely done, the final product theory might lack conceptual density and integration, and at the end, it is impossible for the researcher to reconstruct the details of the research without memos (Strauss and Corbin, 1998).

Data Collection and Analysis

Researcher Credentials

In qualitative research, the researcher serves as the primary data gathering instrument and the analysis of data occurs primarily within the reasoning processes of the researcher. A high level of intellectual discipline is required. Otherwise the data gathering and analysis may be shallow and sloppily done. Therefore, documentation of credentials is valuable in judging the worth of the study (Burns, 1988).

In this study, the researcher is a Thai woman, obtained bachelor degree in nursing and master degree in medical social science. Currently, the researcher is an assistant professor of the Pediatric Nursing Department, Faculty of Nursing, in a university in Thailand. The researcher had gained knowledge and experience in neonatal care for more than twenty five years by reading, teaching, practising, and writing 2 books on neonatal nursing care. These provide the researcher with advantages and give a background which sensitizes the researcher to pick up on

relevant phenomena; to interpret what is seen; and serve as a basis for making case comparisons, finding variations, and sampling on theoretical grounds.

Training to do grounded theory influences the type of theory that eventually evolves from data. The theory's density, complexity, scope, and the degree to which the concepts are integrated vary with the level of skill and training of the researcher. In general, the more extensive the training, the more integrated and dense the theory will be (Glaser and Strauss, 1967 cited in Chenitz and Swanson, 1986). Fortunately, the researcher had opportunity to closely attend a grounded theory class and participate in a workshop on grounded theory provided by Faculty of Nursing, Chulalongkorn University. From these, the researcher gained enhanced knowledge and skill in procedures and techniques of grounded theory from a well known expert. Additionally, the researcher took one course in advanced quantitative and qualitative research design and attended a qualitative research course during study in this doctoral program, as well as participated in conferences on qualitative research and grounded theory during working at the workplace. More importantly, the researcher was experienced as a co-researcher in conducting qualitative research using focus group technique, and as a researcher in conducting research using triangulation technique in collecting data. Recently, the researcher had been intensively trained in grounded theory for a semester with an expert at the School of Nursing, University at Buffalo, USA. From these experiences the researcher could not only gain more knowledge and skill in data gathering and analysis but also increase self-confidence in ability to interpret what was seen in the data and in the end to believe in the findings.

Sample

According to the study aims to explore the development of maternal attachment during the hospitalization of their preterm infants in the NICU from mothers' own perspectives, purposively sampled mothers who had experienced their preterm infant hospitalization in an NICU were recruited. The goal of purposive

sampling technique or theoretical sampling in grounded theory is to focus on the representativeness of the emerging themes and concepts, not the representativeness of sample or the similarities that can be developed into generalizations (Chenitz and Swanson, 1986; Strauss and Corbin, 1998). The inclusion criteria for mothers were being Thai, living together with their partners/husbands, their preterm infants being hospitalized in the hospital NICU due to medical health problems since birth. The exclusion criteria for mother was being withdraw from her partners/husbands during the study. The inclusion criteria for preterm infants included gestational age less than 37 weeks by Ballard Scores Assessment, birth weight less than 1,500 grams, admitted in NICU, no congenital anomaly and requiring mechanical ventilation during hospitalization. The exclusion criteria for infants were being abandoned by their parents or dying during the study. Mother and preterm infant dyads who met these criteria and willing to participate in this study were recruited.

Mothers and their preterm babies who met the criteria were interviewed and some dyads were observed for their interaction during visiting in the NICU. Data were collected and analyzed until no additional data were found while the researcher was developing properties of the categories. Fifteen mothers of preterm infants were needed to saturate codes and fully develop the theoretical paradigm

Study Setting

This study was conducted on the NICU of two public hospitals located at HatYai, Songkhla, in the southern part of Thailand. These hospital NICUs admit the critical ill newborns who are born in these hospitals or are referred from other hospitals either in Songkhla province or in other provinces. These two hospitals are around 4 kilometers from each other. One hospital is a university hospital while another hospital is the one central hospital in the south. Both of them are similar in their functions including heath service and medical education even if a little different in organization. The structure and functioning of the NICUs are also similar.

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Permission for collecting data was requested by the directors of the hospitals, the directors of the nursing services and the head nurses of the NICU of both hospitals. The researcher has been known as the instructor of the Pediatric Nursing Department, Faculty of Nursing who had taught and supervised nursing students in these areas for enhancing their basic knowledge and skill in neonatal caring.

Procedures

In recruiting participants, the researcher initially met the head nurse of the NICUs to explain the goal and procedures of the study and to receive some information and suggestions about the preterm infants being hospitalized in the NICU and their mothers. All mothers who met the criteria were approached by the head nurse and asked if they agreed to participate in this study. If so, head nurse introduced the researcher to the mothers. The researcher then clearly explained the goal and procedures involved in this study. After that, the researcher re-confirmed that they were willing to participate in the study. Mothers who agreed to participate were given a clear explanation of the goal and procedures again before signing the consent form to enroll in the study. Then, to ensure the confidentiality and privacy, the participants were asked when they could be available for the researcher to interview. The time for interviewing depended on the participants' decision. The appointment and meeting sites were arranged in advance. The participants in this study were privately interviewed in the consulting room in the NICU of one hospital or in the conference room of the obstetric department of the other hospital depending upon where the participants' preterm babies were hospitalized.

Participants were formally interviewed to ascertain their perceptions about maternal attachment toward their preterm infants during hospitalization in NICU. The interview lasted from 60 minutes to 90 minutes. During formal interviewing, the researcher also observed the participants' verbal and non-verbal behaviors, took field notes, and audio taped.

At the end of interview, when the relationship was well established, demographic information was obtained by asking to elicit age, marital status, education, occupation, the relationship in the family etc as a conclusion to the interview.

Data Collection Methods

To understand the experience of the mothers in developing maternal attachment during the hospitalization of their preterm infant in NICU, interview and observation methods were used. In this study, the interview method was the primary source of data whereas observation was supplementary and served to provide additional information to saturate codes and validate codes.

1. Interview: included the feelings and perception of mothers' interactions toward their preterm infants. Verbal and non-verbal behaviors given by the participants were noted. Field note taking and audio-tape recording were used during the interview in order to increase the credibility of the finding.

At the beginning of the interview, the researcher introduced the participant by explaining the purpose of the study, the confidential nature of research data, and told the participant to answer all questions freely and to ask questions as desired. Also, the researcher assured the participant during the interview that there was no right or wrong answers.

The interview consisted of semi-structured open-end questions aimed at eliciting information related to feelings, attitude, and practices regarding the attachment of the mothers to their infants during hospitalization in NICU. The first formal, open-ended interviews were conducted when the participant was comfortable enough to talk and participate with the researcher. The interview was audio taped with the participant's permission. In order to comply with the ethics, if the participant was experiencing discomfort or was overwhelmed at that time, the participant was not be interviewed. The interview would be postponed and the participant was supported

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until the participant felt comfortable to talk with the researcher. The interview lasted from 60 to 90 minutes per interview.

The opening question introduced the major theme or several themes of the interview. For example, “Tell me how it’s been like for your being with your baby” "What comes to your mind when you think of your preterm baby?" The later questions were more specific. For example "Tell me about your feelings/emotion when first interact with your baby" "Is there anything else that you want to tell me about your feelings towards your baby?" Additionally, the researcher used "Probe" to encourage the participant to tell more of her experience or to elicit further discussion if she provided only word responses. For example, if the participant responded to "Tell me about your feelings towards your preterm baby" with "I feel love", the researcher asked "Tell me more about that" "give me detail".

The second formal interview took place for member checking with the participants who were available in this interview in the late stage of data collection when a tentative theory had been developed. The participant was asked if she agreed or disagreed with the statements or descriptions representing the overall perceptions and experiences of mothers in developing maternal attachment toward their preterm infants during hospitalization in NICU. Data from these interviews were recorded in the interview notes immediately after the interview had ended. After member checking, hypotheses and relationships among categories were validated in subsequent interviews with more participants. Data collection was continued until no new information from the data analysis emerged. There were 5 participants (out of 15 participants) that were available for interview for member checking because one mother moved to a foreign country, 5 lost their babies during a long period of hospitalization in NICU or post discharge, and the remainders could not be contacted by telephoning and mailing to the addresses they provided during their hospitalization.

During the interview, non-verbal cues given by the participants were also noted by the researcher. Changes and inconsistencies were noted in relationship to the content and situational context of the interview. In the case that an inconsistency occurred, the researcher probed until the matter was clarified for the objectives of the interview.

2. Observation for additional data. The interaction of 4 mother-infant dyads was observed during mother's visitation in the NICU for 15-25 minutes by the researcher and video-tape recorded with the participant's permission. After observation, the researcher interviewed the participant in the context of observed interaction from the video-tape in order to learn more about the meaning of the action/interaction they presented. The interview data were audio-tape recorded.

3. Hospital chart review: Information related to demographic data of the participants; antenatal, labor, and perinatal history; medical health problems of the preterm infants and procedures or treatment the infants received during hospitalized in NICU; and the length of stay for hospitalization were gathered from the participants and the infants' hospital record.

Data Analysis

Textual data were analyzed using constant comparative analysis as described by Strauss and Corbin (1998). Data collection and analysis proceeded simultaneously using open coding, axial or and selective coding techniques. Data were initially inspected line by line to enable close examination, interpretation and categorization of information. Further analysis involved, open coding, identifying common categories in terms of their properties and dimensions. These categories were then coded axially comparing contexts, antecedent events and outcomes of these events. This resulted in the generation of subcategories within each category. Using selective coding the core category which was central to the theory was identified and the relationship between major categories was determined. Theoretical sampling and analysis continued until

saturation of categories was attained and no new categories emerged and a sense of closure was achieved. This constant comparative analysis and refinement of categories was continued until the substantive theory was developed.

In this study, at the beginning, the initial three interviews were analyzed. After the interview, data were immediately transcribed and recorded in the format of interview notes. Every piece of data from the interviews was analyzed line-by-line and coded with open coding. Memos were developed to record the researcher's ideas about the shifting connections between the data, analytical schemes, and hunches. Memos included information about the definition of the gerund code, examples of the behaviors described in the interviews, conditions under which the behaviors happened and did not happen, and relationships among codes. The beginning codes as basic codes and the analytic questions that emerged from the initial three interviews guided the selection of the next comparative groups, and aided in the observation and in the refinement of questions on the interview guide. From the analysis, the major themes were developed and the accuracy of the findings was checked with advisors and the qualitative research professor.

From this analysis, new probes were added to the interviews. More data from participants and conditions under which different behaviors occurred were examined in order to increase the diversity of the sample. More concepts were created. The researcher simultaneously compared each code to other concepts for similarities and differences in order to group categories. Subsequent sample selections were aimed at further saturation of the codes identified in the first three interviews and others that had been identified. Thus, the researcher began the process of theoretical sampling to saturate codes. The specific properties and dimensions were then developed to differentiate a category from other categories.

Each category was linked to other subcategories, by axial coding, in order to provide greater conceptual integration, using a paradigm model in a set of

relationships denoting causal conditions, process, and consequences. Eventually, categories were systematically linked with the central/core category, by selective coding, in order to integrate and refine the theory. For this, a paradigm was developed showing the integrated process and the major tasks the mothers were trying to achieve. While comparing the categories and examining their linkage, the researcher recorded memos and drew diagrams to represent the linkage to facilitate the integration process. Memoing and diagramming were continued throughout the process of constant comparative analysis. A core/central category was selected and used to guide additional data collection. More data were collected to elaborate the properties and relationships among categories and to evaluate those relationships and hypotheses.

Probes in subsequent interviews served to further saturate codes with more participants. Data that were not central to the major category were eliminated or set aside for further study (code delimitation). Member checking was conducted when a tentative theory on paradigm was developed in subsequent interview with 5 participants. Participants were asked if they agreed or disagreed with the identified code, major task, and paradigm that emerged. During data analysis, the researcher often checked and clarified the accuracy of data analysis with advisors and the qualitative research professor until the saturation of data occurred.

Data were analyzed in English language simultaneously with the foreign advisor and the professor who were experts in qualitative research as well as with the Thai advisors. The final findings were checked and edited by a native English speaker. In case of where there were no English words to convey the meaning in the translation to English, the Thai word was be used and a footnote explanation provided.

Establishing Trustworthiness of the Findings

Trustworthiness is an establishing validity and reliability of qualitative research. Qualitative research is trustworthy when it accurately represents the experience of the study participants (Streubert and Carpenter, 1995). The guidelines for assuring trustworthiness include credibility, dependability, confirmability, and transferability (Lincoln and Guba, 1985).

Peer debriefing is one of the several methods that commonly used for establishing the credibility of the findings. The debriefers used in this study were qualitative experts. One of them was a qualitative expert who was an associate professor in School of Nursing, University at Buffalo, The State University of New York, USA. She has taught in advanced qualitative research, emphasized on grounded theory method in doctoral program. Many well known research studies she conducted using grounded theory approach were published. In this study, she did not only teach the researcher in the qualitative research course, but also work as the researcher's consultant nearly throughout the process of data collection and analysis. Right now, she also acts as the Associate Dean for Research Affairs and the Director of Research Center in this school. Another expert was an associate professor in the School of Nursing, University at Buffalo, The State University of New York as well. She taught in the doctoral program. Her several qualitative research studies on mothers with perinatal loss were published. In this study, she worked as the researcher's advisor for a year during scholar studying at the School of Nursing, University at Buffalo. Right now she moved to work in The University of Rochester, USA. Moreover, a professor who was an expert both in quantitative and qualitative research method, taught in Philosophy program in Nursing Science, Faculty of Nursing, Chulalongkorn University, Thailand was also a debriefer in this study. Her qualitative research studies had been published. She experienced teaching and being a dissertation committee in doctoral program in Nursing Science in many universities. In this study,

she worked as the researcher's advisor throughout the research study. The qualitative experts helped the researcher to examine the qualitative process of the inquiry and the products from the field records. They also helped the researcher to check and clarify the saturation of data and analysis, the process of grounded theory and the accuracy of the findings.

Member checking is another way of methods used to establish credibility of the findings. It is the way to confirm the findings or back to the participant or others with similar experiences or both to see whether the findings are true to their experiences. Reviewing and feedback from individuals had been commonly used to validate the data and the findings. In this study, observation the four interactions between mother and her baby dyads during visiting in the NICU and interviewing mothers after observation were used to establish the validity of the data. In addition, in the late stage of data collection when a tentative theory had been developed, five participants were asked for agreement or disagreement with the identified codes, categories, and the statements or descriptions representing the overall perceptions and experiences of the participants. This allowed the participants to correct the errors of fact, add any views that they did not mention in the early study, and challenge any perceived wrong interpretation.

Triangulation was also suggested to assure the credibility of data. By triangulation, multiple perspectives and types of data were used to check and verify data. In this study, data were collected by mean of interviewing mothers and observing the mother-infant interaction during visiting for verifying the credibility of data findings.

Rich descriptive data was used to assure transferability/applicability of the findings. Providing sufficient descriptive data in the research report enabled the reader to come to the conclusion about the quality of the research and the theoretical model emerged from this study. The descriptive data reported included the subject

recruitment and demographic data, the study setting, the processes and methods of data collection and analysis, and explanatory model.

The other methods the researcher used to establish trustworthiness in this study included the prolonged engagement by providing sufficient time to learn about the situation and the participants to be studies, data collection, and analysis for assuring the credibility; the using of audio tape recording during the interview, videotape recording during observation, writing field note, verbatim transcribing, constructing code card and memos for assuring the confirmability; as well as the researcher and advisors credential and keeping good records, coding, memos, and software for assuring the auditability/dependability of the data findings.

Ethical Consideration for Human Subjects

The research proposal was submitted for review and approval from the Human Subject Committee at Chulalongkorn University and at the studied hospitals. After approval, the proposal was sent to the directors of the studied hospitals in order to ask for permission to collect data. Once the mother agreed to participate in this study, each participant was clearly informed about the purpose, procedures, risks and benefits, and the right as a subject. Then, the consent form was obtained and signed before the participant was enrolled in the study. A copy of the consent form, participant was also received.

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Confidential assurance was given to all participants that the name that was written on the consent forms was stored apart from the anonymous transcripts and was kept for five years. A hospital number was used to identify the participant and her baby in the Demographic Data Collection Form. A number was used to identify each participant and the researcher was the only person who knew the participant's actual identity. All documents including transcripts, participant's names and address were to be kept in the researcher's personal files for five years in order to keep track of each participant's code number. All information was available only to the researcher. The

results of the study were reported as a group and did not include any personal information.

All audio-tape recording were transcribed by the researcher and the transcriber into written form. The transcriber was required to sign a confidentiality statement. The transcription was kept in the researcher's locked file and was erased when the study was completed. During data analysis, data were sent to the advisors without the participants' names, using a number instead.

All participants were informed that participation was voluntary and they could withdraw from the study at any time without loss of benefits from the health care providers. Participants also could ask questions about their rights as the research subjects from the researcher or write a letter to the Human Subject Committee during participation in the study.

CHAPTER IV

FINDINGS

The purpose of this chapter is to present the research findings. This chapter begins with the description of the characteristics of the participants and the settings. Then, the theoretical findings, focusing on a model of maternal attachment of Thai mothers to their preterm infants entitled "Struggling to Get Connected: The Process of Maternal Attachment to the Preterm Infant in the NICU" and the relationships including the mothers' tasks to get connected with their babies, axial codes, categories, subcategories, concepts derived from data and the paradigm and hypotheses emerged by grounded theory analysis in this study are presented. Statements of the participants from interviews and observation are also provided.

Characteristics of the Participants

The study initially began with a purposeful sample of three mothers of preterm babies. Subsequent theoretical sampling guided recruitment. Theoretical sampling was conducted to saturate codes. A total of 15 mothers was involved in this study.

Mother ages ranged from 16 to 41 years (mean= 25.4 years). Six out of 15 participants were 16 to 19 years, four were 22 to 27 years, the other four were 30 to 37 years and one was 41 years old. The religion of 12 participants was Buddhism and the rest were Islam. Eight out of 15 mothers graduated at mathayomsuksa level (grade 8 to 12), three graduated at diploma level, two graduated at bachelor level and the other two graduated at prathomsuksa level (grade 6). Six out of 15 participants were housewives, also the other 6 were employees, and the rest were government officers, traders, and para-rubber gardeners. Eight out of 15 participants reported a family income of between 5,000-10,000 baht/month, four had less than 5,000 baht/month,

two had above 15,000 baht/month, and only one had 10,001-15,000 baht/month. Most participants, 14 out of 15, lived in Songkhla province and the other came from another province in the southern part of Thailand.

Eight of fifteen mothers who had preterm birth did not know what the causes of their prematurity were. Three of them developed severe preeclampsia, two had accidentally fallen down during working at home and the other two had health problems (Diabetes mellitus, Thalassemia α trait) during their pregnancies.

Their preterm babies were born at 26-33 weeks of gestational age by Ballard score assessment. Five of them were 29 weeks, six were 30-33 weeks and four were 26-28 weeks of gestational age. Birth weight was mostly between 1,000-1,200 grams (7 out of 15 preterm infants), five were 1,201-1,400 gram, and three were less than 1,000 grams. Five babies were around one week (2-6 days) of chronological age, three were 3 weeks (16-19 days) and other three were 4 weeks (26-27 days), two were 2 weeks (12-14 days) while the other two were 5 weeks (30-33 days). The baby's birth order in the family was equally at the first, the second and the third.

Each baby's diagnosis was preterm baby with respiratory distress syndrome. Seven of them were also diagnosed with birth asphyxia while the others were also diagnosed with hypothermia, maternal Thalassemia trait, maternal diabetes mellitus, or premature rupture of the membrane. Ten of them were being hospitalized in the NICU of the Center Hospital while the others were in the University Hospital. All babies were being hospitalized in the NICU of the hospitals and were experiencing or had experienced respiratory support with mechanical ventilator (during data collection). Ten of them were born and hospitalized at the study hospitals and five were born at other hospitals and then were referred to the study hospital NICU for proper management while the mothers were not. However, there was one baby that

was referred along with his mother to the study hospital after birth, while there were two babies that were referred along with their mothers to the study hospital before birth.

Characteristics of the Settings

The settings in this study were the NICU of the University Hospital and the Center hospital. Both of them are similar in their design. The units comprise the sections of intensive care rooms that are divided into infected and non-infected areas, the convalescent room, medication room, supply room, breast feeding room and nurse's station. There is no treatment room in either NICU hospital. Nurse gives treatment directly to the baby in baby incubator/crib or on a radiant warmer table. No rooming-in in the NICU is allowed in either hospital. Parents can interact, take care or stay closely with their babies during daytime visiting. They cannot stay overnight with their babies.

The non-infected intensive care area comprises 8 to 10 incubators of critical non-infected babies while the infected intensive care area comprises 3-5 incubators of critical infected babies. All babies were born preterm, term or post-term and needed intensive care after birth. They were probably born in these hospitals or in the other hospital and then were referred to these NICU hospitals for proper management. The environment of these NICU is structured and full of high technological equipment, light and sound of the monitoring equipment and alarm such as mechanical ventilator, pulse-oximeter, apnea monitor, phototherapy, syringe pump or infusion pump and so forth and much more strict guidelines or rules for practice for parents such as hand-washing, clothing, and visiting time.

The majority of the babies hospitalized in NICU are kept in incubators for maintaining their normal temperature and surrounded with the lines of intravenous

infusion or the tubing for feeding. They usually had experienced or are experiencing respiratory problems that needed oxygen therapy, probably administered by mechanical ventilator, oxygen hood or oxygen flown in the incubator. Importantly, they usually needed close monitoring for detecting or protecting against any complication that can easily occur in very fragile babies. Additionally, some babies are lying under phototherapy for the treatment of hyperbilirubinemia. The focus of care they receive is based on the principle of less handling, less disturbance of rest, and avoidance of aversive procedures, noxious medication, noise, or bright light.

Most of the critical babies needed intensive care in NICU for a period of time for maintaining and support to achieve the desired outcome of sustaining their lives. The length of stay in the NICU of the babies ranged between 2 to 105 days post birth (mean = 37 days) depending upon gestational age, birth weight or the severity of their illness and complication and quality of care they received.

After babies could sustain their lives and no longer need intensive care, they are moved to the convalescent room for growth and developmental care until they can become normal and can be discharged from the hospital. The length of stay of babies in this room ranged between 17 to 53 days (mean = 31 days). During their stay in the convalescent room, mothers mainly took their part in taking care of their babies instead of only looking at nurses providing care to their babies as in the intensive care room because of the lacks of skill of mothers in taking care of their fragile babies. In this period, mothers can practise their skill in taking care of their babies until they are confident to take care of them at home. Generally, babies could be discharged after their weight reached to 1,800 grams, when most of them could survive outside an incubator or in a normal environment.

Nursing care providing in NICU is based on the philosophy of family centered care that believes that the family is an active member of the care-giving team since admission and a major nursing goal in NICU is to optimize parenting skill and discharge an intact family. So, nurses in NICU were skilled not only in the physical care of the high-risk newborn but also in the psychological aspects of working with frightened grieving families. Their position is to promote positive interactions and to identify and help resolve early problems in the developing parent-infant relationship and to enable the family to nurture and support their babies' development by participation in caretaking and decision making throughout their hospitalization.

Promoting maternal attachment to their preterm infants during hospitalization in the NICU, as the way of promoting mother-infant relationship, is one important issue of nurses' responsibilities in facilitating parenting skills of the mothers. Generally, nurses routinely facilitate mothers to interact early with their babies by seeing, talking, touching and taking care of their babies during their stay in the NICU. They also facilitate mothers frequently visiting their babies and bringing their expressed milk to the babies during postpartum period and after discharge from the hospital. Additionally, nurses usually explained their babies' health condition and the investigation or medical treatment they received to the mothers at each visit or even by telephoning in the case that visiting is not available. In case of mother failure to visit, nurses accompanied with social workers from the hospital social-work service system will contact the mothers or their families to solve any problem that prevents them from consistently visiting their babies.

In both NICU hospitals, parents were allowed to visit their babies thoroughly during daytime. Many rules or guidelines were necessary for practice of parents in visiting their babies. In the Center Hospital, only parents could visit their babies in

NICU. They had to wear gown and shoes provided in the NICU, then wash or scrub their hands before going to see and touch their babies. In the University Hospital, mothers and their relatives could visit babies in the NICU as usual as in other open wards, but the numbers of visitors allowed at any one time was limited to two. No gown and shoes changing was required, only washing or scrubbing their hands was needed before seeing and touching their babies. In addition, there was no limit on the length of visiting time available for mothers. They could spend as much time with their babies as they wanted by sitting near their babies. However, there was no rooming-in or room for mothers to stay overnight with their babies.

Visiting baby in the NICU, initially mothers not only were oriented about NICU environment, rules and guidelines for practice but also were encouraged to interact with their babies early. Additionally, mothers were encouraged to participate in caretaking, particularly after their babies had improved. Lastly, before babies were discharged from the hospital, mothers could practice their skill in caretaking until they were confident to take care of their babies at home. However, during visiting, mothers could communicate with health care providers to ask for more information about their baby health condition, procedural or medical treatment they received, and to enhance their knowledge and skill in taking-care for babies. In case of mothers who could not frequently visit their babies, they could contact by telephoning to the health care providers.

Theoretical Model and the Relationships

The process of maternal attachment to the preterm infants during hospitalization in the NICU described by mothers in this study is “Struggling to Get Connected”. Struggling to get connected is a process whereby a mother progresses in her physical and psychological connection with her baby with difficulty. In the case of

a mother whose preterm baby was hospitalized in the NICU, she is struggling to get connected with her baby while adjusting emotionally to the crisis situation of her preterm birth.

In this study, the major task the mothers addressed involved their attachment to their preterm infants during hospitalization in the NICU was “Struggling to get connected”. Their attachment to the babies was affected, after it was gradually developed during pregnancy, by their preterm birth including the hospitalization in NICU of their babies. Mothers related the story of the journey that took them away from being normally attached to their babies during pregnancy because of their preterm birth to becoming connected to their babies during hospitalization in the NICU. Thus, the 10 major categories were emerged: 1) Being close to the fetus, 2) withdrawal contacting, 3) seeking closeness, 4) mutual mother-baby interacting, 5) committing to mothering, 6) having concern for the baby, 7) adjusting emotionally to the crisis, 8) supporting connections, 9) life experiences and 10) health care system facilitating. Supporting by the significant person in the family, the health care system facilitating and the health improvement of the baby facilitated mother to become continuously attach to their babies. A large part of this story was about the experiences of attachment and its contribution to not being a normal situation. In contrast, it was a crisis situation that their babies were at high risk with the uncertainty of their serious illness and the mothers were physically and psychologically separated from their babies for a long period during hospitalization in the NICU. The major hypothesis was that creating a health care system environment and facilitating a social support system that allowed mothers to continuously develop their attachment to the babies might be expected to greatly contribute to preventing the problem of detachment of mothers from their preterm babies.

The substantive theory developed in this study concerned the attachment to the babies that the mothers attempted to continuously develop after having been affected by the preterm birth and the subsequent hospitalization of their baby in the NICU. This study explained the process of Thai mothers' experiences of having a preterm baby hospitalized in the NICU, dealing with affected attachment and the attempt to get normally connected to the babies. It was noted that mothers used the term "attachment" and "love" interchangeable to describe their attachment to the babies. The study showed the process the mothers used to strugglingly develop their interaction with their babies and interact with others after their preterm birth in order to get connected to their babies. For mothers, struggling to get connected with the babies meant becoming physically and psychologically attached to the babies as normally as possible but with difficulty.

Struggling to get connected was the basic social process for mothers who experienced their preterm babies being hospitalized in the NICU after birth. In this study, maternal attachment emerged from the data including prenatal attachment and postnatal attachment. Prenatal attachment was initially developed after mothers accepted their pregnancies then gradually increased until it was affected by the preterm birth. The postnatal attachment was subsequently developed during mothers' adjusting emotionally to the crisis of the preterm baby's hospitalization in the NICU after birth. Thus, the experiences of preterm birth and the preterm baby's hospitalization affected maternal attachment and the mothers were trying or struggling to get the connection to their babies to be as normal as possible.

The theoretical model of maternal attachment to the preterm baby during hospitalization in the NICU and the conceptual process were developed in order to assist the explanation and link the relationship among categories. This theoretical

model entitled "Struggling to get connected: the process of maternal attachment to the preterm infant in the NICU" including the conceptual process and all categories is illustrated in Figure 1.

The process of struggling to get connected was divided into four phases: 1) establishing the connections, 2) disrupting of the connections, 3) resuming to get connected, and 4) becoming connected.

Establishing the Connections. This first phase of the process of struggling to get connected began after the mother accepted her pregnancy and lasted until she had preterm birth. In this phase, the mother was close to the baby in her womb. After the mother knew that she was pregnant by having any signs of pregnancy and being confirmed by the doctor, the mother would decide to continue her pregnancy or not depended upon support from significant others. Accepting the pregnancy was the beginning of the connection between mother and baby. After accepting the pregnancy, most mothers gave their babies the value as "baby is my heart" by caring for self for enhancing the baby's growth, development and safety and by talking and touching through the abdominal skin for encouraging and communicating their love to their baby. During this period, maternal attachment to the baby was gradually developed after its beginning.

Disrupting of the Connections. The second phase of the process of struggling to get connected began after mother had preterm birth until she first visited her baby in the NICU. This phase included the time the preterm babies were born and were urgently moved to the NICU for intensive care after they were initially cared for for a moment in the labor room. During birth, most mothers could only see their babies while they were being cared for without touching them. There were a few mothers who could touch their baby when he was placed on her chest immediately at birth.

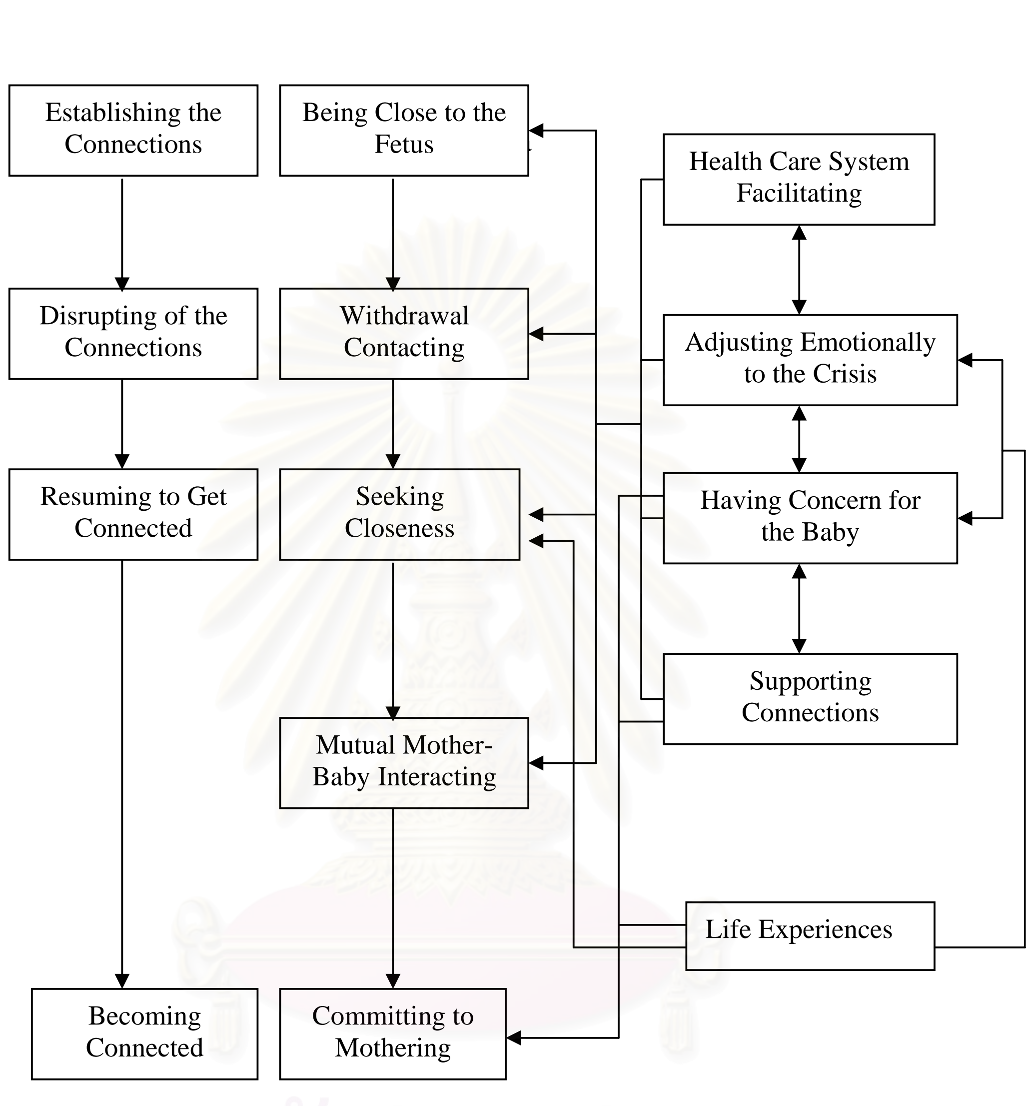

Figure1: Struggling to get connected: The process of maternal attachment to the preterm infant in the NICU

After that, most mothers would not see their babies again until they first visited their babies in the NICU. Importantly, some mothers had never seen their babies since birth because he was moved away very urgently to another NICU hospital for proper management. Therefore, most mothers had minimal contact with their babies during that time because of the withdrawal contacting. During this time, maternal attachment to the baby was disrupted.

Resuming to Get Connected. This phase occurred when mother began to resume their connections to babies during visiting their babies in the NICU after it had been disrupted post birth. In this phase, the mother began to resume the connections by seeking closeness to the baby, then, having mutual interacting with baby before committing to mothering.

In seeking closeness to the baby, the mother interacted closely with her baby by direct visual contact, physical contact and vocalizing to the baby as well as visiting her baby within the context of her baby being hospitalized in the NICU and mother adjusting emotionally to the crisis situation. During seeking closeness to the baby, mutual mother-baby interacting occurred when the baby's health condition improved. Baby's responding to mother's interaction would elicit mother response and reinforce the mother in recognizing and taking care of her baby.

Seeking closeness to the baby and having mutual mother-baby interacting, the mother experienced emotional adjustment to the crisis and developed concerned for the preterm baby. Health care system facilitating and supporting connection were the conditions influencing connecting to the baby in this phase.

Becoming Connected. The final phase of the process of struggling to get connected occurred when mother committed to mothering. In this phase, the mother was pleased by mother-baby interacting, planned for the future for her baby and

explored her mother's role. Mother's adjusting emotionally to the crisis, having concern for the preterm baby, health care system facilitating, and life experiences were the conditions influencing the mother's commitment in this phase.

Grounded Theory Analysis

In this study, the major task involved the attachment to the preterm infant during hospitalization in the NICU that the mothers addressed was struggling to get connected. The preterm birth including the hospitalization of the babies in the NICU disrupted mothers' attachment to the baby that gradually developed during pregnancy. Preterm birth, including the hospitalization of the babies in NICU, was viewed as the condition leading to the journey that took mothers away from being normally attached to their babies during pregnancy to becoming connected to their babies during hospitalization in the NICU. That is, mothers knew that their attachment was affected and needed to be reconnected. After having preterm birth and their babies being hospitalized in the NICU, mothers' emotional situation was in crisis. They were worried, upset, and felt guilt with her fault, sorrow, fear, helplessness and so forth, all of which affected the mothers' behaviors. Mothers tried to deal and manage their behaviors and emotion in order to reconnect or continuously further their attachment to the babies.

Mothers reacted to the preterm birth including hospitalization of the babies in NICU dealing with their attachment to the babies by using behavioral communications, including verbal and non-verbal communication, in order to convey their attachment to the babies.

The maternal attachment behaviors to the preterm babies were identified as actions/interactions. Mothers tried to get connected to the babies after it was affected

by the preterm birth including hospitalization of the babies in the NICU by themselves or by interacting with significant others.

The actions/interactions mothers used to get connected to the babies varied depending upon mothers the ability of the mothers to adjust emotionally to the crisis situation of their preterm birth, the babies condition the mothers concerned, the support the mothers received for their connection to the babies, the health care system facilities provided and their experience especially with their own parents. The more the mothers could adjust emotionally to the crisis, receive adequate supporting, receive sufficient health care facilitating or the less concern they had about the baby's condition, the more the mothers could get connected to their babies. The theoretical finding from grounded theory analysis was the theoretical model of "Struggling to get connected: the process of maternal attachment to the preterm birth during hospitalization in the NICU". This theoretical model that emerged comprised 10 major categories. These included: 1) Being close to the fetus, 2) withdrawal contacting, 3) seeking closeness, 4) mutual mother-baby interacting, 5) committing to mothering, 6) having concern for the baby, 7) adjusting emotionally to the crisis, 8) supporting connections, 9) life experiences, and 10) health care system facilitating.

Phase I: Establishing the Connections

Establishing the connections was the first phase of the process of struggling to get connected and began after the mother accepted her pregnancy until she had preterm birth. Most of the mothers accepted their pregnancy after knowing they were pregnant and gave the value to the babies throughout their pregnancy. In this phase, mother was physically and psychologically close to the baby in her womb. The determining feature of this phase was being close to the fetus.

Being Close to the Fetus

Being close to the fetus is a mother's feeling of being inseparably physically and psychologically in contact with her baby during pregnancy. After accepting their pregnancies, most mothers gave to them the value as "Baby is my heart". They began to care for self for promoting their babies' growth, development and safety. In addition, they began to encourage and communicate their love to their baby by talking and touching through the abdominal skin. Supporting connections particularly from their husbands was helpful in this period. Being close to the fetus, maternal attachment to the fetus was gradually facilitated.

Being close to the fetus can be described by 2 subcategories: accepting the pregnancy and valuing the baby.

1. Accepting the pregnancy

Accepting the pregnancy is a mother's feeling to gladly meet with her pregnancy after knowing she is pregnant and deciding to continue her pregnancy whether it is a planned or unplanned pregnancy. The mother who was pregnant without planning firstly might accept or not accept her pregnancy. However, unaccepted pregnant mother finally became accepting of her pregnancy. This is because of the mother's concerning about herself or baby's safety, fear of sin or death, the awareness of "the baby being her own", the belief of "whatever is given to us, we should receive", the social support of husband and own mother/mother in-law (B1: p1; D2: p9; E1: p2), and health care insurance. However, mothers generally accepted their pregnancies because they intended or planned to have a child (A1: p1; B2: p2; C1: p1; C2: p2; D1: p1, p5; D2: p9). One mother also accepted her pregnancy because of not having any economic problem (B2: p2).

Accepting the pregnancy is characterized by 3 properties: 1) knowing she is pregnant, 2) wanting/not wanting the pregnancy, and 3) deciding to continue the pregnancy.

1.1 Knowing she is pregnant

Knowing she is pregnant refers to the mother first knowing she is pregnant. The mother could know her pregnancy early by having a sign or signs of pregnancy while some mothers knew only later because of no sign or a misunderstanding of the signs. However, finally, confirmation of pregnancy was made by the doctor. After knowing she was pregnant, some mothers were excited and pleased and accepted the pregnancy while the others did not.

Knowing she was pregnant can be better understood by considering 3 related properties: 1) having signs of pregnancy, 2) timing of first knowing and 3) Being confirmed of the pregnancy.

1.1.1 Having signs of pregnancy

Having signs of pregnancy is a mother's having any physiological or psychological change that indicated her being pregnant. Mothers could know their pregnancies by having signs of pregnancy such as no menstruation, feeling nauseous vomiting or having a headache. As one mother said "During the first two months, I got morning sickness so much that I had to be hospitalized. I could eat nothing" (C2: p8). However, it was probably misunderstood because these signs could be caused by other disorders. One mother understood that delayed or missing menstruation was caused by stress (B1: p1). In case of a mother whose menstruation is usually irregular, she may be confused. Her menstruation may be continued until near delivery (E1: p2). Mother who vomited early in the pregnancy can misunderstand that it is caused by gastrointestinal disturbance or peptic ulcer (D2: p9). However, some mothers could

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know they were pregnant by having abnormal menstruation, as one stated "I knew [I was pregnant] when it was 3 month of gestation because of abnormal menstruation" (B2: p2).

1.1.2 Timing of first knowing

Timing of first knowing is a period of time when mother first knows of her pregnancy. Timing of first knowing she is pregnant is varied. Some mothers knew their pregnancies during first two or three months of gestation (A2: p9; B1: p1; B2: p2; C2: p8; C3: p1) while some mothers knew later (D2: p6; E1: p2). Some mothers knew of their pregnancy at the second or the third month of pregnancy by missing of her menstruation (B1: p1; B2: p2). In case of a mother whose menstruation was usually irregular, she knew of her pregnancy only at the second trimester because she continuously had menstruation, as she said "I also wasn't sure that I'd have a baby or not until the fifth month because during the fourth month I still had menstruation" (E1: p2). Additionally, because of no sign of pregnancy or only once vomiting, a mother first learnt of her pregnancy accidentally during physical examination by a doctor because of her sickness at late month of gestation (D2: p6). One mother addressed "I intended to get pregnant but I only learnt of it at the sixth month of pregnancy. I once vomited during the second month, so, I thought that it was normal" (D2: p9).

1.1.3 Being confirmed of the pregnancy

Being confirmed of the pregnancy means a mother is reassured of her pregnancy. Knowing whether she was pregnant or not, mother could be sure. In case of uncertainty of having sign/signs of pregnancy, mother actually knew of her pregnancy by having a pregnancy test and being examined by the doctor. Some mothers went to see the doctor when having unusual menstruation and was confirmed

to be pregnant (B2: p2; C3: p1). One mother said "I knew I was pregnant about two or three month of gestation….However, after ultrasound examination, it was the sixth month of gestation because my menstruation was usually abnormal" (C3: p1). However, one mother was confirmed to be pregnant only after physical examination by a doctor due to her sickness at the sixth month of gestation (D2: p2).

Whether knowing she is pregnant was delayed or not depended on many influences. Maternal stress is one that affects knowing of the pregnancy. Focusing on the responsibility on her work, a mother is less aware in taking care for herself. Mothers thought that ceasing of menstruation was caused by their stress over work. Additionally, a mother whose menstruation was irregular was confused whether she was pregnant or not. She first knew despite having menstruation. Importantly, mother who had no signs of pregnancy or had any signs confusing with other causes might misunderstand and learn of her pregnancy only later.

1.2 Wanting / not wanting pregnancy

Wanting / not wanting pregnancy is a mother's desire to have or not to have a baby. Mother who wants to have a baby will experience pleasure when knows that she is pregnant whether it is a planned or unplanned pregnancy. In contrast, mother who does not want a baby might need to accept her pregnancy.

After knowing she was pregnant, some mothers were pleased (A1: p1; A2: p9; C1: p1; C2: p3; C3: p1; D1: p7; D2: p9), frightened (B2: p2), confused (B1: p1), or stressed (E1: p2) depending on the individual. Mothers were usually pleased because they were as their expectation. One mother expected to have another child or the last child before having sterilization (C1: p1). One mother was frightened but could accept after first learning of her pregnancy because it was an unanticipated or the first pregnancy, as she said "I was frightened because I didn't think about it before.

However, I thought, when someone had given him to me, I had to receive him" (B2: p2). Importantly, one mother was frightened very much and wondered about her pregnancy after knowing she was pregnant because she had vigorously taken contraceptive pills for birth control (A4: p3). One mother was confused after knowing she was pregnant because of the effect of pregnancy on her work and the effect of her health problem (diabetes) to the baby. She needed to stop her work for hospitalization in order to control the health problem (B1: p1). However, having support from her husband and health care insurance, she could accept. More importantly, there was one mother who was stressed after knowing she was pregnant because of not being ready to have a baby and its affect on her work. During early pregnancy, she tried to terminate her pregnancy. However, after getting support from her husband and mother in-law she could accept to continue her pregnancy (E1: p3).

1.3 Deciding to continue the pregnancy

Deciding to continue the pregnancy is a mother's having made her decision whether to continue or discontinue her pregnancy after knowing she is pregnant. Deciding to continue her pregnancy is different in each individual depending on several influences. Mother's awareness, belief and supporting of husband and other significant others in her family as well as financial support by health insurance were helpful for mothers in deciding to continue their pregnancy.

Generally, in wanted pregnancy whether it was planned or not, most mothers were pleased to continue their pregnancy. However, the unwanted and the unplanned pregnancy might require the mothers' decision making. Deciding to continue the pregnancy, as mother stated, was because of the mother's concern about herself or baby's safety (B1: p1, p2), fear of sin or death (E1: p6, p4), the awareness of "the baby is being her own" (E1: p4), the belief of "whatever giving to us, we should

receive" (B2: p2) , and the social support of husband (B1: p1; D2: p9; E1: p3), health care insurance (B1: p1) and no economic problem (B2: p2). However, all of the mothers, whether having planed, unplanned or unwanted pregnancy, finally decided to accept and continue their pregnancies.

2. Valuing the baby

Valuing the baby is a mother's feeling of the baby's worthiness to her life after accepting the pregnancy. Most mothers gave their babies' value as the most important thing in their lives, "Baby is my heart". Valuing toward the baby, mothers often cared for selves during pregnancy for enhancing the babies' growth, development and safety. Mothers also transmitted their love to the baby by talking and touching through their abdominal skin for encouraging and communicating their feelings to the babies.

Valuing the baby can be described by 2 properties: 1) caring for self and 2) transmitting love to the baby through the abdominal skin.

2.1 Caring for self

Caring for self is the activities the mother did to herself during pregnancy after accepting her pregnancy for achieving the health, normal development and safety of the baby. After accepting the pregnancy, the mother usually took care for herself for being healthy, both herself and her baby, by having good quality diet, taking sufficient rest, and taking some prescribed medicine, as well as routinely going to see the doctor for the follow up the prenatal care (A1:p1, B1:p2, E1:p3). As mother addressed "when I knew that I was pregnant, I ate a lot in order to maintain my good health because I would like him to be normally developed" (A1: p1).

2.2 Transmitted love to the baby through the abdominal skin

Transmitting love to the baby through the abdominal skin is a mother's communicating her love to her baby during in her womb by means of touching and talking. Mothers invisibly talk and touch their babies through their own abdominal skin for encouraging and communicating their feelings to them. Mothers usually talked and touched their babies, particularly during babies' movement. Transmitting love to their babies by talking and touching through abdominal skin, mothers were excited and felt love for their babies.

Transmitting love to their baby through the abdominal skin can be described by two related codes: 1) touching through the abdominal skin and 2) "Baby is my heart"

2.2.1 Touching through the abdominal skin

Touching through the abdominal skin is a mother communicating her feelings of love to her baby by means of touching or stroking through her abdominal skin during pregnancy. In this period, the mother perceives the baby movement as a sign of her baby being alive, healthy, and safe (A3: p3; A4: p3; B1: p2). It was the way of interaction between mother and baby during pregnancy (A3: p3; B1: p3). Most mothers responded to baby's movement by no direct contact to the baby, rather, by touching or stroking through their own abdominal skin (A3: p3; B1: p3; D1: p8; D2: p10; D3: p1). Mother or father sometime strokes the mother's abdominal skin while talking to the baby (A3: p3; B1: p3; D2, p10). Mothers usually touch their babies by stroking through their own abdominal skin during baby movement and also talk to baby to be healthy and born normally like the others and also spoke of her love for the baby (B1: p3; D2: p10; D3: p1). However, baby probably moved when mother had stroked her abdominal skin as well. Touching through mother's abdominal skin

during baby movement, most mothers were glad, excited and loved their babies. One mother stated "While in my womb, he usually moved….When he moved, I stroked my abdominal skin and talk to him. I felt that he was healthy. I was glad and loved him" (A3: p3).

2.2.2 "Baby is my heart"

"Baby is my heart" is a mother's feeling towards her baby's worthiness during pregnancy. The mother valued her baby as the most important thing in her life. Most mothers firstly talked to their babies during pregnancy (B1: p2; C1: p1; D2: p10; D3: p1). Some mother talked to the baby before fetal movement or after 4 months of gestation (B1: p2). Talking to the baby, the mother perceived the baby's response through fetal movement. Baby's movement during in utero was a sign of the baby being alive and safe. It reinforced the pleasurable interaction between mother and baby. Some mothers frequently talked with their babies and always told them of their love, their feelings and their importance to them. Some mothers told their babies that they were their heart, as she stated "Baby was my heart" (B1: p3; E1: p13).

Phase II: Disrupting of the Connections

Disrupting of the connections was the second phase of the process of struggling to get connected began after mother had preterm birth until she first visited her baby in the NICU. In this phase, the baby was urgently separated from mother to the NICU for intensive care. This limited mothers in contacting with their babies. During this period, the connections between mothers and babies were disrupted after they were gradually developed during pregnancy. The determining of this phase was withdrawal contacting.

Withdrawal Contacting

Withdrawal contacting is the failure of being contacted between mother and baby after birth. During pregnancy, the mother and baby were inseparably close together and their connections were gradually developed over a period of time. However, having preterm birth, most babies were urgently moved to the NICU for intensive care after they were initially cared for for a moment at birth. During this time, most mothers could only see their babies at a long distance without touching at them. After that, most mothers did not see their babies again until they first visited their babies in the NICU. Importantly, some mothers had never seen her baby since at birth because he was moved away very urgently to another hospital NICU for proper management. During withdrawal contacting, mothers had minimal contact to their babies.

Minimal contacting with the baby

Minimal contacting with the baby is a mother's having less contacting with her baby during birth and after he/she was separated to the NICU or the other hospital NICU. Contacting with baby at birth, most mothers only saw their babies at a long distance because their babies were in critical condition that needed emergency care and were of necessity urgently moved away to the NICU for intensive care. In addition, there were a few mothers that could touch their babies during being placed on their chests for a moment before their babies were moved away for emergency care (B1: p 3; E2: p4). Moreover, there were some mothers that had never seen or touched their babies since birth until they first visited their babies in the NICU because they were very urgently moved away to other hospital NICU (C2: p3; D2: p11, p13; D3: p2). During the time that babies were initially being hospitalized in the NICU, most mothers had less contact with their babies. Most of them saw their babies only later.

They first saw their babies after two to three days while some did not see their baby over a week post birth depending upon many influences. With minimal contact with the baby, the connections between mothers and babies were disrupted.

Minimal contacting with the baby can be described by 3 properties: minimal touching at birth, seeing the baby momentarily, and delayed first seeing baby in NICU

1.1 Minimal touching at birth

Minimal touching at birth is a mother's physical contacting to her baby for a moment immediately after birth before her baby was moved away to NICU for intensive care. After birth, mother's touching to baby became skin to skin instead of through mother's abdominal skin. At birth in the labor room, most mothers had no chance to touch their babies. Only a few mothers could first touch their babies while they were lying on the mothers' chests for a moment before they were moved away to NICU (B1: p3; E2: p4). After touching and seeing the baby on her chest, the mother cried. As one mother stated "At birth when she was born and lay on my chest, I immediately saw her and said that good, she was not black like dad….During that period, I cried" (B1: p3).

1.2 Seeing the baby momentarily

Seeing the baby momentarily is a mother's visual contact with her baby for a short period of time at birth. Most mothers could first see their babies for a moment at birth before they were moved away to the NICU (A1: p2; A5: p3; B1: p4; B2: p4; C3: p4; D1:p3). However, there were some mothers that had never seen their baby at birth because he/she was moved away very urgently to NICU (C2: p3) and other hospital NICU (D2: p11, p13; D3: p2) for intensive care.

Seeing the baby at birth, most mothers could not clearly see their babies at long distant. Some mothers could see their babies' concerned characteristics for a

moment at birth while some could not depending upon the health conditioning of the babies and their emergency care needed before being moved away to the NICU or other hospital NICU. After seeing their babies at birth, most of them were worried and anxious while some were not.

During seeing baby for a short period of time, most mothers could only see the general appearance or some concerned characteristics of their babies. Some mothers had not heard their babies' cry while seeing them at birth (B1: p4; D2: p13).

After seeing their babies, most mothers were worried or anxious about the babies' characteristics that were not as they anticipated during pregnancy. Their babies were always small (E1: p6) and did not cry at birth (B1: p4, D2: p13). As one mother stated "I saw him just a moment, how small he was. After delivering, he was moved to the other room for cleaning. Then, I did not see him until next morning" and continuously stated "I just saw her for a moment, also, I've still had pain and are sleepy. I was anxious and worried about his small size" (E1: p7). However, some mothers saw that their babies were physically normal, strong, and nothing was serious (A1: p2, B1: p3). As one mother addressed "I saw him for a moment. There was no serious event during in labor room" (A1: p2) and other mother also addressed when she first saw her baby during lying on her chest at birth "I immediately saw her and said that good….I thought that she was strong with pink skin" (B1: p3).

1.3 Delayed first seeing baby in NICU

Delayed first seeing baby in NICU is a mother's behavior of the delay in first seeing her baby in NICU for a period of time. Several mothers began to see their babies at first visiting that was usually the first day post birth. Some mothers were delayed in seeing their babies (B2: p3; D2: p3; E1: p9; E2: p10). Some first saw their babies within two to three days while some did not see their baby for over a week post

birth. Whether mothers were delayed first seeing their babies or not was based on several influences: long distance between the hospital where the mother was hospitalized and the other NICU hospital where her baby was hospitalized, the mother's health condition post birth, family's traditional practice and husband's decision making.

Some mothers first saw their baby at the second day post birth because of no allowance from her husband by the reason that he didn't want her to think a lot after seeing her baby. As she addressed "My husband didn't allow me to visit our baby. He told that the doctor also didn't allow me to visit. He didn't want me to see our baby because he was afraid that I would think a lot" (E2: p9). Some mothers first see their baby at the third day post birth because of no allowance from husband's family by the reason of their beliefs that didn't want mother goes outside for 40 days post birth (B2: p3). In addition, there was one mother (who had never seen her baby at birth) who first saw her baby on the eighth day post birth because her baby was moved away to another hospital NICU and she had to wait for wound healing during her hospitalization. Moreover, her husband wanted her to visit with him at any time he was available, and also her mother in-law wanted her to rest post birth (D2: p3). As one mother indicated about first visiting her baby in NICU "[mother first visited her baby] around 5-6 days after discharged from the hospital….My husband was busy about his work. He told me to visit with him" and continuously addressed "My mother in-law didn't allow me to visit because she wanted me recover after birth" (D2: p3).

Phase III: Resuming to Get Connected

Resuming to get connected is the third phase of the process of struggling to get connected. It occurred when mother began to resume their connections with babies

during visiting their babies in NICU after it was disrupted post birth. In this phase, the mother began to resume the connections that was a physical and psychological experience of contacting with the baby by seeking closeness to the baby, then having mutual interacting with the baby before committing to mothering.

Seeking closeness to the baby in order to resume the connections, mother interacted closely to her baby by directly visual contacting, vocalizing, and physical contacting to the baby during visiting her baby within the context of her baby being hospitalized in the NICU and mother was adjusting emotionally to the crisis situation. During seeking closeness, mutual mother-baby interacting occurred when the baby's health condition was improved. Baby's responding to the mother's interaction would elicit the mother response and reinforce the mother in recognizing and taking care of her baby. Adjusting emotionally to the crisis situation, having concern for the baby, supporting connections, life experiences of the mothers, and health care system facilitating had significant roles for mothers to achieve resuming the connections. After achieved resumption of the connection, mothers committed to mothering.

Resuming to get connected can be described by 2 categories: 1) seeking closeness and 2) mutual mother-baby interacting.

Seeking Closeness

Seeking closeness is physical and psychologically experience of mother endeavoring to come into contact with the baby. It is an interaction between mother and her baby after knowing she is pregnant. During pregnancy, mothers were physically and psychologically inseparably contacted to their babies. They usually talked and stroked the babies through their abdominal skin. After preterm birth, mothers were physically separated from their babies that were immediately moved away to NICU for intensive care. In case of their babies being referred to another

hospital NICU, some mothers were also emotionally separated from their babies besides physical separation. During in NICU, babies were more close to the health care providers. However, mothers could interact with their babies by sitting close with touching and talking with them everyday. Most mothers frequently visited their babies after being discharged and stayed longer with them. Some mothers would like to stay with their babies in the hospital, especially when being separated or alone (D3: p1). They would like to see their baby everyday, wanted to hold and embrace their babies after touching or wanted to take care for their babies frequently by themselves. Some mothers wanted their babies to be breast fed and stay outside incubator so that they could hold and embrace. Additionally, some mothers wanted their babies to go back home soon so that they could live together and feed them with their breast milk.

Seeking closeness to their babies, mothers felt emotional distress, were concerned about the babies' lives, and wanted to hold or embrace and take care for their babies, or be committed to babies. Some mothers wanted to provide love and warmth to the baby as well as wanted the baby knew her feelings toward him while baby felt warm, safe, or close to mother. Some mothers were more pleased and loved their babies. In one mother, her feeling of not loving could be changed to loving her baby. In addition, both mothers and babies felt warmer when close together.

Seeking closeness can be described by 4 subcategories: 1) visiting, 2) visual contacting, 3) vocalizing, and 4) physical contacting. During pregnancy, the mother interacts with the baby by vocalizing or physical contacting by touching through an abdominal skin. After birth, mother interacted with her baby by visual contact that was not available before birth, physical contacting became skin to skin rather than through an abdominal wall and voice sound was more direct during visiting in NICU.

1.1 Visiting baby in NICU

Visiting baby in NICU is a mother's behavior coming to see her baby at the hospital NICU. It is characterized by frequency of mother's visiting, time spent in baby and mother's interacting during visiting. These influence the quality of attachment. More frequent visiting and more time spent during visiting, and a greater more attachment between mother and baby. Visiting baby everyday decreased the mother's worry. However, with frequent visiting, some mothers could not maintain their emotional balance.

Visiting baby in NICU, mother first visited at the second day post birth and usually went together with her husband (A1: p2; B1: p4; B2: p7; C1: p5; C2: p3). There was some mother first visited her baby with her own father (D3: p2) or visited alone (E2: P3). She spent a short period of time with her baby. Some mothers could not accept and did not want to see her baby at that time while the other would like to see him everyday. During mother's hospitalization, she usually visited her baby once everyday. After discharge, the mother occasionally visited, maybe once a week or more/less frequent. Many barriers prevented mothers from visiting their babies.

Most mothers first visit their baby in NICU after birth on the second day post birth (A1: p2; A4: p4; B1: p4; C2: p3; C3: p4; D3: p2; E2: p3) or the later day, may be the third or the fourth day after birth (B2: p4; C1: p5; D1: p12,), depending on each individual. There was some mother that could visit her baby on the day he was born (A3: p4). Importantly, there was one mother that first visited her baby on the eighth day post birth (D2: p3). Delayed first visiting occurred in mothers whose her baby was referred to another hospital far from the hospital where she was hospitalized and the mother could not go outside her house during postpartum period because mother in-law wanted her to rest for recovery from delivery as their beliefs. As she addressed

"At birth, I didn't see the baby, he was referred to the other hospital" and continuously stated "My mother in-law didn't allow me to visit because she wanted me recover after birth" (D2: p3).

First visiting baby in NICU, most mothers spent a short period of time with their babies - usually not more than thirty minutes (around10-30 minutes). The baby's condition that was in critical and being kept in incubator prevented mother to stay longer with her baby. Some mothers stayed with their baby only five minutes, as one mother addressed "I saw her for a moment, around five minutes. The neonatologist tried to explain and encourage me. I knew that he was encouraging and helping me but I could not control my feeling when I saw her [baby], whose mom was a health care personnel"(D1: p11). However, one mother stayed with her baby nearly 1 hour despite not wanting to see him (E1: p9). As she stated when asking the time she spent with baby "Nearly an hour with sleepy mood because ….At that time, I really told you that I didn't absolutely want to see my baby. It was not because of lack of love but because I felt sad. I'd never had the baby like this. He was so small that I was upset with him very much" (E1: p10, p11).

Visiting baby in NICU, most mothers visited their baby every day (after first visit) during their postpartum hospitalization. After discharge, most mothers would like to visit their baby everyday but they could only occasionally does. It was four to five days a week (D3: p2), two or three time a week or once a week (B2: p4; D2: p3). Family traditional practice that not allow mother to go outside after delivery or her own mother concerned about her health after delivery prevented some mothers from frequently visiting their babies (B1: p4; D2: p3). One mother indicated "During the postpartum period, my mom didn't want me come to visit my baby because she wanted me rest and was afraid of complication that might develop after birth" (B1:

p4). Moreover, no allowance from husband to visit her baby alone (D2: p6), long distance from home to the hospital (C2: p8), and the high cost for transportation prevented a mother from visiting her infant as well (C2: p8). However, there was one mother that could visit her baby twice a day every day after birth because of her good health (E1: p8).

Each visiting, most mothers usually stayed with their babies for fifteen minutes or half an hour. In case of mother who could stay only 10 minutes for each visiting, she had to take turn with her relatives to see the baby during visiting (B2: p6). Visiting baby at the time of being busy with nursing activities in the morning, the mother could visit her baby for a short period of time, sometimes only 10 minutes. Importantly, some mother could stay with her baby only for a moment during each visiting because she felt worthless as she could not help or could do nothing with her baby (D1: p16), could not maintain her emotional balance and did not appreciate some nurse’s activity (D1: p12). As one mother addressed “I visited her every day but only for a moment and talked nothing with the nurse because I could not calm down myself. I used to see a nurse removed the sticky plaster out from my daughter’s skin, it was harsh. It looked like bleeding at her skin. It was hard for me to calm down” (D1: p12). Some mother did not feel free with health care providers and thought that NICU had no privacy for her to stay longer with her baby, as a mother stated “I didn’t stay longer because I didn’t feel free with health care providers and there were many people came together with me. In addition, it was not a private room” (B2: p6).

Visiting their baby in NICU, most mothers want to take care for their babies and bring them their expressed milk, as well as wanted their babies to perceive their sensation (A1: p7; E1: p8). First, they only saw, talked and touched the baby without holding, embracing, and taking care like other children. In contrast, some mother

could not see and did not want to see her baby because she could not accept or could not maintain her emotional balance. At each visit, most mothers were told by health care providers about their baby's health condition including the progress of the illness of the baby; how critical the baby was; what complication the baby developed; and what treatment or procedure the baby received was. Whenever mother heard hat their baby was improved or became normal, they were glad and encouraged, but when their babies got worse or were in pain, they were sad or emotional distressed.

With frequent visits to the baby in NICU and more time spent during each visit, the mother's worry decreased (A1: p7); the mother's love for her baby increased (A1: p7); and maternal attachment to the baby enhanced. Importantly, the baby could perceive the mother's sensation during visiting through her contact with the baby. As one mother stated "If I visited him everyday, the worrying about him will decrease. If not, I would think of him and worry about him very much" (A1: p7) and continuously stated "It made me love him more. I'd like him to know that I've taken care for him thoroughly and I'd not leave him" (A1: p8)

1.2 Visual contacting

Visual contacting is a mother's behavioral interacting by looking at or having eye contact with her baby. After birth, the mother interacted with her baby by visual contact that was not available before birth. Visual contacting after birth of mother with preterm birth can be described by 2 properties: 1) seeing baby with uncontrollable emotional balance and 2) seeing for knowing the baby.

1.2.1 Seeing baby with uncontrollable emotional balance

Seeing baby with uncontrollable emotional balance is a mother's visual contacting behavior to her baby that she could not maintain her emotional balance during first seeing her baby in NICU. Most mothers saw their babies for a short period

of time because they could not calm down their emotion at first seeing their babies in NICU (C2: p4; D1:p11; D3: p3). At first seeing babies in NICU, most mothers usually saw an environment around NICU that they had never seen before. Its surrounding was full of incubators and high technological equipment. Seeing their babies, mothers focused on the general physical appearance of the babies as well as the equipment attached to them. Their babies were small and being kept in an incubator surrounded with tubing, lines and monitors.

Seeing baby in NICU, some mothers looked at their baby without opening incubator. Most mothers reacted emotionally to their babies during first seeing their babies in NICU. Some felt worried, anxious, helpless, frightened, guilty, fainted, upset or cried.

During seeing around NICU and her baby, mother was frightened and concerned about the uncertainty of the baby's life (A1:p3). As one mother said "I was frightened and only thought that he would live or not". One mother went out and cried after first seeing her baby for a moment in NICU (C2:p4) while other mother cried after seeing her baby for a moment because she could not help him (D1: p11). Some mother only saw her baby without touching and did nothing during first seeing her baby in NICU (B2: p5). One mother was anxious and worried about her baby being small (E1: p7) and felt guilty that she hurt her baby during pregnancy and could not accept or stay with the baby (E1: p11). In addition, one mother felt faint because of her baby was being kept in incubator surrounding with tubing, lines, ventilator, intravenous infusion and so forth at first seeing him in NICU (E1: p8). As one mother indicated "When I first saw him, I was frightened very much because he was too small and he unlikely to breathe like the other normal children. His chest was moved up and down that I had never seen before. I was sad and felt faint. I didn't calm down

myself….I visited him for a moment. When I'd seen him, I came out and suddenly cried" (C2: p5). The other mother also indicated "When someone told me that my baby was in incubator, I felt faint because of the incubator, tubes and so forth. I could not accept. When I really saw him, he was too small. How small he was. I could not absolutely accept. I didn't know where he was hurt, what the tubes were. I didn't want to stay over there. I was stressed so much before going out and got more stress after leaving him" (E1: p8).

However, some mother perceived that her baby being on respirator and tubing for feeding but no infusion line was not seriously ill as she indicated at first seeing her baby "She had only respiratory tube and feeding tube. There was no saline infusion through umbilical line for antibiotic administration. I thought that she was not sick so much at that time" (B1: p6).

First seeing baby in NICU, most mothers saw their babies for a short period or longer and could calm down their emotion during seeing their babies or not depending upon having concern for the baby on baby's appearance and baby's health condition, and NICU environmental facilitating.

However, after first seeing her baby at first visiting, one mother changed her feeling from not love at the beginning to love him and was happy as she said "When I saw him, I ...could not tell him about my love for him but in my mind I knew whether I loved him or not. I had no feeling of love at first because I had some problem, however after taking care for self, I'm OK. When I saw him I was happy" (E1: p11). Another mother was glad while being afraid of the respirator at first seeing her baby as she addressed "I was glad but I was afraid of the ventilator. Its rate was 60/m….I was not sure that he would live or not" (B2: p4, p5).

1.2.2 Seeing for knowing the baby

Seeing for knowing the baby is a mother's visual contacting behavior to baby for getting more information about her baby's concerns after first seeing. After seeing baby during first visiting in NICU, the mother frequently visited him in order to see and know more about him. Mothers saw baby's physical development or baby's appearance by looking at baby face, hands, legs, or entire body including baby's behaviors. Seeing their babies were normally developed or babies' health was improved, they were pleased.

Mothers would like to see their babies frequently after first seeing them. Some mothers did so because of the feeling of attachment and closeness to the baby or wanted to see and directly know about him because of being worried and upset with him. As one mother said "I felt attached and close to him. I'd like to see him frequently" and other mother also addressed "I'd like to see him. I'd like to know whether he got better or not. I also wanted to directly know about him from the doctor. I wanted to see him. I worried about him. I was upset with him" (D3: p4). Seeing her baby during visiting in NICU, mother saw him entirely (D2: p8) or saw him open his eyes (B1: p5, B2: p7), moving his body (A1: p7; A2: p2) and sometime she could have eye contact with him (B1:p5).

Seeing baby during visiting in NICU, mother usually saw through incubator's wall because of being fearful of infection. Sometime, the mother saw her baby through the room's window during waiting for gown changing (D3: p4, p9). During seeing, mothers talked (D3: p10) or touch with their babies without crying as well (D2: p8).

After first seeing the baby, mother came to love her baby and her feeling to her baby was gradually changed after frequently seeing. Some mothers were glad and

loved their babies especially when seeing that they were physically normally developed, improved, opened their eyes, or looked at them (A1: p7; A2: p1; B2: p7; B1: p5; C1: p4; D2: p8; D3: p7). As one mother stated "I was glad, I would come to see him. I saw him at his eyes, feet, hair, and entirely his body….I was glad because I could see him every week. In addition, my baby also got better" (D2: p8) while another mother stated "Today, I saw him being well, he moved his body, I'm glad very much" (A1: p7). Importantly, while at home, the mother would like to see her baby as she said "I did nothing [for baby], only thought of him. I thought that I'd like to come to take care, to see, to touch, and to talk with him" (A1: p8). However, seeing baby frequently, some mother was hurt and unwilling to visit baby. Infrequent seeing baby, mother can easier calm down. As one mother addressed "After discharge from the hospital, I couldn't see her everyday. If I'd stayed in the hospital and had seen her, I would hurt and unwillingly visit her….At home, I could do everything that made me more quickly recover" (D1: p14).

1.3 Vocalizing

Vocalizing is a mother's behavior interacting by talking with her baby. Some mothers talked in their mind while the others spoke loudly to their baby. Mother usually began talking with baby during her pregnancy whether he could perceive or not. Talking with the baby after birth, most mothers would like to encourage their babies. Baby's responding to her talking facilitated the mother to further their interaction.

Vocalizing to baby after birth can be described by the property of talking for encouraging.

Talking for encouraging

Talking for encouraging is a mother's behavioral interacting with her baby by talking with her baby in order to encourage him to fight, stay well or get better soon. Most mothers usually talked to encourage their babies after birth during first visiting in NICU, before mothers' discharge from the hospital (A1: p3, D3: p4), and at every visit. There was some mother who talked to encourage her baby since during pregnancy (C1: p1; D3: p1). Some mothers talked to their baby by talking in their mind (B1: p6; B2: p12,), while the others talked aloud. Talking with baby, most mothers usually talked with their babies at every visit (B1: p8; C1: p8; E1: p13). During talking with babies, mothers also touched their babies even some mothers, at first only talked without touching them (B1: p8; C1: p1;). Additionally, there were some mothers who talked to their babies without opening the incubator's window because of her fear of infection (B1: p7; C1: p5; D3: p4).

Talking to babies, besides wanting to encourage their babies, some mothers also wanted the babies to know their feelings for them (A1: p4; D3: p4; C1: p1).

Talking with or without touching with the baby, mothers saw and perceived that babies could respond by moving their bodies or opening their eyes (A1: p3, p5, p8, p12; C1: p8, p9). These gave the mothers pleasure and mothers' feelings towards the babies were changed. However, there was one mother that was pleased and loved her baby but never talked to baby (B2: p14).

Whether or not a mother talked to her baby after birth depended on each individual. Some mothers had never talked to their baby because they were shy or did not know how or what to say (B2: p12). Some mothers frequently talked with their babies because they wanted to encourage their babies to get well soon and wanted the babies know their feelings (A1: p5; B1: p8; D3: p4).

At every visit, mother interacted with baby by telling with him to take more expressed milk to be helpful for his growth (C1: p6; E1: p13). One mother addressed "I talked with my baby every day to get much more milk so that he could grow up well and could be discharged soon" (E1: p12). One mother told the baby to stay well and have a good health before she was discharged from the hospital as she addressed "I visited my son before discharge from the hospital. I told him to stay well, having a good health, and I went back home" (A1: p5). Mother usually talked with and touched her baby at every visit except during first four visits, when the mother only talked without touching because of fear of infection (B1: p8). The mother touched and told her baby to get well and that she would take him back home later (A1: p5). Touching and talking with baby, mother would like the baby know her feelings toward him (A1: p5; D3:p4). While touching and talking with baby, mother was glad especially when he moved his body (A1: p5) as well as talking, touching, and sitting close to baby, mother's feelings to baby was changed (E1: p13). One mother was shy to talk with the baby during visiting her baby together with her mother in-law. She only encouraged her mother in-law to talk and touch the baby. She was pleased when seeing their interaction. As she indicated "I didn't have the courage to talk. I didn't know how to talk. I only thought. I thought that my baby knew my feeling. However, whenever my mother in-law came she usually talked with my baby. I was shy, I was shy in front of my mother in-law….I only told her to touch and talk with him. I'll wait until he was fine" and continuously indicated "When my mother in-law touched and talked to him…I only smiled. I didn't talk. I loved my baby too" (B2: p13. p14).

1.4 Physical contacting

Physical contacting is a mother's behavioral interacting by skin to skin contacting to her baby after birth. It is composed of touching, stroking, holding, and

embracing. Physical contacting with baby can be described by 3 properties: 1) delaying first touching, 2) touching with tender loving, and 3) continuing touching in crisis.

1.4.1 Delaying first touching

Delaying first touching is a period of time mother is delayed to firstly physically contact with her baby after birth. During in NICU, several mothers began to touch their babies at first visiting. Some mothers touched their babies at their first visit even if hesitating at first to touch them (A1: p3; D1: p13). Some mothers began to touch their baby at the second visit (C2: p6; D2: p8) while some mother did so at the sixth visit (B1: p4, p11). However, there are some mothers delayed first touch their babies beyond 10 to 14 days post birth (B2: p14; D3:p5).

Mothers delayed to touch their babies or not depending upon having concern for the baby on the appearance and health conditioning of the baby, mothers' understanding about asepsis, nurse facilitating, and supporting.

Several mothers firstly delayed to touch their babies because they were afraid of harming the baby because the baby was small or because of disconnection of tubing attaching to the baby (B1: p4; B2: p5, p6), fear of baby infection because lack of understanding about asepsis (B1: p4; B2: p6; D3:p5) despite some mother wanted to touch or hold him (D3: p4) or fear to touch because the baby was in pain or in critical condition (B1: p10; C1: p2, D3: p3). As mother indicated "I didn't touch him. I'd never touch him….He was small. I was afraid. I did not have the courage to touch because I was afraid of infection. I also afraid of harming him because I was usually careless" (B2: p6). Other mother also addressed "He was on a respirator, receiving saline infusion. He had blood withdrawn and had blood exchange done as well….At that time, I didn't touch him. I was afraid that it would infect him" (D3: p3).

One mother did not touch her baby because nurse did not facilitate her to do (D3: p5), rather, some mothers first touch their baby when nurse told or gave them the suggestion (C2: p6; D1: p13). One mother stated when asking about her touching to baby during 10 days in NICU “No, I didn’t [didn’t touch the baby]. I was afraid that he would be more infected….Nobody told me about aseptic technique” (D3: p5). On the other hand, one mother addressed “I firstly touch him at the second visiting when a nurse told me that I could after washing my hands. Therefore, I touch and talked with him” (C2: p6). After enhancing their knowledge and encouraging by health care providers or their husbands (C1: p2; B1: p), mothers were more confident to touch their babies. One mother stated “Firstly, I didn’t have the courage to touch him because of sympathizing with him but my husband supported and told me to touch. Touching will be helpful for him. Then I touched him at his head and entire his body” (C1: p2). After first touching, some mothers would like to hold and embrace their babies as she addressed “Firstly I saw him, I cried. I was upset….I’d like to hold and embrace him because of my love, my attachment” (D2: p12).

1.4.2 Touching with tender loving

Touching with tender loving is a mother’s physical behavioral contacting with gentle manner and loving to her baby at first touching during visiting in NICU. At first touching, mothers usually touched their babies for a short period by began touching their babies with gently touch at babies’ hand and fingers, then at their head and face. Touching babies, most mothers did so with the feelings of love and wanted to hold and embrace while the others did also with their desire to examine their babies.

One mother began touching her baby with gently touching at his hand then stroking his head and eyebrows with the feeling of love and wanting to hold and

embrace him (A1: p3). Another mother began touching at baby's fingers because fear of their contraction, then, gently stroking at baby's face instead of kissing. After that, mother touched while looking at baby's toes by wondering in what something wrong toward them because many health care providers often examined them (C2: p11, p12).

After first touching, mother was better (C2: p11). In contrast, some mother was disappointed as she stated her feeling while touching "I didn't know but in my mind, I think, he should be hold comfortably instead of being in this situation. I can do nothing and felt faint" (E1: p9).

1.4.3 Consistent touching in crisis

Consistent touching in crisis is a mother's physical contacting to baby during in NICU after first touching. Mother would further her touching to baby or not during each visit depending on having concern for baby on health conditioning of the baby, mother's experiencing with health care providers in touching her baby (C2: p12), mother's feeling toward her baby, and health care system on NICU environmental facilitating. After frequently touching, maternal attachment to the baby could be facilitated.

After first touching, most mothers usually touched their babies at every visit except when babies were in pain or in critical (B1: p11; C1: p2, p11). A mother who did not have the courage to touch her baby was more confident to touch after seeing nurses touching him, as she stated "I didn't want to touch him a lot because he was immature, I was afraid and worried. However, when I saw nurses touch and hold him, I felt more confident to touch him" (C2: p12). Additionally, most mothers would like to hold and embrace their babies when their babies improved, were safe and alive (D2: p3, p14). They would like their babies to stay outside the incubator so that they

could hold and embrace them in their arms (D2: p16). One mother wanted to embrace her baby soon because she was upset with the baby's harm and suffering (A1: p4).

During touching, even baby was in utero, mother usually talked with him in order to encourage him. After birth, mother also talked with baby to encourage him to fight, to get well and go back home with her soon. After touching with or without talking, babies responded by moving their bodies or extremities, grasping, or opening eyes (D2: p12). The baby's response to mother's touching was helpful for mother's happiness. Touching and seeing baby opened his eyes facilitated mother to stay closely to baby (B1: p12).

Touching or embracing babies, mothers could provide their love and warmth to babies while babies knew mother's love, felt warm, safe and close to mothers (C1: p9; D2: p13). Additionally, touching babies everyday not only were mothers committed to encourage and touch the baby for more helpful to baby (B1: p14) but also maternal attachment to their babies was facilitated (C1: p10). However, even though touching could arouse the mother to hold her baby, no holding or embracing did not decrease the mother's attachment to her baby (D2: p13, p14).

Mutual Mother-Baby Interacting

Mutual mother-baby interacting is an interaction between mother and her baby in which the baby's responding to mother's interaction elicits mother's response and reinforces the mother in recognizing and taking care for her baby.

During seeking closeness, mutual mother-baby interacting occurred when the baby's health condition was improved in which baby could respond to mother's interacting. Baby's responding to mother's seeing, talking, touching, and playing by moving his body or extremities, opening eyes, grasping, smiling, crying, sleeping, or playing, mother was glad and excited. These baby's responsive behaviors would elicit

mother to respond to baby by seeing, talking, touching, and smiling and reinforce mother to progress their relationship by identifying/recognizing and taking care for her baby.

This phase can be described by 3 subcategories: 1) baby behavioral responding, 2) recognizing the baby, and 3) taking care for baby.

1. Baby behavioral responding

Baby behavioral responding is an interacting behavior baby responded to mother's interaction. Baby responsive behaviors to mother interaction included moving his body or extremities, opening eyes, grasping, smiling, crying, sleeping, or playing. Firstly after birth, most mothers perceived their babies were not or less responsive to any stimuli (E2: p2). Having no behavioral responding to mother interaction, mother was worried. However, when baby health condition was improved, baby responsive behavior could be facilitated and reinforced the mother to further their pleasurable relationship.

At first visit in NICU, some mothers firstly perceived that their baby could not respond to any stimulation (C2: p10; C3: p; E2: p3). It prevented mothers from interacting with their baby. As she addressed after touching her baby without the baby showing any movement "I wonder that why he could not move despite during in my womb he could. I thought, what happened to him, what is the matter with him" (E2: p3). Another mother stated "first, I saw him sleeping without any moving. The second he could move, then the third, I'd talked with him" (C2: p10) while the other mother stated "I stood by without touching her [baby].I didn't dare to touch her at that time because she didn't move/wriggle at all. His breathing was so deep and stifled" (C2: p5). However, after baby's health condition was improved, most babies could respond to their mothers' interacting. Babies responded to mothers' touching may be at baby's

cheek, hand, or toes by opening eyes (A3, C1, C3, D2, E2), moving body and extremities (A2, A4, C1, C2, E2), grasping (A4, B1, E1, E2), smiling (E2), putting out the tongue (E2), and being startle (C1). These baby's responsive behaviors elicited mothers to smile (C3, D2), talk with baby (C3), and stay closely to baby (B1).

Whenever the baby reacted or responded to the mother interaction, the mother not only was excited and happy but also was responsive to baby.

When mother interact with her baby by playing with him, he responded to mother's playing also by playing to mother, then, she stroked baby head (E2: p2)

When mother had interacted with her baby by staying close, he probably moved his extremities, when mother had gone back home, the baby cried, and when mother had hold the baby for breast feeding, he slept (E1), as well as when mother had touched the baby, he grasped the mother's finger (B1, E1). These responsive behaviors are exciting to mother and helpful for mother's happiness (B1).

2. Recognizing the baby

Recognizing the baby is a mother's knowing or identifying her baby by inspecting him thoroughly. What or how mother recognized her baby depends on each individual. Generally, recognizing the baby had occurred since the baby was in utero and particularly when the baby was born. Identifying or recognizing the baby, some mothers were helpless while the others were glad, would like to take care, and love their baby. After accepting her pregnancy, mother recognized that the baby being in her womb was hers or probably gave her baby a name. Recognizing the baby, mother had taken care and nurtured him with love until he was born.

However, in case of preterm birth, mothers did not focus their interests in identifying the babies firstly after birth. Some mothers initially would like their baby to be able to survive. After birth particularly when the baby was improved, mother

usually inspected her baby for identification. Mother always recognized her baby as an individual that looked like any significant member within her family. The baby may be looked like her husband, grandparent or even herself. Although the baby was small, but he was like the other normal children that could respond to the mother's interacting and perceive her mother's feelings. On the other hand, some mother recognized her baby as a baby doll that she could not help or do anything with or as an alien that could move but looked so tired with hard breathing.

Recognizing the baby, mothers were glad and love her baby while the others were not and probably cannot accept their babies at that time.

3. Taking care for baby

Taking care for baby is a mother's behavior to care for or nurture her baby. Taking care for baby, mother would like her baby know her. It is valuable for both mother and baby even mother can care for baby for a short period of time. After birth during babies' hospitalization in NICU, mothers firstly didn't have the courage to take care for their babies. Having concern for the baby on baby characteristic and baby health condition (being small of their babies in size) and lacking of skill in taking care prevented them from taking care of their babies. They were totally taken care of by nurses. Mothers began taking part in taking care for the babies by nurses' facilitating after their babies were improved. Before their babies were discharged from the hospital, some mothers would like to take-care their babies by themselves while some would after their babies were being at home. The care that most mothers took to their babies included breast feeding, preparing things for babies, and general infant care. Some mothers together with their husbands came to see and take-care for their baby everyday. Some mothers took-care for their babies more than other previous children because of being premature of them.

Taking care for baby everyday, mother's feelings to her baby can be changed. Some mothers always think of their babies while at home, particularly when expressing their breast milk for them.

Taking care can be described by 3 properties including 1) Being incompetent in taking care, and 2) Taking part in caring for baby and 3) Desiring to take care by herself.

3.1 Being incompetent in taking care

Being incompetent in taking care is the mother's lacking of ability in taking care for her preterm baby during early hospitalization in NICU. At birth, mothers would like to take-care for their babies by themselves like other normal mothers. Rather, at first in NICU, most mothers were afraid of taking care for their babies because they were small and attached with tubing, lines, and monitoring while most mothers had no skill in taking care for the small baby (C1: p8). They could only touch and talk to their babies. As one mother addressed during first visiting after her discharge "I didn't have the courage to do anything. I only talked with my husband because I have no skill to take care or even diapering him. I only touched him. Whenever I touched him, I also told him to get well soon" (C1: p8).

Other mother addressed "I'll come early in the morning while a nurse was bathing my baby. I didn't dare to touch or bathe him because he was too small. Around one week after I was discharged from the hospital, I didn't have the courage to touch him, I mean to bathe the baby" (E1: p17). Other mother also told that "I touch him this morning. I didn't have the courage to clean or bathe him because he was too small" (B1: p14).

3.2 Taking part in caring for baby

Taking part in caring for baby is the activity mother takes her part in caring to the baby during hospitalization in NICU. Some mothers wanted to take care for their babies during in the NICU (A1:p8; E1: p12) while some mothers did during at home (C1: p11; C2:p3; D2: p12). During hospitalization in NICU, most mothers began to take her part in taking-care for their babies after nurses' facilitating and their babies were improved.

In NICU, some mothers first were allowed to take their part in caring the baby. As one mother addressed "I had to come early in the morning because a nurse will allow me to hold my baby for a moment while cleaning incubator" (E1: p16). In taking-care for the baby, mother could not feed her baby by tube feeding while he was being kept in an incubator. As mother stated "I came early in the morning for bathing and feeding. However, I could not feed him by tube feeding during being kept in incubator" (E1:p16). In addition, when nurse facilitate her to take her part in caring for her baby, she didn't hesitate to do. As mother stated "Although I don't stay with him through day and night but only one hour daily, it is value for me to take-care him. When a nurse told me to take a bath for him in the morning, I did. Two or three days after birth, I came to take a bath for him" (E1: p12).

3.3 Desiring to take care by herself

Desiring for taking care by herself is a mother's wish to provide care to her baby by her own self like other mother with normal baby. Most mothers would like to take-care for their babies after they were improved during in NICU or before discharge from the hospital. Mother wanted to take care for her baby by her own self after feeding tube was removed and wanted to breast feed her baby after he had opened his eyes and could suckle. However, there were some mothers who wanted to

take care for their babies after discharge or during at home. Mothers would like their babies can be discharged early so that they could take care for them by themselves.

Some mothers addressed their desires to breast feed when her baby was improved (D1: p10; E1:p17). One mother addressed "I want to take care for him by myself and give him my breast feeding...taking care for him with love after taking off the feeding tube".

However, in taking care for their babies, mothers would not prepare things for them during at home even though they were improved. It was believed by some families that preparing things at home in advance, before baby was born or became normal, should not be done, in case something bad or unlucky happened to the baby. Rather, after knowing from the doctor that her baby could be discharged within a few weeks, some mothers were glad and began preparing things for their baby during at home.

Phase IV: Becoming Connected

Becoming connected is the final phase of the process of struggling to get connected occurred when mother committed to mothering during interacting with her baby. In this phase, mother was pleased in mother-baby interacting before planning for the future for baby and exploring her mother's role. The determining of this phase was committing to mothering.

Committing to Mothering

Committing to mothering is a mother promise to nurture her baby in order to endure or maintain the nature of the relationship to her baby. Some mothers committed to mothering during their pregnancies while the others did during taking-care for their babies in NICU. Committing to mothering, most mothers usually told the babies their desires to visit, touch, breast feed, and take care for them in order to

achieve the goals of being saved, comfort, normal growth and development, and good mother-baby relationship.

Committing to mothering can be described by 3 subcategories including 1) being pleased by mother-baby interacting, 2) planning for the baby, and 3) exploring the mother's roles.

1. Being pleased by mother-baby interacting

Being pleased by mother-baby interacting is a mother's feeling of satisfaction in her interacting with her baby. The baby responding to mother's interaction after his health improving, mother was pleased and felt more attached to her baby. During mother-baby interacting, most mothers were pleased when babies had responded to their touching, talking, seeing, taking care, or playing. Babies' responding to the interaction by opening eyes, moving bodies or extremities, smiling, or putting the tongue out, most mothers thought that the babies could perceive their sensations that made them pleased and reinforced them to further their interaction.

Most mothers were pleased when babies responded to their touching or talking by opening eyes (A3:p2; B2: p12; C3: p10; D2: p15; D3: p8) or moving their bodies (A1: p5; A2: p1; D3: p8). Some mothers were pleased when babies had responded to their touching by grasping (B1: p9; E1: p23). One mother was pleased when her baby had smiled during playing with (D3: p8) or smiled and put his tongue out when touching and playing with (E2: p7).

One mother addressed that "He opened his eyes when I had talked with him and closed when my talking was ended. He looked at me when I was going to go back home. He moved his hands and legs when I had talked with him. I was glad. He could perceive what I said". Additionally, mother continuously addressed that "When I had touched him he moved his body. He could perceive my sensation. Sometime, he

smiled to me when I had played with him. I was glad when he smiled" (D3: p8). Another mother also addressed that "I'm happy today because he sleeps in my arms after breast feeding. I can touch, hold, and take care for him by myself. So, I love him and attach to him" (E1: p23).

2. Planning for the baby

Planning for the baby is a tentative goal a mother desires to do to achieve the safety, comfort, growth, development and being well of the baby, as well as good relationship between mother and baby after being pleasured of mother-baby interaction. Most mothers wanted babies were comfort and saved from infection and danger (C1: p2; E1: p27). As one mother often stated "I prayed to the Buddha or the secret things for giving him baby getting well and doctor can heal him."(C1: p2, p4, p6, p7, p11) They wanted their babies could grow up well and physical normal developed like other normal baby. As one mother addresses "I'd like him can eat a lot, not only sleeping as he did right now, I'd like him getting well and growing up like the others" (C1: p11). Most mothers wanted babies get well and can go back home soon so that they could take care for the babies by themselves. During babies were at home, mothers could totally take care of their babies by themselves. Additionally, most mothers wanted their babies to feel warm, know the feeling of mothers' love for their babies, and to love the mothers (A1: p11; A3: p13; C3: p15; E1: p17). One mother stated that "I told my mother that I would take care for my baby by myself …after he was discharged from the hospital, I was afraid that he would not love me" (A3: p13).

Planning for the babies led mothers to choose their behaviors in taking care for the babies in order to achieve the desired goal.

3. Exploring the mother's roles

Exploring the mother's roles is a mother's behavioral pattern to take her responsibility in taking care of or nurturing her baby in which a mother search during interacting with her baby in order to achieve the desired goals she planned for her baby. The roles that mothers searched for for babies included protecting the baby from harm or infection, providing care for baby comfort, enhancing growth and development by providing sufficient feeding, encouraging baby to achieve well being, and facilitating mother-baby relationships. Moreover, some mothers had to work for additional family income after their baby was discharged from the hospital.

Exploring mother's roles, some mothers knew their responsibility to take care for their baby including giving baby breast feeding, sleeping with and bathing the baby, as one mother stated "However, I think….I had to give him breast feeding, sleep with and bathe him. These were mom's duty" (E1:p27).

Protecting baby from harm or providing baby safety, some mother usually inspected around the baby's attached devices during visiting baby in NICU because fear of disconnection of any devices that will affect her baby safety. As one mother stated after asking about what she was looking at during interacting with her baby in the videotaped recording "Everything included lines and tubing. I' m afraid that they will be disconnected or didn't work. I'm afraid that my baby could not breathe if any equipment didn't work well. I could immediately report to nurse if there is any error happened" (C1: p2).

Enhancing baby's growth and development, mothers focused on providing sufficient feeding to babies. Most mothers planned to give breast feeding to be of more help for their babies (A1: p11; C1: p3; C3: p16) while some mother planed to give her baby both breast feeding and bottle feeding because of her baby was familiar

with bottle feeding during hospitalization and her responsibility to work for additional family income (E1: p23).

"I'll feed him by my breast milk. I thought that when he can suckle. I would like him able to feed directly from me" (A1: p11).

"I plan to feed him both by breast feeding and bottle feeding because he is used to bottle feeding….If my husband can get enough money, I'll take care for my baby by myself. I must work for more money too. We must be economical" (E1: p23).

In case of mothers who wanted their babies to be comfortable, well and feel warm and knew their love to babies, most mothers planned to take care for babies by themselves and gave babies their breast milk (A1: p11; A3: p13; C3: p15, 16; E1: p17). As one mother addressed "I will take care for him by myself and give him my breast feeding. It will let him know about my feelings toward him" (E1: p17). One mother who had experienced her own mother not being interested in her also stated that "I would not do like that, I would give her my warmth and frequently touch her" (C3: p15).

Some mother who also had to work for additional family income, she will ask for help from her own mother to take care for her baby after discharge from the hospital (A2: p9).

Encouraging baby to have well being, some mothers committed to encourage and touch her baby because it was helpful to the baby, as she indicated "I'll encourage and touch him because it is helpful to him. I knew by myself that touching made him get better. Whenever, he got worst I touch him and told him to be patient, after that he got better, he could perceive" (B1: p14). Even mother who had never touched her baby after birth, also committed to touch her baby after he was fine (B2: p13). In addition, before leaving their babies after visiting in NICU, some mothers said that

they would come back to visit them everyday or more often (C1:p2). Moreover, some mothers were looking forward to welcome their babies back and take care for them at home (C1: p12).

In the process of maternal attachment to the preterm baby during hospitalization, there were major categories involved as the conditions of actions/interactions mothers used in order to get connected to their babies. These categories included having concern for the baby, adjusting emotionally to the crisis, supporting connections, life experiences and health care system facilitating. These involved the maternal attachment behaviors to the preterm babies.

Having Concern for the Baby

Having concern for the baby is a mother engaging her interest or perceiving her baby throughout her pregnancy and after birth. Mother usually were interested in the appearance of the baby (being small, preferring to gender, crying, being normal, having a defect), health conditioning of the baby (being alive, developing of complication, improving of health), and baby being well.

Having concern for the baby can facilitate or impede maternal attachment to the baby.

1. Appearance of the baby

Appearance of the baby is the physical structure or the behaviors the baby being developed and could be seen or perceived by mother after birth. Mother usually perceived her baby about being small, preferring to gender, crying, being normal, and having defects. Some facilitated while the others are impeded the maternal attachment to the baby.

1.1 Being small

Being small is the physical estimation of the body that related to body weight of the baby. At birth, in case of preterm baby, his size is small. Most mothers who their babies were born prematurely with low birth weight always concerned that they were so small and fragile. First seeing baby was small at birth; mother was sad, frightened and disappointed. With small of the baby, mother was worried (B2: p4), upset (D3: p3) and afraid of touch (A5: p6; B2: p6) and takes care for him (B1: p14; E1: p17). However, after the baby grew up that differ from at birth that so small, his attractiveness he was could change the mother's attachment to him (E1: p19).

One mother indicated during touching her baby "I was afraid that he would be hurt or harmed, he was small….I'd like to touch him but he was small" and continuously indicated "I knew that touching to baby was different from any previous two children. I felt he was thin…he was easily fragile" (A5: p6).

Another mother stated about her crying after knowing from her husband about the baby's being small at first visit "When I arrived at the front door of the room, my tear was run out. My husband told me that she [baby] was too small, she needed to be here for medical treatment, I must wait until she grew up" (D1: p15).

1.2 Preferring to gender

Preferring to gender is a mother's preference to gender of the baby during pregnancy or at birth. Mother preferred whether a male to female baby or not depend on each individual. Some mothers were not concerned about the gender of their baby especially if it was the first pregnancy (C2: p2). Most mothers would like to have a son if their previous child/children was/were daughter(s). Some mother would like the last baby is a son because she wants to have tubal ligation after her delivery (C2: p1).

After knowing the baby's gender whether by ultrasound during pregnancy or by directly seeing or hearing at birth, some mothers were glad because of their satisfying in baby's gender they expected (A5: p3; C3: p1) while the others were not. They may be disappointed when the baby's gender did not be as they expected (D1: p8). Some mother planned to have the later child with the gender she wants by consulting with the obstetrician (D1: p7).

One mother who preferred male to female baby stated "It would be better if my baby was a male. He was more easily cared than female….I used to take care for my nephew. He could be easily cared" (A2: p9, p10). Mother who satisfied in her baby gender indicated "I expected her [baby] be a female, I would take care for her as best as possible. My husband's relatives had no nieces. When I told my mother-in-law after ultrasound examination that my baby was female, she was glad very much. My sister was also glad" (C3: p2).

Other mother who disappointed in her baby gender indicated "After we knew by ultrasound that the baby was a daughter, we were disappointed but we could accept" and continuously stated "I disappointed when I knew that my baby was a daughter, not a son as we expected….Although she is a daughter, I'll take care for her with love until she was term" (D1: p7, p8).

1.3 Crying

Crying is a baby's behavior mother perceived that the baby was alive and his health was improved. No crying of the baby at birth, mother was worried; some mother thought that he could not live. Hearing baby immediately cried at birth, mother was upset and felt much love to the baby. Even some mother heard the first crying of her baby late post birth, the mother was also happy. However, baby crying without sound [because retaining endo-tracheal tube], mother's feeling was in

difficulty. In addition, mother thought that crying of the baby is meant that baby was healthy (A5: p3), or was improved and can be discharged from the hospital soon (B1: p14).

Mother who didn't hear her baby cry at birth stated "After birth, I'd never heard his crying. I thought that he would not live. He didn't cry" (D2: p13). On the other hand, mother who felt better after hearing her baby cried after received proper care indicated "Firstly, he did hardly cry, move and had no energy. However, after caring, he could cry and respond well. I felt better" (A3: p9).

1.4 Being normal

Being normal is a physical appearance and functioning of the baby the mother perceived after seeing the baby. During pregnancy, mothers would like their babies to be strong, excellent, perfect, and have normal development (C2: p1, p2; D2: p10). Having fetal movement as mother perceived was a sign indicated the baby was fine, mother was glad (D2: p10). Mother had never thought that her baby was premature (C2: p1). In case of premature birth, if the baby was physically normally developed like the other normal children such as opening his eyes, mothers were pleased (A1: p3; A3: p4; C3: p4; B1, C2: p6), accepted, proud of, and loved him (A5: p4; E1).

One mother addressed her expectation during pregnancy "I expected him to be perfected….I'd like him to be excellent and normally developed. I've never thought that it was preterm birth" (C2: p1).

Other mother stated her feeling during stroking her abdominal skin "I was excited. He'd moved. He'd moved like the others. When he didn't move, I'd like him moved. It meant that he was fine. I was glad that he could move liked the others" (D2: p10).

Also, other mother indicated after seeing her baby could move well with loudly crying during nurse tried to hold him after birth “I was glad. My baby was healthy. He can cry and move his hands and legs well”. She also continuously indicated “I think that he was healthy and normal. I love him” (A5: p3, p4).

1.5 Having a defect

Having a defect is a mother’s perception about the congenital anomaly developed during in utero. It was the significant one the mother concerned during pregnancy. Most mothers would like their babies’ development were normal. During pregnancy, most mothers were afraid of babies’ defects that can be caused by many varieties. Some mother was afraid that her own health problem would affect her baby’s physical development during in utero (B1: p1; C1: p12). The mother’s age, especially more than forty years old during pregnancy, was one the mother afraid of its affect to the baby’s defect (D1: p1). Additionally, some mother was afraid of the drugs she used during pregnancy that may be affected the baby physical development, particularly the baby’s brain development (E1: p1, p5, p6). Importantly, even procedure done (per vaginal examination) for investigation of the labor by obstetrician, some mother was afraid of its effect on her baby’s head development (E1: p5). Concerning about the baby’s defects, some mother went to see the doctor for checking up the abnormality that may be occurred during pregnancy while the others strictly follow up perinatal care, caring for self or seeking information (A5: p4; D1: p1; B1: p1, p2). Having physical anomaly, mother was not sure whether she could accept it or not (E1: p6). However, knowing by ultrasound examination that her baby was normal developed, mother was glad (A5: p4; D1: p1). Seeing babies have no congenital anomaly after birth, most mothers were also glad.

Mother with health problem (diabetes) indicated her acceptance of hospitalization after first knowing her pregnancy "The doctor told that my baby may develop an anomaly. At that time, many organs were developing….I call to my husband. He told me to do as the doctor suggested" (B1: p1). She continuously indicated "After discharge from the hospital, I take care for self and thoroughly follow up for perinatal care….I bought the book to read. I wanted to know about her development" (B1: p2). Also, mother whom her age was over 40 years indicated her concern about its affect to baby "There was limitation or disadvantage of my age. The baby may be born abnormally. When I was pregnant, I had amniocentesis done. The result was normal. I either went to The Songkhla Hospital or to health center for antenatal care. Also, I'm going to see the doctor for special care" (D1: p1). Lastly, one mother stated after first seeing her baby in NICU "Firstly, I was glad because she [baby] was normally physiologically developed" (C3: p4).

2. Health conditioning of the baby

Health conditioning of the baby is a health state of the baby the mother has perceived or concerned after knowing she is pregnant throughout after birth. It is composed of being alive, developing of complication, and improving of health. Health conditioning of the baby can facilitate or impede maternal attachment to the baby.

2.1 Being alive

Being alive is a state of the baby mother concerns whether a baby can live or not. The small and the very fragile of the preterm infant, the seriousness of the baby's illness and his complication, and the medical treatment and procedural done with the baby made mothers were uncertain in the baby's living (A1: p3; A2: p4; C3: p4; D2: p1). Being uncertain, most mothers would like their babies to survive. After seeing or knowing their babies could survive, mothers were comfortable.

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Most mothers were afraid that their babies could not survive. As mother indicated “I was afraid that he was not alive because he was small and needed ventilator” (D2: p1) while another mother stated “I was afraid that he could not survive, I was anxious because of his prematurity” (A2: p4). In addition, some mother was not sure whether her baby could survive or not as one mother stated “At that time, he seemed to be exhausted, like hopeless to live….Because he sometimes could be breathed, and sometime couldn’t. I would like to ask the doctor whether my son would live or not but I didn’t….I only think of her living” (A1: p3) while other mother also stated “However, after a nurse told me to control myself because my baby was very small hat was risk for infection and many other complications, I was not sure whether our baby could survive or not” (C3: p4).

However, after seeing or knowing from the doctor about the uncertainty of her baby, mother wanted her baby to survive (A3: p4, p11; A4: p3; E2: p3). One mother indicated after seeing her baby physical normal development “I ask the doctor how my baby would be. He told me to maintain my emotional balance. It could not exactly tell how baby will be. It was uncertain. I’d like him to survive because he was my baby” (A4: p3). Other mother also stated about her concern for the baby no responding at birth “The doctor told that he would fully help my baby much as he could. I’d like him to survive. I knew that most preterm babies could survive” (E2: p3).

Knowing from health care provider that her baby was critical and could survive only “fifty-fifty” mother was sad, worried and upset. However, after seeing her baby could survive, mother was more comfortable (A3: p12). In case of her baby could not survive, some mother would let him go (C1: p4).

2.2 Developing of complication

Developing of complication is a state the baby got any health problems caused by his illness or related to his illness during in NICU. Medical treatment or procedure done for these problems or even their severity, mothers were concerned. Mothers usually concerned about the complication that might develop due to the immaturity of their babies or even by their own and also concerned about the medical treatment their babies had received and the procedure done. Whenever knowing about those complications, mothers could not accept and were afraid, worried, stressed, or felt unhappy. Emotional supporting was helpful for mothers during that time.

Most mothers were concerned about the risk of their babies for complication during in NICU. The complications mothers were concerned about were lung and eye complications because of their baby's being premature (B2: p7; D1: p4), infection caused by their touching (A3: p7; B1: p6; B2: p13; C1: p5; D3: p3), genetic problem (Thalassemia) (B2: p3) or contagious disease (Hepatitis) (D1: p18). As one mother indicated "I asked her [nurse] about his lung and eye problems because I had heard from other people that preterm baby might develop lung disease and his eye may be blind" (B2: p7).

During each visiting in NICU, mothers were told about health conditions or health problems their babies had developed including jaundice, pneumonia, apnea, hypertension, anemia, intestinal distension, and eye problem. As one mother addressed "During first visiting, the doctor [nurse] told me that my baby had five important problems. Those were: he could not spontaneously breathe, lung problem, jaundice, feeding problem that he could not feed, and anemia. Right now, he was closely treated by the doctors. I was afraid of the big problem of breathing" (E2: p9). Additionally, mothers also were told about the medical treatment their babies had

received and the procedure done including phototherapy, blood transfusion, lumbar puncture, antibiotic administration, or stopped feeding (B1: p7, p9; E2: p5; C3: p5; D1: p12). As one mother stated "A nurse told me that my daughter was small, got jaundice, and needed phototherapy. She didn't tell me why they administered antibiotic drug" (B1: p7).

Whenever knowing from health care providers that babies had developed any complication or were in critical, and received medical treatment and any invasive procedures, mothers could not accept, were afraid, worried, stressed, or felt unhappy. Emotional supporting was helpful for mothers during that time. Most mothers prayed to the Buddha or the sacred things, made merit or made a vow for helping their babies could pass through these critical events (B1: p9; C1: p4; C3: p8, p9) while some mother accepted it as her fate (C1: p4). As one mother indicated "When the doctor told that he [baby] had lumbar puncture done, I was worried when went back home and went to make merit [Tumboon] on the next morning" (B1: p9). Importantly, some mother avoided touching her baby during he was being in critical (B1: p9). As one mother addressed "No, I didn't [touching every visiting]. Whenever she was hurt so much by blood drawing, I was only saw her or when she was being in critical, I didn't touch him because I was afraid of its affecting to his sickness" (B1: p9).

2.3 Improving of health

Improving of health is the state of the baby's health that gradually becomes better after birth. Uncertainty of the critical illness of babies during in NICU, mothers were concerned and hesitated to interact with their babies. Being known or perceiving that babies were improved by moving their bodies, opening eyes, crying, being fed, gaining weight, or breathing without ventilator, mothers were glad, felt comfort, and the maternal attachment to their babies was facilitated.

During in NICU, whenever mothers saw their babies got better, they were glad (A1: p6, B1: p5), comforted (D3: p5), relax (E1: p14), and more love to baby (D3: p7). Baby's improving by opening his eyes and crying, mother thought that her baby was nearly to discharge from the hospital (B1: p14). Seeing baby moved his body, mother felt better. As she indicated "Yesterday he was absolutely quiet sleep but today he moved his body. So, I was better….I saw him more active and stronger" (A2: p8).

When mother saw her baby was retained only tube for feeding, she felt certainly that he got better and was very glad that he was becoming normal (E1: p16). Baby who can be fed or his weight had gained, mother was glad and thought that her baby was safe (D2: p2, p14).

Some mother focused on the ventilator's respiration rate setting by perceiving that whenever the ventilator rate was decreased, the baby's breathing ability was increased (B2: p5). Most mothers were happy when their babies could be taken off the ventilator and could breathe by themselves in an oxygen hood (D1: p19; D2: p6). One mother indicated her feeling during 2nd visiting her baby "The ventilator was moved out but he had to be administered oxygen via hood. I was glad when I had seen him" (D2: p6). However, after knowing by telephoning to health care provider that her baby was improved rather continue needed respiratory supporting by ventilator, some mother was only concerned but didn't visit her baby. In addition, surviving outside the incubator that mother can touch and hold the baby, the maternal attachment to her baby was increased (E1: p16).

3. Baby being well

Baby being well is a mother desires for the baby well being. Most mothers would like to know their babies, would like their babies to grow up well and be

healthy like the others, saved, comfort or not suffer/hurt, as well as get well soon. Most mothers were concerned for their babies after knowing they were pregnant, before birth, at birth and thoroughly after birth, particularly during hospitalization of the babies in the NICU. Concerning about the baby well being, the mother was worried, carefully cared for self, or sought help for her emotional support.

Most mothers would like their babies to be healthy, strong and grow up well like other normal children (B1: p3; B2: p1, p8; C1: p1, p11; C2: p1, p8; D1: p15, p18). Some mothers also wanted their baby could tolerate to pain or be patient (B1: p3; D1: p15, p18). After knowing she was pregnant, mother carefully took care of herself so that her baby could grow up well during in utero (B1: p3; C1: p1, C2: p1). In case of mother who was born prematurely, she would like her baby to be healthy and to grow up well as she was. As she indicated "I was also born at this gestational age [7 months] I could grow up now….I think that he could also grow well. Additionally, I was healthy or I'd never got sick, so, he should be healthy too" (B2: p1). Concerning about being healthy, particularly if her baby was unlikely to the others, some mother worried that nobody wanted to play with or hold her baby (B2: p8). In order to encourage her baby, mother usually told her baby to be strong (C2; P 8) or told him to tolerate to pain while touching him during visiting in NICU. Some mothers wanted their baby to tolerate pain so that he would get well and could be discharged earlier. As one mother stated "I'd like her having great power to against pain. I'd like her can tolerate to pain. I'd like her was more patient to overcome the pain. If so, he will get well soon and can be discharged earlier from the hospital" (D1: p15).

Importantly, most mothers would like their babies to be safe and comfortable (B2: p11; C2: p2; d1; p1, p3, p9; D2: p1). During pregnancy, some mother thought

that her baby was saved because she was strong and her baby was protected by amniotic fluid in utero. As she stated “My work is ….I usually visited two villages daily by motor cycle because I think that I was so strong and my baby was in the uterus surrounding with amniotic fluid, so, he will not be affected” (D1: p1, p2). Some mother carefully walked and drove during pregnancy, particularly at the 7th month of gestation which was the time she felt much more love her baby, because she wanted her baby to be safe.

Even after knowing of preterm birth or before delivery, some mothers would like her baby to be the focus of care, not her own self (D1: p9). Mother also tried to prolong her pregnancy because she was concerned about the baby' safety, harm or suffer during in NICU if he was born before date (D1: p3). As she addressed “The doctor told me that he will treat mother until getting better. I told him to treat the baby in my womb first. I'd like to protect my baby from danger….I'm afraid that she would be in danger if I had caesarean section [before date], she had to stay longer for hospitalization, receive prolonged medical treatment and suffer from medical equipment” (D1: p9, p10).

During visiting the baby in NICU, mother would like to protect her baby from harm and gave him the comfort (A3: p6; D1: p3; D2: p4). Some mother felt that baby being kept in incubator was unlike living with mother in utero (C2: p6). During being kept in incubator, mother would like to protect her baby from cold and give him comfort. As one mother indicated at first visiting “I covered him with cloth because I was afraid that he was cold” (D2: p4).

Additionally, during in NICU, mothers were concerned about their babies' hurt and suffer from medical treatment and procedures done because of the serious illness and complications (A3: p6; D3: p8). Seeing varieties of technological

equipment attaching to the baby during visiting him in NICU, a mother was concerned that her baby would be hurt as she addressed “There were many tubes and lines surrounded him, one line at abdominal skin, intravenous fluid via umbilical vessel, endotracheal tube for respiration. I didn’t know whether he would be hurt or not, especially lining at the abdominal skin” (A3: p6). Moreover, mother also afraid of baby harm by excessive touch as she stated “I’d like to embrace him. I was afraid of his soft skin. I was afraid that he would be infected if I touch him too much” (A3: p7).

Importantly, during visiting baby in NICU, most mothers also would like their babies got well and could go back home soon (B2: p7; C1: p1; C2: p8; D3: p8; E2: p4). Some mother wanted to take care for baby at home and looking forward to welcoming home her baby (C1: p11).

Concerning about baby well being, some mothers prayed to the Buddha or sacred thing, made merit or made a vow for giving her a healthy child, or protecting her baby from danger, pain/hurt/suffer, being survive or getting well soon (D1: p18; C1: p11).

Adjusting Emotionally to the Crisis

Adjusting emotionally to the crisis was an emotional state in which the mother reacts to both an anticipated and unanticipated situation related to her pregnancy or her baby. The crisis situations the mothers were emotionally adjusting to included the responsibility related to their work, baby’s characteristics (appearance, development), baby’s health condition (uncertainty of the baby’s illness, live, complication), baby’s well-being (safety/ harm, hurt/suffer/), and the environment (health care providers, procedural and medical treatment, equipment, separation from baby, and other children). Adjusting emotionally to the crisis was composed of being stress, upset, being sad, feeling guilty of her fault, being fearful, worrying, frightening, and being

helpless. Adjusting emotionally to the crisis can facilitated and impeded the development of maternal attachment to the baby.

1. Being Stressed

Being stressed is an emotional pressure mother reacts to the situation related to her pregnancy or her baby. After knowing she was pregnant, mothers were usually stressed at their work and the responsibility to take care for other previous children. After birth, most mothers usually stressed about the characteristics of their babies, babies' health conditions, babies' well-being, environment, communicating with others, and mothers' living. Mothers' stress can impede maternal attachment to their babies.

After knowing she was pregnant, some mothers were stressed. In case of unwanted pregnancy, mother was so much stressed that she may cease to continue her pregnancy. It was a barrier for mother to develop her attachment to baby. However, after her stress was decreased, the mother probably accepted or continued her pregnancy.

One mother who was not ready to have a new child because of her work and her responsibility to take care for the first two children was stressed so much that she tried to destroy her baby (E1: p1) while another mother, firstly, did not want to be hospitalized for controlling her health condition after knowing her pregnancy because of stress with her work (B1: p1). However, after support especially from their husbands, they accepted and continued their pregnancies (E1: p2; B1: p1).

"I really tell you that I have some problem, I had two children with my previous husband to take care of. Right now I'm not ready to have a baby…I used to take a lot of drugs in order to get rid of my baby during 3 months of pregnancy"

"However, because of great support from my husband and his mother, I cherished him and took care myself to maintain health" (E1: p2).

"When I knew that I was pregnant, I must be hospitalized for a week….I worry about my work if I again stopped working….The doctor tried to explain me for accepting hospitalization. Therefore I called to my husband. He told me to do as the doctor suggested" (B1: p1).

After birth, mothers were much stressed about the NICU environment that most of them had never experienced especially at the first visit. They were usually stressed on the incubators the babies were kept in (E1: p8), the lines and tubes surrounded the babies (E1: p22). Some mother was stressed even on the name of the unit her baby was hospitalized "Neonatal Intensive Care Unit" (E1: p7). As one mother stated during first visiting her baby in NICU "There were many incubators that I had never seen before. They made me so much stressed. Also, when I saw the words written on the ward-board [Neonatal Intensive Care], I thought, how my baby got so critical" (E1; p7). Stressed on incubator, mother didn't want to see her baby in the NICU (E1: p10). Moreover, after seeing their babies, most mothers were usually stressed on babies' characteristics (C2: p1). Baby with very low birth weight or cannot be fed, mother was much stress that she cannot sleep well (C2: p2). One mother was so much stress on being premature of her baby that she decided to stop her plan to have the other one (D1: p7). Some mother stressed on baby's health condition especially when her baby got any complication and became critical (C1: p7).

Not only stressed on NICU environment, baby's characteristics (C2: p1), and baby's health condition (C2: p2), mother was also stressed on the surrounding at home. During at home, mother was stressed by her neighbor that usually asked about

the baby (C2: p10). Staying and talking with the elderly at home, mother was more stressed because they usually focused on the mother being unlucky and her fate of having premature baby (C2: p10). However, staying and thinking alone at home, mother was also stressed compared to during at the hospital that she was always fine. Stressed on surrounding at home, mother would like to separately stay in rental house closed to the hospital (C2: p10). As a mother addressed "Staying and talking with the elderly during at home made me more stressed because they always said that it was unlucky, or it was our fate or else. If it was possible, I'd like to rent a house near the hospital. It would make me more relax…" (C2: p10).

After getting more knowledge about incubator from health care providers, mothers can understand theirs usefulness. However, one mother has been stressed by incubator since at birth (E1: p7). As a mother stated "I didn't understand what the incubator was….After talking with a nurse, I felt better and understood more. However, I'd still worried" (C2: p8). Importantly, one mother thought that her stress was the major cause of the baby prematurity. As a mother addressed "I've taken care myself quite well. I think, my stress was the cause of premature birth" (B1: p2).

2. Upset

Upset is a mother's feeling of pity to her baby's harm and suffer. Mothers were upset with babies' characteristics, health condition, and well being. Whenever mother was upset, she would like to support or embrace her baby and keep her close to him (A1: p4). However, one mother was so upset that she could not see her baby.

After knowing from the doctor about the affect of her complication (severe pre eclampsia) to the baby and her life and he may not be alive, mother was upset. As she stated "The doctor told that my baby may be as me, he was sick in my womb, as well

as mother and baby probably cannot survive. I was upset with him and myself" (C1: p12).

While in the labor room, mother was upset when hearing her baby crying (A1: p2). First seeing babies in NICU, most mothers were upset because their babies were small, on ventilator for supporting their life, could not be fed unlike other children or being premature (A5: p5; C1: p2; E1: p6).

"I was upset. He was lying up in an incubator. His eyes were closed with eye pads. Additionally, he was treated with phototherapy. These were not like the other babies. He was on respirator and on intravenous fluid infusion" (A5: p5).

"On the third day after birth, I went to visit him. I cried because he was too small and upset with him because he was on respirator" and "When I told him my love, I felt overwhelm and upset. I often stroke at his head. I wanted him know my feelings to him. I love him and want to give him my warmness. I wanted him know that I would not leave him. I really need him" (C1: p2).

Some mothers were upset even just seeing their baby's face or touching their baby after opening his eyes because they could not hold their baby like the others and saw their baby was hurt (D1: p13; D2: p4, p15). One mother was upset because of no touching or holding to her baby and he was being alone (A2: p5). Moreover, the mother was also upset whenever knowing from the doctor that her baby got any complication or being in critical as she stated "The doctor told that he [baby] got lung infection and became critical. Then, I was also critical and stressed" (C1: p7).

Because of being upset with her baby, mother did not want to leave him alone after her discharge from the hospital. As a mother stated "I was upset with him, I didn't want to leave him alone. I thought that he'd like to live with me too" (A1: p5).

Some mother did not want to see her baby at first but later, she loved her baby more even though she'd been upset. It could change her feeling to love her baby (E1: p10).

"I'd never had the baby like this. He was so small that I upset with him very much. I didn't like to see him….After accepting its situation, I felt love and love him so much because it was very difficult to keep him alive" (E1: p10).

3. Being Sad

Being sad is a mother's feeling of sorrow or sorry to her baby hopelessness or uncertainty of baby sickness. Most mothers were always sad and cried after first knowing or seeing their babies' health condition, well-being or even when they were bored during at home or were blamed by health care provider during visiting their babies. The sadness prevented mothers to see or visit their babies in NICU.

During pregnancy, mother always cried because of stress over work and friends. Some mother cried while being transferred to the operating room for caesarean section because she did not want her baby to be born prematurely (D1: p10). Some mothers were sorry and cried a lot after knowing their baby's uncertainty (A1: p2; C2: p3).

Being sad with baby, maternal attachment to the baby may be impeded.

At birth mother was sorry because of knowing that her baby was small and so critical that intensive care was needed (C1: p2). Mother usually cried after seeing baby at birth and seeing baby seemed to be exhausted or hopeless at first visiting in NICU, as well as, after a doctor told the uncertainty of the baby sickness, dead and alive are equal (A1: p3; C1: p2; C2: p3; E2: p9). As one mother stated "I worried with him very much because the doctor told that it was "fifty-fifty". I was sorry and cried thoroughly 2 days after birth and also cried during visiting" (A1: p2). Similarly, other

mother also stated that “I cried. I’d like to talk with my husband because the doctor told me that my baby was “fifty-fifty”, then, I cried and cried” (C2: p3).

Seeing baby with tubing in his mouth and being hurt or in pain, mother was sad and very sad when seeing her baby surrounded with tubing and ventilator. One mother indicated “Even the doctor told me that my baby can survive but it was hard for me to stay calm especially after I saw her with two tubes in her mouth and IV line. In addition, her hands and legs were bruised….I was sorry very much…” (D1: p3). Seeing baby at first visit, mother was cried because of concerning about her baby and thought of her fate. As one mother stated about her cry at first visit “Because I was upset, I wondered why he was, while other baby can be fed but my baby cannot, or it may be my fate” (C1: p5). Even some mother felt sorrow before seeing her baby in NICU. One mother addressed “When I arrived at in front of the room, my tear was run out, my husband told me that she was to small, she needed to be here for medical treatment…I could not adjust and had to leave her again”(D1: p15). Moreover, mother usually cried after knowing from health care provider that her baby got more serious respiratory problem, or seeing her baby was hurt or in pain (D1: p11). However, one mother cried because of feeling guilty she tried to destroy the baby during pregnancy (E1: p8). One mother was sad when baby glanced at her like needed help from her but she couldn’t (D1: p14). Importantly, during visiting her baby, mother cried because she sensitively felt like she was blamed when hearing a nurse told her to frequently visit her baby (D1: p17). Additionally, during at home, most mothers often cried, especially when thinking of her baby’s life.

Her sadness caused the mother to not want to see her baby at first or later visiting in NICU.

4. Being Guilty of her fault

Being guilty of her fault is a mother's feeling of doing something wrong to the baby or hurt the baby during pregnancy or after birth. Most mothers always felt guilt at her fault for causing preterm birth or baby's sickness. Some mother was guilt when she did not frequently visit her baby during in NICU. However, during first visiting in NICU mother cried and talked to baby to apologize because of her guilt.

Mothers who were felt guilt at their fault that caused their babies sick or prematurely birth usually thought that they were at fault because of their inadequate rest or caring self during their pregnancy (A2: p11; B1: p ; C1: p1, p12, p13). At birth, some mother felt guilt and suffered because she hurt the baby by using some drug in order to destroy the baby during pregnancy. As mother stated:

"During pregnancy, I think, he was hurt by the drug I used. Right now, I've still thought of it" (E1: p6), "I love and upset with him so much that I sat down with him, cried, and apologized " (E1; p13).

"I should not. I should not since at the beginning. I hold back sorrow and felt that even I cannot tell him about my love regarding to him but in my mind, I know whether I love him or not " (E1: p6).

Moreover, during visiting in NICU, some mother was guilt when seeing her baby was glancing at her like blaming her or needed her help but she cannot (E1: p ; D1: p14). In addition, mother who was infrequently visited her baby was usually guilt as she indicated "I felt bad because a nurse told me to visit more frequently….I felt bad but I was not angry with her….I knew that I didn't abandon her. I'm always guilt" (D1: p16, 17). Infrequent visiting, mothers thought that it was like they left their babies alone in NICU (C1: p10; D1: p17). One mother indicated "If I didn't come to see him, it seemed to be like I left him alone" (C1: p10).

5. Being Fearful

Being fearful is a mother's feeling of alarm or trouble caused by awareness or expectation of danger. Most mothers usually feared of the uncertainty of their babies' health condition, the babies' characteristics, and the babies' well-being. These mothers' fear occurred during pregnancy until birth. Being fearful prevented mothers from touching or doing anything with their babies during visiting in NICU.

Mother who was pregnant while her age was more than forty years old was afraid of her old age affecting her baby during pregnancy (D1: p1). In case of mother with severe complication during pregnancy, mother was afraid of complication occurred to her baby if he was born before date or afraid of her baby dying without seeing him during delivery (D1: p10; D2: p11). In case of birth before date, one mother indicated "I'm afraid that she [her baby] will be in danger because if I had caesarean section, she had to stay longer for hospitalization, receiving prolonged medical treatment as well as suffering from medical equipment. I can imagine those in the future. I was afraid of anything that will happen to him (D1: p10).

Before seeing their babies at first visiting in NICU, mothers were afraid of their babies' abnormality because of never known about premature baby. One mother indicated "Before going to see him, I thought and was afraid that he was missing some parts of his body. He probably had no finger or any part of the body. I had never known about preterm baby" (C2: p4).

After seeing babies in NICU, most mothers were afraid that their babies could not live because they were small and critical that needed ventilator for supporting their breathing (D2: p1). Mothers were also afraid when the doctor told them about the uncertainty of their babies' sickness as a mother stated "I was afraid of being

uncertainty of his illness because the doctor told that today he was fine but the other he may not be" (B2: p11, 12).

Moreover, most mothers were usually afraid that their babies were harmed by infection or disconnection of tubing or lines that prevented them from touching their babies (B2: p5; C2; p7, p12). One mother indicated "I only saw him, I didn't courage to touch or even did anything because of being afraid of harm" (B2: p5) while the other mother stated "I didn't touch him a lot because of being afraid of infection" (C2: p7).

Additionally, some mother was afraid of hearing any feedback about her baby that probably hurt her, so she was carefully communicated with her neighbor especially when asking about her baby as she addressed when communicated with her neighbors about her baby at home "I tried to conceal some truth because I was afraid of going on speaking that made me got worse" (D1: p17).

6. Worrying

Worrying is a mother's feeling of being uneasy or troubled by what will happen to her baby's life or suffer him. Most mothers usually worried about the characteristics (appearance, development, abnormality), health condition (uncertainty of illness or live, complication, severity of illness), and well-being (harm, hurt, suffer) of their babies. Mothers also worried about the environment (equipment, family) related to their babies. Mothers with preterm birth had worried since during early pregnancy, at birth, during in NICU throughout during at home. Mothers' worry could be subsided if they had frequently visited their babies, been supported by significant other, especially by their husbands or support of belief, and communicated with health care providers. Worrying could facilitate or impede maternal attachment to her baby.

After knowing she was pregnant, mothers were usually worried about the effect of pregnancy on their work (B1: p1; E1: p2), the responsibility to take care the previous children (E1: p1) or the effect of their health problem on their babies (B1: p1). Some mother was so much worried that she tried to cease her pregnancy (E1: p2). In case of mother with health problem (diabetes), she was also so much worried about stop working for hospitalization for controlling her good health. However, because of being worried about the affect of their responsibilities to work on their babies, the babies' birth defect, and the supporting from husband and health insurance, mothers chose their babies first (B1: p1). As a mother stated "It was an unplanned pregnancy….I went to see the doctor and knew that I was pregnant and had to hospitalize because I wanted my baby was saved [from birth defect that she worried]. I chose my baby first even I must be retired from my work" (B1: p1)

Before birth, some mothers worried about the complication of pregnancy (amniotic leakage, pre eclampsia) (E1: p1; D1: p9), the baby's live because of the less movement of the baby during in utero (B1: p2) or the birth before date (D1: p9), the baby's safety from doctor's investigation (per vagina examination), and the baby's hurt or suffer from the procedure or medical treatment for prolonged pregnancy (E1: p1, p5). One mother indicated "Before birth, I think he may not be alive because of much amniotic fluid leakage" (E1: p1)

In addition, some mother was worried about the baby's development or defect (B1: p1; E1: p5) especially due to drug using during early pregnancy (E1: p5, p6). A mother who tried to cease her pregnancy by variety of drugs stated "I always think of the danger or an abnormality of the baby caused by the previous drugs I used" (E1: p5).

At birth, most mothers were worried because they could see their babies for a moment (B1: p4; D1: p3; E1: p6). Some mother had never heard her baby cried (B1: p4). In addition, some mother was lack of information about her baby after birth (B1: p4). Mother knew only her baby was small and seriously ill that needed intensive care in NICU. Some mother worried that her baby was probably die because he was small (E1: p6). One mother indicated her feeling during at birth "At birth, when she was born and lied on my chest, I immediately saw her and ….After that, she was moved away. However, I'd never heard her crying….In my case, I'd neither heard her crying nor known her weight. A nurse only asked me about the correct name she wrote. I was worried about her because I just saw her for a moment. I didn't know at that time that she'd moved to the NICU" (B1: p4).

During in NICU, at first visiting, most mothers were worried because of the prematurity of their babies (A1: p2; B1: p13; C2: p7), the baby defect and being small (C1: p12; D1: p4; E1: p1, p7), the uncertainty of babies' sickness and their lives (B2: p5; D1: p4), the equipment using for sustaining babies' life (A1: p2; A5: p5, E1: p9), the adverse procedures that made babies' hurt or suffer (A5: p6; B2: p5; D1: p4; D2: p4), and the critical her baby was (A1: p3; C1: p12). Some mother was worried about the baby's condition that attaching with tubing and lines (B1: p6; B2: p5).

Worrying about the prematurity of the baby, one mother indicated "I love him since at birth. I specially loved and worried about him because of his prematurity" (B1: p13).

Moreover, most mothers also worried about infection that prevented them from touching their babies (B1: p7, C2: p7). Some mother so much worried about the complication of infection occurred to her baby as she indicated "When the doctor told that she'd lumbar puncture done, I was worry when back home and went to make

merit [Tumboon] in the next morning….The result show that she had no infection in the brain….Infection in the small baby was a big problem for us” (B1: p9).

In addition, some mothers were worried about the complication developed especially eye complication and its treatment (A1: p10; B1: p5, 12, 13; B2: p8; D1: p4, 19). As one mother stated her worry about the baby’ eye complication “The doctor used to tell me that even my baby can open his eyes, he may be blind because of many devices he used may harm his eyes….If he wasn’t like the others, I thought, why was he born. Nobody would like to play with him as well as I could do nothing because I had to take care for him thoroughly” (B2: p8).

Importantly, some mother was more worry about her baby than the previous children (C2: p13). She was worried about the separation of her baby from parent (C2: p3) and could not stay with him after birth like other children (C2: p13). As mother indicated “The first two daughters were born normal. There was no stress or worry as with the youngest. We all lived together. For the baby, we didn’t live together after birth, he was in NICU” (C2: p13) and also stated “In addition, he had to separate from the parent” (C2: p3). Additionally, some mothers were worried even the bruised skin of her baby (B2: p5), the baby’s weight loss (B1: p15), or the ventilator rate setting (B2: p7).

While at home, most mothers were worried about the complication their babies developed and the baby harm and suffer from medical treatment and the procedural done (A1: p11, p12; B1: p5). As a mother indicated “Whenever our baby was better or looked more cheerful we were glad, but whenever she had some medical procedure done or developed any complication we were worried especially during at home” (B1: p5). The other mother also stated about her thinking during at home “I thought about my baby, I worry about him. He was hurt or suffered or not when the

doctor gave him intravenous fluid infusion or blood transfusion, and blood taking" (A1: p11, p12).

Worrying about their babies, some mothers could not sleep well at home (E1: p5). However, supporting from husband, mother in-law and health care providers were helpful for mother. Some mothers usually prayed for their babies or Takbatre (offer food to the monk) for the belief of help from the sacred thing.

Because of being worried about their babies, mother usually took-care for their babies more and felt more attach to them (C2: p2, p3, p13). Frequent visits the baby, the worrying about her baby could be decreased in some mother (A1: p7). However, even some mothers were worried about their babies but they could not visit their babies as they wanted because their families did not allow them to go outside or would like them rest for better health after their deliveries (B2: p9).

7. Frightening

Frightening is a mother feeling of suddenly being afraid of what might happen to her pregnancy or her baby's life. Most mothers were frightened after first knowing about pregnancy, severe complication of pregnancy, preterm birth, the characteristic of the baby, particularly the baby small and chest movement, and frightened even at the baby bed changing. Mother who had never thought before about her pregnancy was frightened at first knowing of pregnancy (A4: p2; B2: p2). One mother indicated "I've abdominal pain that I thought it was dysmenorrhea….My neighbor told me that I was being pregnant and my baby was going to be born. During that time, I was frightened very much and wonder how I was pregnant because I was used contraceptive drug" (A4: p2).

Some mother was frightened after knowing very serious unanticipated complication of her pregnancy because she had no signs and symptoms of it (D1: p2,

p9). Importantly, she was a health care provider that always took care for self very well. A mother who was a health care provider addressed "the doctor told me that if I came late it may develop convulsion. I got severe preeclampsia. So, I was frightened because I'm the community health personnel. Also, it had no any signs indicated" (D1: p2).

Furthermore, some mother was frightened after knowing she had preterm birth. A mother who was born preterm indicated "I used to talk with my husband whether I'll have preterm birth or not. If so, it may be funny. At that day, I had labor pain and was sent to the hospital. Firstly, I was frightened because my sister also was born prematurely but she could not alive" (B2: p1).

Moreover, at first seeing her baby in NICU, mother was frightened because her baby was small. His breathing and chest movement was unlike the other normal children. As a mother addressed "When I first saw him, I was frightened very much because he was too small and he breathed unlikely the other normal children. His chest was moved up and down that I'd never seen before" (C2: p4).

Interestingly, some mother was frightened even because her baby was moved to the other room (C1: p2).

8. Being Helpless

Being helpless is a mother's feeling of lacking power or strength to help her baby. Mothers usually felt helpless during first visiting their babies in NICU. Being helpless that they couldn't help their babies, mothers were worried, unhappy even they could see and touch their babies for a moment and spent a short period of time during each visiting.

Mother felt helpless in helping her baby after birth despite she could during her pregnancy. As one mother indicated "I thought that during in my womb, I could

take care for him and nobody could do anything with him. In contrast, when he was born, I didn't know what he was done. I was the owner of my baby, I worried about him" (A3: p12).

During first visiting her baby in NICU, mother felt helpless because she could do nothing except looking and touching despite of wanting to kiss, embrace and touch as well as to feed her baby like the others. As mother stated "I felt attachment with him. I'd like to embrace, kiss or touch him like other mother did. I'd like to bath or feed him. In this case, I could do nothing. I could only looking and touching. I couldn't feed him" (C2: p7).

Moreover, some mother felt that her touching was unable to help her baby from dying. Mothers always cried because she could not help her baby (D1: p5). However, during each visiting, even mother was unable to help her baby but she could only touch her baby for a moment. As a mother addressed "During my hospitalization, I visit her every day and after went back home, I also came to see her. However, I can do nothing except touching her for a moment in a period of visiting. When I saw her in each situation, I was not happy because I cannot help her" (D1: p5). Importantly, mother who felt helpless spent a short period of time staying with her baby during each visiting because she could do nothing to her baby as she indicated after asking about the length of time she spent with her baby "Not so long, may be 5 minutes. I could not stay longer because I could do nothing while the other did because they could give their babies breast feeding and could hear the baby's crying. Hearing the baby's crying, I think, it was the happiness. I had never given her the feeding, cleaning, and removing sticky tape from her" (D1: p16).

Supporting Connections

Supporting connections is the way for maintaining mother physical, psychological and spiritual aspects whenever she is worried, stressed or in trouble related to her pregnancy or her baby after birth. Preterm birth and hospitalization of the preterm infants in the NICU, most mothers have psychological stress with these crisis events both of their preterm babies and environmental circumstances. Support from significant others particularly their husbands was helpful for them.

There are several sources for mothers' supporting connections. The significant one was their husbands. In some cases, their relatives, particularly their own parents were helpful. Additionally, health care providers, particularly nurses in NICU were also the significant persons in helping mothers to cope with stress during visiting babies in the NICU. Health care insurance was another source of supporting connections for some mother. Importantly, most mothers usually maintained their psychological and spiritual balance by supporting of their beliefs.

The provision of supporting connections to the mothers were different between significant others. They were providing baby's information to mothers, going with mothers to the hospital for prenatal care or visiting babies, talking with mothers for encouraging, finding familiar person to talk with, buying things for the mother, giving special care to mother, financial support, comparing the mother's crisis situation to the other mothers' information, and making a vow or praying to the Buddha or the sacred things for help or being belief in their fate "Karma".

Supporting connections can be provided to mothers throughout their pregnancy and their babies' hospitalization both during in the hospital and at home. In some case, supporting connections to mother were helpful for the mother in deciding to accept or continue her pregnancy.

After supporting, most mothers who were confused, unable to decide or unaccepted her pregnancy after knowing she was pregnant usually accepted and continued her pregnancy. After supporting, mother could sleep well after her worry was decreased and became happy. In some case, maternal attachment to baby was facilitated.

Supporting connections mothers experienced can be described by 5 subcategories including: 1) informational supporting, 2) emotional supporting, 3) instrumental supporting, 4) appraisal supporting, and 5) supporting of belief.

1. Informational supporting

Informational supporting is providing advice, suggestion, direction or information that an individual can use in helping mother to cope with the problems. Husbands and health care providers particularly nurses were the significant persons in giving necessary information to mothers in order to enhance their knowledge, understanding about their baby health condition, medical treatment and nursing care the babies needed. Supported by this information, mothers felt better.

After knowing her pregnancy, one mother was stressed because of her health problem, responsibility over work or didn't ready to have the baby. Some mothers did not accept her pregnancy or wanted to cease her pregnancy while some were confused and could not make their decision. Informational support provided by their husband was helpful. Providing information, the husband told mother of the difficulty to become pregnant that they should value the pregnancy and to keep on with it, as a mother said "My husband, he loves children. When he knew that I didn't tell him about the pregnancy and drug, he was angry and told that it was hard to get pregnant, we had to take care of it" (E1:p3). Some husband encouraged the mother to be hospitalized for proper management for her health condition as the doctor suggested

when she was confused and hesitated to make her decision, as a mother described "Firstly, when I began to know that I was pregnant, I confused that why I must hospitalized for a week for insulin injection…..I worry about my work if I again stopped working because I just came back to work….The doctor told that baby may be anomaly developed. At that time, many organs were developing. The doctor tried to explain me to accept hospitalization. Therefore, I call to my husband. He told me to do as doctor suggested" (B1: p1).

After receiving support, most mothers who were confused, unable to decide or did not accepted her pregnancy after knowing she is pregnant usually accepted and continued their pregnancy.

Visiting baby in the NICU, most mothers were supported by their husbands. Some husband told story about the baby to mother after visiting baby at the day mother could not visit (C1:p7). Even before going into NICU at first visiting, some husband told mother about the baby's characteristic, the baby's needs for treatment that needed time to wait for supporting her crying (D1: p15). Some mother firstly didn't courage to touch her baby, rather after her husband's supporting by telling about the important of touching to baby, mother entirely touch him As one mother said "Firstly, I didn't courage to touch him because of sympathizing with him but my husband supported and told me to touch. Touching will be helpful to him. Then, I touched him at his head and the entire body" (C1: p2). In addition, some mother absolutely did not want to see her baby because of sympathizing with him due to he was small, attaching with lines and tubes and being kept in an incubator. Rather, after her husband told her about his normal physical development even he was kept in incubator, mother could accept, felt love and commit to nurture him with love until he grew up (E1: p10).

During at home, most mothers were supported by talking about their baby with their husbands as well. However, there was one mother that was less supported by talking with her husband because of his responsibilities over work (A1: p10).

Moreover, during visiting baby in NICU, most mothers were informationally supported by health care providers, particularly nurses. They usually gave information about the progression of the baby's health condition, procedures or medical treatment and nursing care the baby received including encouraging mother-baby relationship by closely interacting with the baby. Supporting mothers by giving them this information, mothers enhanced their knowledge and understanding; mothers could calm down their emotion, were glad, could relax, and were encouraged or confident to interact with their babies. (E1: p9; C1: p2; B1: p11).

One mother told about the care the nurse provided to her that very helpful and made her better that "They help me even telling me to ask for the golden card to waive the highly medical care fee….The nurses tried to encourage and support me by telling that there was some preterm baby that his weight was only 800g could survive. Right now, he was 5 years old" (A3: p9).

2. Emotional supporting

Emotional supporting involved providing empathy, caring, love or trust to a mother for her comfort, confidence, encouragement, or maintenance of emotional balance to their stress or concerns with pregnancy, their babies and interacting with their babies. The significant persons providing emotional supporting for mothers usually were their husbands while their relatives and nurses were also helpful.

For emotional support, husbands usually provided their care or talks to mothers. During pregnancy, in case of the pregnancy was the last of their family, some husband well supported mother by taking care, spoiling, and doing many things

that never did before for the mother (C2: p9). As one mother stated after asking about her husband's attachment to the baby "He is much attached to his baby. During pregnancy, he spoiled and took-care me very well" (C2: p9). In some mother, her husband worried about her as she stated "He took- care me since at the first time he knew about my pregnancy. When coming back home, he will stroke my abdominal skin while asking me how I'm doing and what I ate as well as told me to maintain my good health" (E1: p19). In some mother who thought of the baby and worry about him during having amniotic leakage before birth, her husband told her to stay well for supporting (A5: p3).

During their babies were hospitalized in NICU, mothers often stressed over the uncertainty of the babies whether they could live or not or concerned for the baby on baby characteristics, baby's health condition, or well being. Some mothers were also stressed over the equipment being used with their babies. Importantly, some mother was so much stressed not only by her baby but also by her neighbors that she would like to seek mental health support from anyone (C2: p1). These affected mothers' health and their interacting with their baby. As one mother stated "when I went back home, my neighbors always asked me about my baby. It made me worst and fatigue because I cannot eat. Whenever my baby was dyspnea, I was more stress. I would like to ask for help from anyone who can give me mental supporting" (C2: p1). Emotional support from their husbands was helpful in soothing, calming or encouraging them.

One mother who was firstly afraid of her baby survival, after seeing, touching, talking with her baby and was being supported by her husband she was better. As she described when asking her on what made her got better "I thought they were I could close to him and touch him as well as supporting from my husband. He encouraged

me very much. He supported and took care of me. He tried to understand me" (A2: p4).

In case of the baby was "fifth-fifty", some husband told mother to be alive even their baby could not (C2: p9) and also told mother to calm down because they already did the best for baby (C2: p3). Some husband told mother who was stressed at first seeing her baby being kept in incubator to confident in curing and caring capacities of the health care providers (E1: p9). Some husband told the mother not to worry about the baby's uncertainty because he was intensively cared for by the doctor (A4: p3). Moreover, during visiting baby in NICU, some husband supported mother in first touching their baby and some time supported each other in talking with baby in order to encouraging him (C1: p5). Interestingly, some husband supported mother by "making a joke" for fun (D1:p20).

Emotional supporting, not only husband provided to mother but also her relatives particularly her grandmother and her sister did. Some mother was happy when talking with her grandmother during at home (A1: p12). As one mother stated "I was accustomed to grandmother but we hardly talk together because she worked during daytime. I usually stay alone during that time….I'm happy after talking with her when she came back home" (A1: p12). Moreover, some mother would like to talk with her sister during at home because she always gave her more encouragement. As mother stated "During at home, I usually went to talk with my sister because she gave me more encouragement" (C2: p11).

Additionally, health care providers in NICU also gave mothers a great support. Doctor and nurse had never made mother stress. In contrast, they were helpful and made mother love her baby as well (E1: p22). They told the mother not to worry

about the baby during being kept in incubator at the first visit (E1: p9) or not to worry a lot about the baby's survival and suggested me to take a rest (A4: p3).

However, there is some mother was less supported about her worry with baby by her husband's family (A1:p12) and by her husband (A1:p10). As one mother stated "He worked and went back home at night. We talked a little bit together" (A1:p10).

After receiving the emotional support, most mothers could calm down their emotion, were confident in the capability of health care providers in caring the babies, and encouraged to interact and take care of their babies.

3. Instrumental supporting

Instrumental supporting is the provision of direct help, money, labor, things or time to mother and the modification of the environment in order to help mother in coping with problems. The significant persons who provided instrumental supporting to mothers usually were their husbands and also their relatives particularly their grandparents both during pregnancy and during their baby hospitalization in NICU. They usually gave help, time or even things to mothers. In addition, some mother was supported by health care insurance for hospital expense.

Mothers who were instrumental supported usually were pleased and encouraged in caring for self for baby being healthy during pregnancy.

During pregnancy, some mother went to see the doctor for routine prenatal care together with her husband or her own mother. In case of mother who wants to have the last baby, her husband closely took care of her by buying things (D2:p9) and doing many things that he had never done before for her. In some mothers, her husband did not allowed her to do her work during pregnancy. In addition, social insurance was another source of support for mother particularly for financial support

(B1: p1). It was one that took a part in decision making to caring for pregnancy after knowing of her pregnancy.

Instrumental support that husbands provided to mothers during their baby's hospitalization in NICU included going together with mothers to visit their baby and helping mother in giving their baby breast feeding. As one mother stated about practising how to take care the baby with a nurse "However, I'm not worry about these because my husband can do. Some procedures, my husband can do while I cannot such as holding baby in the arms during breast feeding… He taught me how to burb the baby after feeding. In addition, he usually warned me to gently take-care the baby and being careful about his nose that may be obstructed during feeding" (E1: p26).

Moreover, providing instrumental supporting to mothers, nurses in NICU also could by modifying the environment in NICU to enhance mother's understanding and her courage about preterm baby or enhanced her confidence in care given by health care providers. Poster presentation in NICU particular about preterm babies who can survive after curing and caring in NICU was helpful for mother. As one mother stated after seeing poster presentation in NICU "Today the doctor told me that she was better, she needed no respirator. It was the day we can smile. Firstly, I cried and wondered why she was but after seeing poster presenting on the board, the picture of a baby with birth weight only 800 grams that can survive, I was confident in health care team who taking care our baby" (B1: p5).

4. Appraisal supporting

Appraisal supporting is the transmission of information from another person's idea and/or behaviors that a mother uses in evaluating oneself. Most mothers were informed to compare their babies to the others who were more seriously ill, lower

birth weight and small in size. Most of them can see those babies during visiting their babies in NICU. After seeing those babies, some mothers were better. Their worries about babies were decreased.

Seeing other babies who were kept in incubator, more serious, and particularly could survive during visiting baby in NICU, some mother stayed longer with her baby in spite not wanting to see him. As one mother said "I looked around in NICU and found that most of the babies were also kept in incubators and were more seriously ill than my baby. Importantly, they could survive. At first, I think, I just came to sign my name in any document and went back immediately because I can accept nothing" (E1: p11).

Supporting from their relatives was also helpful for mothers. Some mother was supported by her own mother. She always told mother not to think a lot after seeing other mothers taken care their babies during at home (D2: p5). Additionally, some mother was supported by her grandmother. She told mother, at first visiting, not to worry about her baby because he was the same as her that was born prematurely as well (B2).

5. Support of belief

Support of belief refers to holding a religious belief or natural superstition belief mother used in maintaining her psychological and spiritual aspects. Most mothers usually prayed to the Buddha or sacred things for help or made a vow for her baby being healthy or physically normally development while some mother had "Takbatre" for supporting their comfort. Some mother accepted in what happened to her and her baby that it was because of their fate or because of her belief of "Karma".

Support of beliefs was a great psychological and spiritual help for mothers. While at home, most mothers always prayed to Buddha or to sacred things for helping

their baby's life, safety, normal development, or well-being. Supporting of their beliefs, most mothers usually did both during pregnancies and after birth during their baby's hospitalization in NICU.

During pregnancy, some mother went to "Takbatre" or prayed to Buddha or sacred things for their babies' normal development and being healthy (B1: p ,) or pray for baby safety during having labor pain (D1: p11; D2: p11). Even during at birth, one mother prayed for her baby being alive as she stated "At birth, I prayed for him because I was afraid that he could not live" (A1: p1). Another mother prayed for her baby's safety because fear of her baby died before she could see him as she said "I was afraid that he would die. He would not live. When he was born, the doctor told that he had a chance to be alive. I calmed down. I was afraid that I could not see him before he left. I prayed for giving him safety" (D2: p11).

During baby hospitalization in NICU, most mothers wanted their babies to be safety, to be alive, not have any complication, or to get soon. They did not only carefully follow the health care providers providing cure and care to their babies but also asked for help for their babies from the Buddha or the sacred things.

Some mothers made a vow or prayed for their babies being alive. As one mother stated "I was afraid that he would not normally develop and would not live. I prayed for only giving him living" (A1: p1). Another mother also said during second visiting that "he was the same. I certainly thought that she would not survive. So, I made a vow and prayed to the sacred thing for giving her a life" (C3: p5).

Sometimes, mother made a vow or prayed to the Buddha for the baby being well and safety as one mother said "I pray to the Buddha for making him get well soon, to not have any complication when going back home" (A1: p12) while another mother said after visiting her baby "After visiting, I cannot sleep. I prayed to the

sacred thing for helping him. It was the villager's belief. I also paid respect, prayed and made a vow to Buddha for him being well" (C1: p6). However, one mother prayed for her baby being well and having no problem happened to him despite he was getting well as she said "I was upset with him. He was small. His weight was around 1,400g. He may be stronger and stronger because his weight was increase. I prayed for him for being well and having no problem" (D3: p3).

Concerning about baby safety during hospitalization in NICU, most mothers usually prayed to the Buddha or the sacred things for helping their babies to be saved from their serious illness or any complications. One mother said "After birth, I would control my mind because my baby was small. When I visited him, I pray for him for safety. I worried about him and didn't want to discharge from the hospital before him" (A3: p1). In case of mother who could not visit her baby during postpartum period because her baby was referred to the other hospital NICU, she only prayed and made a vow for her baby safety as she said "I prayed for giving him safety and told my husband to make a vow for giving him safety too" (D2: p1). In addition, during at home, the mother also prayed for her baby because of worrying about him as she said "I prayed for giving him safety. I often cried and was worried about him, as well as I'd like to visit him" (D2: p3).

Additionally, some mothers went to "Takbatre", prayed, or made a vow to the Buddha or the sacred things for helping their babies when they got any complications. As one mother said after her baby got bowel infection "When she was ten or twelve days old, she got bowel infection. Before that, a doctor used to tell me that she was risk for infection because she was small. So, I had to control my emotional balance. I again thought a lot. My hope was reduced from twenty to zero percent. When she got infection, I went to make a vow for her to get better" (C3: p8). Some mothers went to

"Takbatre" when her baby got any complication. As one mother stated after knowing from the doctor about her baby's complication that "When they told that our daughter had abdominal distension or any complication, I'd found some thing for mental supporting when I came back home. I went to the temple or "Takbatre" once a week. I believed that sacred thing was helpful, or else, I cannot sleep well" (B1: p5). One mother also stated "When the doctor told that she'd lumbar puncture done, I was worried when going back home and went to make merit "Tumboon" next morning" (B1: p9).

Moreover, some mothers believed in the rule of "Karma" by the belief in what happened to her and her baby was because of their fate. It was the way of thinking in what happened that can calm down mother's emotional imbalance. As one mother said "I'd like him get better. Whenever, the doctor told that he got worst, I'll calm down and thought that it was the fate between both of us" (C1: p4).

After receiving support, the mother could sleep well after her worry was decreased and became happy. In some case, maternal attachment to baby was helpful. Most mothers were better after praying (A1: p12; B1: p5; C3: p5). One mother said after making a vow and praying for her baby "I was better. I had a good night-dream with lovely child every night" (C3: p5). However, there was some mother stopped praying after she was despair because of her preterm birth (D1: p18).

Life Experiences

Life experiences is a mother's having gone through an event related to her pregnancy or preterm birth. It is either a satisfied or unsatisfied experience. Mother probably experienced with herself, her husband, her own mother, neighbor, other children, or even directly experienced with preterm infant. Mothers usually had experience about baby with being kept in incubator, complication, survival or death.

Some mother had experience about being a mother by herself or experienced about her own parent's attachment. In addition, some mother had experience with her children by no interacting with them or never had experience with preterm baby before.

Life experiences could affect mother's feelings about her baby, hopelessness, encouragement, understanding the feelings of motherhood or the maternal attachment to baby.

Life Experiences can be described by 3 subcategories: 1) Experiencing about preterm baby, 2) Experiencing about interaction with baby, and 3) Experiencing her own parent's attachment

1. Experiencing about preterm baby

Experiencing about preterm baby refers to mother's having gone through an event about preterm baby. The events about preterm baby the mother experienced included length of stay in the hospital of the baby, baby being kept in NICU, baby with complication, and the survival and death of the baby.
Having experience about preterm baby, some mothers were worried or concerned about their babies or needed more encouragement. However, having no experience with preterm baby, mother was sad, upset, guilt, despair or hopeless or some mother accepted it to be her fate when her baby was born prematurely (A3: p8; C2: p1; D3: p6).

With no experience, the mother whose preterm baby was separated to NICU was upset (D3: p6), sad, despair and hopeless (C2: p1) or felt guilty (A3: p8). One mother described "I was sorry very much because I'd never seen before. I expected with him that he had to be perfectly….I'd like him to be excellent and normally developed. I've never thought that it was preterm birth…I cannot calm down. I

thought a lot. I often go to see the doctor for prenatal care. I'd never loss to follow up and take medicine. It was probably my fate" (C2: p1).

1.1 Experiencing about length of stay in the hospital of the baby

Experiencing about length of stay in the hospital referred to mother's having gone through an event about the length of time preterm baby was hospitalized in the NICU. Mother who experienced her relatives' preterm babies hospitalized in the NICU expressed her desire not to stay overnight with her baby. Mother decided to go back home in stead of staying with her baby in NICU when doctor asked after seeing her coming back to visit baby on the day she discharged. As one mother described "Firstly, the doctor asked me whether I'd like to stay in the hospital or not. I thought that I should go back home because I didn't know when my baby could discharge. He certainly stayed in the hospital for a long time. My relatives' children were born prematurely. My sister's child was also born prematurely" (E2: p10).

1.2 Experiencing baby being kept in incubator

Experiencing baby being kept in incubator referred to mother's having gone through an event about the preterm baby being kept in the incubator during hospitalization. Generally during pregnancy, most mothers wanted their babies to be normally developed and born fully. Baby who born prematurely was needed hospitalization in NICU, particularly being kept in incubator for a period. One mother who used to see the preterm baby said "I used to see the baby who was born prematurely at 7 months of gestational age. He was kept in incubator for 3 months" (C1: p10). Experiencing with preterm baby being kept in incubator, mother wanted her baby born fully and normally. She wanted her baby as normal as other normal baby was. As she said during pregnancy when her baby moved "I loved him. I told him born normally and fully like the others" (C1: p10).

In case of mother who had never experienced preterm baby being kept in incubator, she was so stressed when seeing her baby was kept in incubator that she could not accept him (E1: p8). One mother described during first visiting her baby in NICU “Firstly, it was hardly to accept, he was kept in incubator” (E1: p7) and continued to describe that “There are many incubators that I had never seen before. They made me so much anxious” (E1: p7). Moreover, even it was the second time of baby being kept in incubator she’d still anxious about it as she said “There are many things causing stress. Right now, I’ve still stressed because he was again being kept in an incubator after he could survive outside” (E1: p7).

1.3 Experiencing baby with complication

Experiencing baby with complication referred to mother’s having gone through an event about baby with health problem. After knowing her baby got the same health problem as her previous child, she was worried and concerned about the baby’s health condition.

Mother who experienced lung complication in former children that needed medical treatment for a month was scared when hearing that her baby got pneumonia. As she said “I was not quite well because my first child used to get this disease….In this case, I was really scared because it was hard to treat. He was too small and there were many organisms to be treated” (E1: p7).

Some mother was very concerned with her baby after hearing from any person about lung problem and blind from eye complication in preterm baby. As mother said “I’ll ask her about his lung and eyes problems because I heard from other people that preterm baby may develop lung disease and his eyes may be blind” (B2: p7).

1.4 Experiencing the survival/death of the baby

Experiencing the survival/death of the baby referred to mother's having gone through an event about the baby who could survive or dead from the critical illness after his preterm birth. Most mothers used to experience with their neighbor or friend about the survival/death of the baby. Experiencing about the survival and the death of the baby, some mother could under or over perceive about the seriousness of her baby sickness and felt hopeless or encouraged when her baby was in the same situation she experienced.

Experiencing with neighbor or her friend about preterm birth with very low birth weight that could survive, mothers were pleased (C2: p11; C1: p 6). In contrast, mother who experienced with other mother with severe complication before birth and her baby was died or experienced with her sister's death from preterm birth felt frightened, hopeless. However, mother who was born prematurely and healthy thoroughly was hardly worried about her baby.

Some mothers experienced about her neighbor's or her friend's preterm baby that could survive even he was a very low birth weight baby. By that experience, mother was pleased as she described "Whenever somebody told me not to worry because her friend's baby was only 700g could survive, I was fine" (C2: p11). Other mother also said that "However, what made me the encouragement was hearing from my neighbor that his child who can survive was only 800g. I'll very happy if he can survive because his birth weight was 1,400g" (C1: p6).

Mother who experienced herself a preterm infant and could survive, she felt hopeful and was hardly worried about her baby as she described "I was also born at the same as this gestational age. I can grow up now...I think that he also could grow

well. Additionally, I'm healthy and I've never got sick, so, he should healthy too. Therefore, I do hardly worry about him" (B2: p1).

Concerning about experiencing baby's death, most mothers who experienced this event whether caused by babies' or mothers' complication, most mothers were frightened and hopeless.

Mother who experienced her neighbor's baby dying from jaundice, after knowing her baby got jaundice and needed blood investigation and treatment she thought of his seriousness and his survival (C3: p6). Mother who experienced her sister dying from her prematurity, she was frightened after knowing she was going to have preterm birth (B2: p1). Additionally, one mother felt hopeful after knowing she got severe eclampsia during pregnancy. She used to know that most babies would die if mothers got this complication (C1: p1).

2. Experiencing about interaction with baby

Experiencing about interaction with baby refers to mother's having gone through an activity about interaction with baby. Experiencing about interaction included the mother interacting with baby and the interacting between her husband or nurse and baby. Experiencing about interaction with baby, mothers could understand the baby's response and be more confident in interacting with the baby

2.1 Experiencing mother interacting with baby

Experiencing mother interacting with baby refers to mother's having gone through an event about her interaction with a previous child. Some mother used to interact with the previous child. During interacting, she learned more about his response and his perception to her interaction. Experiencing with the previous child, she could understand her baby's response when touching him. One mother addressed after talking about her firstly touch baby at her leg and then at her hand "When I had

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touch her, she moved. She was small. So, she had no more energy. I used to take care for my previous child. When I touch him at his hand, he could hold my finger" (C3: p10).

2.2 Experiencing with her children by not interacting with them

Experiencing with her children by not interacting with them refers to mother's having gone through no interaction with her previous child. Some mother had never experienced about interacting with her former children or taking care for them after birth. She learned from that experience that her attachment to them had never occurred. However, interacting with and taking care for this baby, she felt attach with him. As mother described about two former children "Anyway, for those two children, I didn't because I'd never taken care them or even touching throughout two months after birth and so forth but my former husband and grandmom did. Therefore, no tie occurred between us. In contrast, in this case, I've taken care him by myself nearly a month and often touch him. Whenever I cannot come to visit him, I often dream about him. I have to come" (E1: p12).

Therefore, experiencing by no touching, care taking, and attaching with her former children, mother's attachment to her baby was facilitated.

2.3 Experiencing husband interacting with baby

Experiencing husband interacting with baby refers to mother's having gone through an event about the interaction between her husband and the baby. During visiting her baby in NICU, some mother didn't have the courage to touch her baby because fear of being infected to him. Experiencing with husband's first touching her baby, some mother committed to touch baby to be more helpful to baby after seeing him grasping her husband's finger. As one mother described at first touching during the 5th visiting "During that time, I'd like to touch her but I didn't courage to do. I told

my husband to touch her first. I saw my daughter grasping her father's finger" (E1: p7).

2.4 Experiencing nurse interacting with baby

Experiencing nurse interacting with baby refers to mother's having gone through an event about the interaction between nurse and the baby. During visiting baby in NICU, most mothers saw nurses interacted with her baby by touching and taking-care. Seeing nurses interact with her baby, some mother felt more confident in touching him. As one mother said "I didn't want to touch him a lot because he was immature. I was afraid and worried. However, when I saw nurses touch and hold him, I felt more confident to touch him" (C2: p12).

3. Experiencing her own parent's attachment

Experiencing her own parent's attachment refers to mother's having gone through an event about her own parent attachment to her. Mothers experienced attachment with their parents since they were born. Experiencing with their own parents' attachment was helpful for most mothers to love or attach with their baby.

Most mothers knew that their own mothers loved them (A3, A4, B1, C1, C2, D3; E1). Some mothers also knew that right now their own mothers have still loved them (A4, B1, C1). Having their own babies made them know more about their own mother's love to them and understand the feeling of motherhood. The majority of mothers acknowledged that experiencing with their mothers' love affected their love to their babies. Most mothers whom their own mothers love them, they also loved their babies. However, there was one mother who had never experienced with her own mother's love. She insisted that it would certainly not affect her love for her own baby. She emphasized on her love to her baby and never did with him like her own mother did with her (C3). Moreover, there was one mother even she was taken care

by her own mother only 6 months after birth, she also loved and thought of her own mother during first seeing her baby although it was less than her love to her grandmother (A3).

One mother described about her own mother's love to her "I grew up with love. My mom loves me and spoils me so much because I was the youngest" and continued to describe the affect of her mother attachment to her attachment to the baby "I must do like my mom did" (E1: p22). Other mother also knew her own mother loved her and wanted her took care the baby by herself by the reason that taking care the baby, the mother's love to baby occurred. She also knew that her mother had still thought of her. Additionally, she thought that her own parent attachment to her is the same as her attachment to her baby and also affected her attachment to her baby. As she described "…My parent wanted me only taking-care my baby. They would like me loved him. I knew that whenever I could not see my baby, I would think of him. Whenever, I was happy or anxious, my mother would ask me about that" (A4: p7).

One mother told about her own mother's love to her that made her understanding the feeling of motherhood as she stated "When became a mother, I knew what maternal attachment to the baby was" and continuously stated "Right now, she was taking care for me and worry with me. If I didn't have my daughter, I'll not know how motherhood is" (B1: p11).

One mother knew her own parent's love to her and its affect to her attachment to the baby. Mother and her husband valued the mother's love to baby particularly when having her own baby as she described "My husband told that love/attachment to the baby is great. We used to do something wrong or quarrel with the parent. When we have our children, we will either love or worry about them like our parent did".

She continued to describe her love to baby that was affected by her own mother's love "I think it was affected very much. My parent worried about me like I did with my baby….My family was fully warm. Both my mother and my husband love me" (C1: p11).

One mother confirmed the effect of her own mother's attachment on her attachment to her baby "Yes it was because my mother was worried about me since I was born. I thought that it was the same feeling". However, her attachment to her baby was more than her own mother's love to her (C2: p13). Other mother also confirmed her own mother's love to her affected her love to baby and also her love to baby was more than her own mother's love to her (D3: p7).

Interestingly, one mother who experienced her own grandmother's love and loved her more than her own mother because of living with her since she was 6 months of age also thought of her own mother and felt attachment with her after first seeing her baby in NICU. The mother also confirmed her thinking of her own mother after asking about the effect of her own grandmother's and mother's attachment on her attachment to the baby (A3: p5; A3: p6).

Importantly, there was one mother who did not experience her own mother's love. However, she emphasized on that experience that it would certainly not affect her love for her baby. She stated "I was the middle of four children of my parent. I felt that my parent was not interested in me. Right now, my siblings were married and separated for settling down their families. I hardly received warmth from my mother, as I could remember, she did not embrace me". She continued to describe when being asked if her own mother's love would affect her love for her baby "No, it won't. I would not do like that to my baby. I would give her my warmth and frequently touch her, however many children I had" (C3: p15).

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Health Care System Facilitating

Health care system facilitating is the means health care system provided to facilitate health care to mother, baby, and her family in order to achieve the desired outcome of well mother-infant relationship, optimized parental skill, and being discharged an intact family. Health care system facilitating provided to mother and her baby was composed of health care providing, health care communicating and environmental care facilitating. Confident or appreciate in care given, feel free to contact with health care providers, or satisfy in environment facilitated mother-infant relationship, maternal attachment to baby can be facilitated.

Health care system facilitating can be described by 3 subcategories: 1) health care providing, 2) health care communicating, and 3) environmental care facilitating.

1. Health care providing

Health care providing referred to the attribute of care the health care providers provided to mother, baby and their family throughout pregnancy and after birth particularly during baby hospitalization in the NICU in order to get along with caretaking her baby. Health care providing was included both medical care and nursing care.

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Health care providing by health care providers is usually helpful for mother during pregnancy, at birth and after birth. During pregnancy, most mothers visited routinely prenatal care in order to continuously assessing, evaluating and taking-care her pregnancy. The care mother received during pregnancy, both mother and her baby were safe.

Knowing of preterm birth, care for prolonged delivery is needed in some mother (A3, C2). Rather, in some mother, urgent caesarean section is necessary for both mother and baby safety (D1). Moreover, in some case it was necessary to

properly transfer mother to another hospital for safe delivery (D1) or to refer both mother and her baby to another hospital post-birth for proper management (C3). In some case, after delivery, it was necessary to transfer baby to another NICU hospital for proper management (A5, B2, C3, D2, D3). Explanation to mother by health care providers and the facilities provided are helpful. Understanding or even knowing she was referred to the hospital with full facility, mother was confident in her baby's life (B2: p1).

At birth, urgent care for the baby's safety before moving him away to NICU for intensive care, most mothers were less able to see, interact, or know about their babies. Some mothers knew only their baby was small and seriously ill that needed intensive care in NICU. With this lack of sufficient information, mother was worried.

While in NICU, mothers were facilitated by nurses to interact with their babies by seeing, touching, talking with, or care taking. At each visiting, nurses always told mothers about the baby's health conditions including the critical condition, the complication, the medical treatment and procedures the baby had received. Explanation about the baby's sickness or unstable condition of the babies or instruction about asepsis or equipment used with babies, mother's knowledge was enhanced, and her worry was decreased (B1: p6). Interacting and care taking with baby, mother's feeling to her baby was changed, and maternal attachment to baby was facilitated. Moreover, seeing health care providers were closely caring for her baby everyday during in NICU, the mother was confident in the care given to her baby (B1: p5).

However, some nursing care activities for baby prevented the mother from interacting with her baby during visiting. Mother could visit her baby for a short period of time by only seeing without touching her baby during routine morning

nursing care. Moreover, some nursing care that hurt or caused trauma to her baby, mother did not appreciate the nurse and could not accept or maintain her emotional balance (D1). Importantly, suggestion to mother to frequently visit her baby, the mother felt like she was blamed. Interestingly, in some case, nurses did not facilitate mother to touch her baby. Therefore, delayed first touching to baby occurred, and the first touching occurred on about the sixth visit for some mothers.

2. Health care communicating

Health care communicating is the ways of contacting between mothers and health care providers. Mothers contacted the health care providers in order to access to their baby information. The health care providers most mothers usually contacted were nurses and doctors. They usually communicated directly face-to-face or by telephoning.

Mothers always communicated with health care providers after knowing she was pregnant until her child's birth, either during at NICU or at home.

During communicating, mothers were often concerned about their babies' health condition, the equipment using with their babies, the medical treatment and procedures done for their babies, as well as how to take care for their babies while in NICU. In case of health care providers, they usually communicated with mothers by explaining, clarifying, suggesting, educating, facilitating or offering to mothers also about the babies' health information, procedures, medical treatment, nursing care and environmental care the babies received including the rules for practice during visiting babies in NICU.

After communicating, most mothers were more understanding about their babies (B1: p6), and enhanced knowledge (E1: p8), or were more relaxed (A1: p4; E1: p5), or even some mother's feelings to her baby changed. However, there were some

mothers who were uncomfortable (C1: p3), anxious or felt uncertainty (C3: p4) after knowing baby complication or baby health uncertainty.

Health care communicating can be described by two subcategories including face-to-face communicating and telephoning.

2.1 Face-to-face communicating

Face-to-face communicating refers to contacting between mother and health care provider, particularly nurse, in the way that two of them could directly face together during their conversation. They could express and see the manner of each other during conversation. Most mothers usually used this way in communicating with health care providers. However, there was some mother didn't courage to talk with the provider particularly with the doctor. Face-to-face communicating, some mother thought that she could access to the accurate her baby information.

During pregnancy, health care communicating between mother and health care provider was involved the progression of the pregnancy, the physical development of the baby, and the caring for self in order to achieve her baby well-being. One mother indicated while attending prenatal care "I asked the doctor how my baby was. He suggested me to take care of myself and my baby, as well as to drink some milk everyday" (A2: p10). One mother addressed the information the doctor explained to her for accepting hospitalization "The doctor told that the baby may develop an anomaly. At that time, many organs were developing" (B1: p1).

In addition, even during delivery, some mother communicated with the doctor by asking for help for her baby's safety as she addressed "I told the doctor to help my baby… because the doctor told me that my baby may be suffer from lack of oxygen because he was too small" (A3: p3).

After birth, most mothers communicated with health care providers for more information about their babies. Communication was probably by direct contacting during visiting in NICU (D3: p4) or by telephoning when unable to visit their babies (E1: p18; C3: p8). Mothers usually communicated with nurses about their babies' health condition, tubes, lines, and monitoring equipment attach to them or the incubator their babies were kept in (A4: p3; B2: p7; C3: p8; E1: p9). One mother addressed "I'll ask her about his lung and eyes problems because I heard from other people that preterm baby may develop lung disease and his eyes may be blind" (B2: p7). Other mother also addressed "I asked a doctor why my baby was kept in an incubator" (E1: p9). After nurses' explanation, mothers understood more and felt relaxed. However, one mother still worried about her baby (E1: p8).

During visiting baby in NICU, some mother did not have the courage to ask or talk with health care providers, especially the doctor, who took care for her baby (A1: p2, p3; D3: p4). One mother indicated "I was frightened and only thought that he would live or not. I'd like to ask the doctor whether my son would live or not but I didn't courage to ask him. I'd only waited him telling to me" (A1: p2, p3). Importantly, some mother had never seen the doctor during visiting and never knew the time he came to see her baby (B1: p6).

However, nurses always told mother about the complication her baby got, the medical treatment her baby received or the procedure her baby was done or even either the critical or the improving her baby was. One mother stated when a doctor told her to control her emotional balance "My baby's heart was not strong and also his lung could not produce some substance. Therefore, he needed ventilator" (A3: p1). One mother also addressed "At the third week, the doctor told that my baby would be stopped feeding because of his abdominal distension….However, he would receive IV

infusion. There was much nutrient in that fluid" (E2: p5). In addition, one mother indicated before touching her baby "Nurse told that we can speak with or touch her by washing hands before touching" (B1: p7).

Besides informing the mother about baby's health condition, health care providers also gave to mother the suggestion (D2: p11), education (A2:p1), clarification for more understanding, or even the offer for mother to stay in the hospital (E2: p10).

Interestingly, one mother said nothing with nurses during visiting her baby in NICU because she could not calm down (D1: p12) and because of no need to talk with and being thought that they could care her baby well (D1: p15).

Importantly, communicating with health care provider, mother wanted to access the accurate information about her baby. One mother addressed her desire to talk with the doctor while her baby was moved to NICU "I'd like to go with him too…I was afraid that the doctor would not tell me what happened to my baby because he thought that I could not maintain my emotional balance" (A3: p4).

2.2 Telephoning

Telephoning refers to contacting when no face-to-face communication between mother and health care provider is possible. It was a type of interposed communicating. Both mother and health care provider could inform each other even they could not see or observe the expression, the manner or stay close together during their conversation. However, by this way of the communication, mother could learn of her baby's information even though she was at home or could not visit her baby at the hospital NICU. Communicating between mother and health care provider, some mother preferred face-to-face communicating for her baby information to telephoning because she could not only know her baby but also directly see him.

Although, most mothers usually communicated with health care providers, some of them also did by telephoning particularly in case of unable to visit their baby. Telephoning, most mothers concerned about their baby health condition or the progression of his illness.

While at home, some mothers together with their husband, often telephoned to ask the nurses about their baby, maybe twice or three times a week (C3: p11; D2: p3). One mother who could not frequently visit her baby because her mother- in-law did not allow by the reason that wanting her fast recovered after birth addressed “I called around 2-3 days a time for asking about how my baby was” (D2: p3). Some mother telephoned to nurse for asking baby information before visiting (C3: p11). Some mother could not frequently visit her baby because her house was far from the hospital or her baby was transferred to other hospital that far from the hospital she was hospitalized, then, telephoning was helpful.

In some case, nurse called to mother to inform about her baby health condition as she indicated “on the third day post birth, a nurse telephone to me and told that my baby was kept in incubator. She was very small with low birth weight and was preterm baby. She also had jaundice that needed blood withdrawal for examination and treatment” (C3: p5). However, waiting at home for telephoning from the hospital NICU was frightening for her (C3: p7).

3. Environmental care facilitating

Environmental care facilitating refers to providing care related to the NICU environment circumstance include equipment attaching or using with the baby; rules for practice; place, time and the appliance available to mother and her baby during hospitalization in NICU. Experiencing environmental care facilitating, mother’ physical and emotional contact to baby was affected.

At birth, baby was separated from mother to NICU for life supporting from high technological equipment and intensive care. The NICU environment is complex and structured to constantly maintain and support the baby to achieve the desired outcome of sustaining life. The focus of care is structured, technological, and procedural. Most preterm babies hospitalized in the NICU were being kept in the incubator, attached with many lines, tubing and devices for supporting their life. It was looked so serious for mothers. After seeing their babies particularly at first visiting, most mothers were anxious, worried, or could not accept (C3: p4; C3: p5; D1: p19; D2: p2; E1: p8; E1: p14). As one mother addressed "He was attached with many lines and tubes. There were more than of the other babies. I could not sleep well during hospitalization in this hospital after seeing him with these lines and tubes. I couldn't understand what those were. I thought that she was very serious. So, I'd like to go back home" (C3: p4, p5). Moreover, this equipment not only emotionally affected the mothers but also prevented mothers from interacting with their babies. As one mother indicated "He could move and respond. I'd like to hold him but I couldn't because there was many lining attaching with him. I fear that he was hurt" (A3: p10). However, taking off equipment attached with the babies, mother was glad. One mother addressed "When she can be taken off the respirator, I was happy. During on respirator, I cannot accept because her mouth cannot close and her lips were dried and blue. Today, I'm happy and hopeful" (D1: p19).

Although mothers were confident in advanced medical care in NICU (C1), rather there was limitation for mothers to physical and emotional contact with their babies. During in NICU, baby was separated from mother and often mother was excluded from the NICU. The NICU environment provided no privacy for mother to freely interact with her baby. There was no private room or rooming-in and no

allowance for mother to stay over night with their babies. As one mother addressed "I'd like to stay with my baby but there was no permission" (B2: p5) and continued to addressed after asking about time spent during visiting her baby "I didn't stay longer because I didn't feel free with health care providers and there was many people came together with me. In addition, it was not a private room" (B2: p6). Mother who her house was far from the hospital or who could not afford for expensive cost of transportation was unable to frequently visit her baby.

Moreover, there are many rules for mother to practice during visiting and caretaking her baby in NICU. Visiting baby in NICU, it was inconvenient for the mother to have a long visit with her baby simultaneously with her relatives because of the limitation of time and the number of visitors in each visiting. They had to take turn among them to visit for around ten minutes each. Importantly, the mother did not feel free with health care providers during visiting, especially when she visited her baby together with her relatives (B2: p6).

Interestingly, timelines of the doctor's round and routinely nursing care for baby were not distributed to mothers. Some mother had never known the exact time the doctor visited her baby or had never seen the doctor who took care of her baby. These limited mothers in communicating with the doctor for more information about her baby (B1: p6).

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CHAPTER V

DISCUSSION AND IMPLICATIONS

The goal of this chapter is to summarize the findings of the study and relate these findings to the existing literature and research in order to highlight the contributions this study makes. It begins with the discussion of the maternal attachment and the major concepts that emerged from this study, followed by the implications for nursing practice and education, future research, and strengths and limitations of the study.

The study was designed to discover the basic social process by which mothers develop attachment to preterm infants during hospitalization in the NICU. Its purpose was to uncover the meanings and understandings mothers' experience in developing attachment to their preterm babies during hospitalization in NICU from the perspective of the participant within the participant's social context. This substantive theory provided new insights into mothers' experiences with attachment to their preterm babies during hospitalization in NICU.

Maternal Attachment

Definition "Maternal Attachment"

From mothers' perspectives in this study, attachment was used interchangeably with love (E1: p24; A3: p12; D3: p4). It was an individual's or mother's feeling (D2: p15), or emotional tie (E1: p24) to the baby. Attachment to the baby, mothers wanted to stay close with them (A3: p12; B2:p14; C1: p9; E1: p25; D2: p15). Whenever mothers were apart from their babies, mothers always thought of them (E1: p25; A3: p12; D2: p15) and worried about them (C1: p9). Attaching to babies, most mothers wanted to interact with their babies by touching, seeing, talking,

and visiting (B2: p14; D2: p15; D3: p4). Additionally, mothers wanted to closely take care and affectively nurture their babies (A3: p12; B2: p14; C1: p9; E1: p25).

Using this definition, the researcher could emphasize that maternal attachment was an emotional tie the mother formed and committed to her infant. Maternal attachment was developed through their interaction, could persist through time and be manifested by specific mother's behaviors. The emotional tie induced the mother to seek the closeness, take-care and nurture her infant effectively.

However, maternal attachment as described in this study is an individual process beginning during pregnancy and continuing over the months following birth in which mother forms an enduring emotional tie and commitment to her infant. Maternal attachment is developed through the mother seeking closeness and mutually satisfying interaction with the infant. Many factors involved in the attachment process influenced the process of maternal attachment to progress or be impeded.

These findings are consistent with previous studies that maternal attachment is an emotional or affectionate tie a mother feels toward her child which begins during pregnancy and endures through time (Rubin, 1977, 1995; Klaus and Kennell, 1982). Maternal attachment is developed through mother-infant interaction (Carson and Virden, 1984) and is manifested by specific maternal behaviors (Avant, 1981). Congruently, Mercer (1995) asserted that maternal attachment was a developmental process beginning during pregnancy and continuing over the months following birth, during which the mother forms an enduring affection for and commitment to the child. Following birth, pleasurable bidirectional interaction between mother and infant enhances the process.

Attachment Behaviors

Maternal attachment to baby in this study is manifest by specific behaviors that are consistent with the previous studies (Klaus and Kennell, 1976; Avant, 1979; Gay, 1981; Lobar and Phillips, 1992). Most mothers demonstrated their attachment to their babies by directly stating their love for the baby, seeing, touching, staying close, taking care of or nurturing to baby such as bringing their expressed breast milk, and frequently visiting the baby during hospitalization (A3: p12; D3: p4; E1: p25; d2: p14-15). In addition, some mother demonstrated her attachment to her baby by learning how to take care of the baby and getting more information about the baby (E1: p25), while some did so by crying or being upset when looking at the baby's face and seeing baby was hurt (D2: p15).

Interestingly, there was a mother who stated her love for her baby despite never touched or talked to her baby since after birth. As she addressed after asking whether no touching and talking to baby meant that mother did not love the baby "It seemed to be like that. However, for me, it was not because I didn't love him. I usually thought of it. I thought that my baby may be wondering why I didn't touch him. He may think that I hated him because he was preterm baby. I didn't touch him because I'd like him get well and I was afraid of infection" (B2: p13-14).

Thus, it should be noted that the observed attachment behaviors mother manifested to the baby may be misunderstood. No interacting with baby did not mean that the mother did not love her baby. It needed careful interpretation of a mother's behaviors during interacting with baby particularly in case of mother with preterm baby.

Importantly, there were some mothers who stated that their attachment to their babies was more than to the previous children that had been born at full term (C1:

p12, C2: p2, E1: p24) and in some case was increased after birth particularly because of the prematurity of the babies. Prematurity prevented the mothers from interacting or touching their babies because of fear of infection or the babies being hurt. However, some mothers loved their preterm babies more because of worrying about prematurity of their babies. Therefore, it was possible in some mothers with preterm baby that their attachment to babies was increased despite no interacting with them.

Thus, in case of preterm birth, the feeling of love or attachment to baby was continuously developed after it was established during pregnancy and increased after birth even though mothers did not manifest their attachment behaviors to the babies. Therefore, assessing the mother's attachment to her preterm baby not only needed careful observation of the mother's behaviors but also needed the mother's view of her behaviors and emotion.

The interesting finding not previously reported in the literature was maternal attachment to preterm baby that occurred simultaneously with the feeling of worrying about the baby (A3: p12; D2: p15; E1: p26). One mother indicated "attachment and anxiety are different. The latter one made me suffer and worry how he is while the former is in my conscious. I always think of him or love him. More attachment to baby, I was more anxious with him. I'm anxious with him very much because he is small. I mean, I either attach or anxious with him" (E1: p26). Attaching while worrying about their babies in this study was because of mothers' concern for the babies over their appearance during interacting with them. Thus, maternal attachment in this study occurred accompanied with worrying particularly after preterm birth.

Pattern of Attachment

It was found in this study that mothers felt love for their preterm babies since pregnancy and continuously loved or were well attached to them even if at first

mothers delayed to interact with them. Thus, the tendency to neglect their babies seemed to be less. However, it cannot be said absolutely that it would not occur in the future. Although maternal attachment to the baby will be constant and consistent once established (Park and Stevenson-Hinde, 1982 cited in Bobak et al, 1995) rather, many studies reported that the quality and intensity of maternal attachment after establishing may change over time (Hauck, 1985; Mercer, 1985; Minde et al., 1980). As Hauck (1985) reported, attachment developed in a quadratic pattern with the lowest points prenatally and 6 months after birth and the highest points occurring at 1 week and 1 month after birth while Mercer (1985) reported that it was significantly higher at 4 months after birth than at 1, 8, or 12 months. In addition, Minde et al. (1980) found that maternal interaction with infants increased over the first five visits of two times a week visiting during hospitalization and gradually increased length of visit time, and that maternal behaviors had little changed from visit to visit by touching less during 3 months at home. Furthermore, preterm infants were found to be at greater risk of dying and have a significant risk of morbidity during infancy and childhood respectively (National Commissionn to Prevent infant mortality, 1990 cited in Behrman and Shiono, 2002). Also, they often have increased incidence of disability and diminished ability to adapt socially, psychologically, and physically to an increasingly complex environment (Behrman and Shiono, 2002). Thus, even though these babies were wanted by their parents, they were at great risk for abuse and neglect by their parents. Therefore, in order to prevent these problems that may occur in the future, nurses should adapt strategies to endure maternal attachment to babies by facilitating and maintaining mother-baby interacting including caretaking for the baby and helping mothers to explore their roles in nurturing their babies both during hospitalization and at home after discharge from the hospital.

The Process of Maternal Attachment

The basic social process of maternal attachment to the preterm infant in the NICU was struggling to get connected. It is the core category that emerged in this study. Struggling to get connected describes the process of maternal attachment to the preterm infant during hospitalization in NICU through mothers' perspectives. In this study, maternal attachment to preterm baby was a continuing process established during pregnancy (A3: p12; C1: p1; D2: p9) and gradually increased after birth (A3: p12; C2: p2; D2: p11) even if it was disrupted at birth. It was considered as an individualized process dependent on each individual focusing on baby concerning, adjusting emotionally to the crisis, social support, life experiences, and health care system facilitating. According to the theoretical model "Struggling to get connected: the process of maternal attachment to the preterm infant in the NICU" in Figure1, the process of maternal attachment is composed of 4 phases: 1) establishing connections, 2) disrupting of the connections, 3) resuming to get connected, and 4) becoming connected. In the first phase after accepting their pregnancies, maternal attachment to babies was initially developed. During pregnancy, mothers were close to their babies. Most mothers gave to their babies the value as "Baby is my heart". They began caring for self for baby's growth, development and safety and closely interacted with their babies. During this period, maternal attachment to baby gradually developed after its beginning. However, in the second phase, that was the time preterm babies were born, all babies were urgently moved to the NICU for intensive care after they were initially cared for a moment in the labor room. During birth, most mothers could only see their babies while they were being cared for without touching them. There were few mothers that could touch their baby when he was placed on her chest immediately after birth. After that, most mothers would never see their babies until they first

visited their babies in the NICU. Importantly, some mothers had never seen her baby since birth because he was moved away very urgently to the other hospital NICU for proper management. Thus, the length of time mothers were separated from their babies after birth (before first visiting) depended on each individual. Its range varied between a day and a week post birth. During this time, maternal attachment to the baby was disrupted. However, in the third phase: resuming to get connected, during first visiting in the NICU, most mothers began to resume or reconnect their attachment by seeking closeness with their babies. Seeking closeness, most mothers frequently saw, touched, and talked to their babies during each visit. Then, mutual mother-baby interaction occurred whenever the baby's health condition improved. Baby's responding to the mother's interaction elicited the mother's response and reinforced mother in recognizing and taking care of her baby. In the final phase: becoming connected, being pleased during their interaction, mothers committed to mothering their babies by planning for the future for their babies and exploring their roles in caretaking or nurturing for their babies.

In the process of maternal attachment, mothers' acting/interacting to their babies varied depending on mothers' adjusting emotionally to the crisis, having concerns for the baby, and life experience, as well as supporting connections they had and health care system facilitating they received.

Previous studies provided no definite evidence about how the process of maternal attachment to the preterm infant during hospitalization in NICU developed. However, compared to Klaus and Kennell (1982), the process of maternal attachment to the normal infant developed throughout the prenatal, birth and postpartum period. The process was composed of 9 steps including 1) planning the pregnancy, 2) confirming the pregnancy, 3) accepting the pregnancy, 4) fetal movement, 5)

accepting the fetus as an individual, 6) labor and birth, 7) seeing, 8) touching, and 9) caretaking. This process was initially developed during pregnancy and continuously developed throughout the postnatal period without disruption at birth and needed no reconnection that differed from the findings in this study. However, interaction between mother and baby by seeing, touching, and caretaking was needed for the progress of maternal attachment after birth whether the baby was normal full term as in Klaus and Kennell's study or was preterm as in this study.

In addition, Gay (1981) and Lobar and Phillip (1992) described attachment as an interactional process beginning with the acquaintance stage and developing towards attachment. Acquaintance required interaction for collecting information about the infant. Success in gaining the information and developing a positive mother-baby relationship permitted an attachment to form to the infant. In the attachment phase, information collecting continued and the mother began to identify the infant's need. As a reciprocal relationship continued, mother and infant became linked in a coordinated and constructive relationship. This bond was a tie linking them throughout their lifespan. This maternal attachment was developed through the acquaintance process that focused on the interaction between mother and baby after birth. It was differed from the findings in this study, in which the maternal attachment was initially developed during pregnancy and gradually developed after birth even it was disrupted at birth. However, the studies by Gay (1981) and Lobar and Phillip (1992) and this study were focused on the interaction between mother and baby that was needed before the reciprocal relationship and the bond occurred after birth.

Many studies found that mothers with preterm infants revealed delay in establishing attachment (Jeffcoate, Humphrey, and Lloyd, 1979; Comm, Daramola and Ikpatt, 1982; Bialoskurski, Cox, and Hayes, 1999) that was congruent with the

finding in this study. Most mothers delayed interacting with their babies after birth. Separating from babies immediately at birth and prolonged separating after birth were the conditions limiting mother-baby interacting. At birth, most mothers had never touched their babies. Some mothers could see their babies at a long distance while receiving emergency care before urgently being moved away to the NICU. Having concerns for the baby over baby's characteristics and baby's health condition, the mothers did not have the courage to interact with their babies. Preterm babies were small and fragile that prevented mothers from touching them. Additionally, emotional states of mothers adjusting to the crisis situation of preterm birth and hospitalization of their preterm babies in NICU were also facilitated and hindered mother-baby interacting.

The development of maternal attachment to the preterm infant that emerged in this study was likely found to be congruent with the previous studies. As Rubin (1977; 1984) described, the attachment process is active, intermittent and cumulative, occurring in progressive stages over 12-15 months since pregnancy with the origin and end point to maternal identity. Mercer (1977; 1990; 1995) also described the development of maternal attachment as a developmental process beginning during pregnancy and continuing over the months following birth in which the mother forms an enduring affection for and commitment to the specific infant. The enduring affectionate bond to the infant was developed through pleasurable, satisfying mother-infant interaction. Both mother and infant experience affective and cognitive change in the contingent relationship; sensitive responses to signals lead to a synchrony of social communication. With the affectionate bond providing enjoyment to the mother, responsible for the dependent infant care and placing the infant's needs above her own

for years while the infant derives warmth and security. The pleasurable bidirectional interaction between mother and infant enhances the process.

In this study, maternal attachment to preterm baby was an emotional tie which emerged through the process of mother-baby interacting. It began during pregnancy and gradually increased until birth. During pregnancy, both mother and baby were close together. After birth, preterm baby was separated to the NICU for intensive care. During this time, mother-baby interacting was interrupted. During visiting her baby in the NICU, most mothers began to seek closeness to their babies again after it was withdrawn from them at birth.

Delaying first visiting baby in NICU also led most mothers to delay interacting with their babies. However, support from nurses, husbands or their family members facilitated mother-baby interaction. Importantly, interacting between mother and baby after birth occurred while mothers were adjusting emotionally to the crisis of preterm birth including hospitalization in the NICU. Seeking closeness to the baby, mothers at first hesitated to see, touch and talk to their babies because of fear of harming the baby, uncertainty of the baby's life, and unable to accept the baby's health condition surrounded with various equipment in the NICU. Support from nurses, husband and family members including the support of belief encouraged mothers in this phase while health care system facilitating, particularly communicating with doctors or nurses, and quality of care babies received also encouraged mothers to interact with their babies within this crisis situation.

After the babies' health condition improved, babies' responding to mothers' interacting reinforced mothers to recognize and take care of their babies. When babies had expressed their behaviors by moving their bodies, opening eyes, crying, being fed, gaining weight, or breathing without ventilator, mothers perceived that their

babies' health condition was improved. With improvement of the baby's health, most mothers began to identify their babies as looking like their husbands, relatives, own self, or other normal children and eventually as less tiny. However, there was one mother who described her baby as looking like a "baby doll" that she could do nothing with or like an "alien" she had never seen before. In addition, with improvement of baby's health, the babies could respond to the mothers' interacting, physical contact, visual contact, and verbalization, by moving their extremities, grasping, opening their eyes, smiling, crying or sleeping. Baby's responding to mother interacting not only made mothers felt glad but also elicited the mother' s response to the baby. Thus, mutual mother-baby interacting occurred. Being pleased during mutual mother-baby interaction, mothers committed to nurture their babies by planning for the future for their babies and exploring their roles in caretaking of their babies.

However, the process of maternal attachment to the preterm baby that emerged in this study was a process occurring within the crisis situation of preterm birth and hospitalization of the baby in NICU. As mothers' adjusted emotionally to the crisis, having concern for the baby's health condition, the tasks mothers with preterm babies experienced during that time, were greatly involved. These were not mentioned in previous studies.

The Emerged Categories/Concepts in the Study

In this study, many concepts emerged. Some concepts or interesting issues were more notably considered because they had not appeared in previous studies. Supporting the connections, particularly the support of belief, could be found in most mothers. They used it in supporting their emotional balance and in encouraging their babies and themselves. Traditional postpartum Thai practice after birth for the mother,

that mothers are not allowed going outside for 40 days or until reaching their good health, was the interesting issue that was not found in other studies. It limited the mother in early visiting/interacting with her baby. Importantly, the nature of the participants particularly with "Kreng Jai Attitude" limited mothers in communicating with health care providers and in interacting with her baby.

Traditional Postpartum Practice in Thai Culture

Traditional postpartum practice in Thai culture was influenced by the Chinese belief that women were confined to the home for at least 30 days after birth in order to do specific set of prescriptions and proscriptions to encourage an optimal level of health for the mothers (Fok, 1996; Du, 1998 cited in Kaewsarn and Moyle, 2003). During this period, by Chinese concept of balancing the opposing forces of Yin and Yang (cold and hot), mothers practised "Yue Fai" or "lying by the fire" in order to warm their bodies and dry out their insides in the belief that mothers were cold and wet after childbirth (Phongphit and Hewison, 1990). It was also believed that if the mother rested near a fire her uterus would return to normal faster (Esterik, 1985). However, Kaewsarn and Moyle (2003) found that during postpartum period, 65% of mothers practised "lying by the fire" for a mean of 7 days and 78.4% of mothers stayed at home for a mean of 34 days. They avoided many activities in order to rest, particularly in the first few days after childbirth. They walked and performed fewer task and also avoided traveling long distances or any heavy household duties in the belief that these activities would stop the involution of the uterus and cause the internal organs to collapse or the uterus to prolapse.

In the case of a normal full-term birth, both mother and baby can live closely together during the traditional postpartum practice at home. Thus, Thai traditional

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postpartum practice not only benefits the mothers' health recovery but also enhances the mother-baby relationship.

However, in case of preterm birth in this study, traditional postpartum practice for mother to rest at home for recovery from childbirth was one reason that prevented mothers from visiting their babies during hospitalization in NICU. During postpartum period, some mothers had to rest at home at least for a month, as their own mothers and mothers-in-law recommended, while their babies were hospitalized in NICU. Some families strictly followed this traditional postpartum practice while others did not. Thus, in the case of strictly adherence, the mother would delay to visit and interact with her baby. Fortunately, most mothers in this study did not strictly practice. They first visited their babies within a few days after their discharge. Only one mother whose mother-in-law recommended her to strictly practise first visited her baby at the second week after her discharge. While staying at home, they were worried about their babies and wanted to visit them in the NICU but they could not. Some mothers telephoned to ask the nurse about their baby while some mothers asked their husband to tell the story about their baby after his visiting. Thus, in order to prevent delayed mother interacting to the baby during the postpartum period, nurses should understand the limitations of mothers in visiting the baby resulting from traditional postpartum practice and provide strategies to help mothers gain more information about her baby or closely interact with their babies.

Being Close to the Fetus: Valuing the Baby, "Baby is My Heart"

Establishing the connection during pregnancy in this study, mothers were close to the fetus in which some mothers valued their babies as "Baby is my heart". Generally, the heart is perceived as the most important organ in the body. Its function is crucial for other organs' subsequent functioning and living. Therefore, valuing baby

as her heart indicated that the baby had great worth for the mother. Its value was significant for the mother's life. In the other words, baby was her love. Most mothers wanted their babies to know their feeling toward them by telling of their love/value while stroking through their abdominal skin during pregnancy. Some mothers valued their babies so much that they intently visited for prenatal care and cared for self for achieving the desired goal of normal growth, development and safety of their babies. Thus, preterm babies and their hospitalization in NICU was not as mothers fantasized or expected during pregnancy and caused mothers emotionally grief and subsequently affected mothers interacting with the baby. Most mothers were stressed, upset, sad, guilt, afraid, worried, frightened and helpless. On the other hand, it was possible that valuing the baby as her life probably encouraged the mother to cope with the crisis and resume the connections between mother and her baby besides support particularly from their husbands.

Therefore, understanding the worthiness of the baby the mother's value for her baby is crucial for nurses to use as a strategy in encouraging and facilitating mothers to adjust emotionally and interact with the baby during her baby's hospitalization in NICU. However, valuing the baby as "baby is my heart" facilitated or prevented maternal attachment to baby have not been supported by research.

Withdrawal Contacting

In this study, mothers had minimal contact to their babies after birth. Their connection to the baby was disrupted after it was established and gradually progressed during pregnancy. At birth, most babies were urgently moved to the NICU for intensive care after mothers could see or touch them for just a moment. Some mothers had never seen and touched the baby that was referred to other hospital NICU until she first visited him. Withdrawal contacting, mothers had minimal contact to their

babies. Because of the absence of touching and seeing baby's general appearance and concerned characteristics, mothers were worried or anxious, while some mothers saw their babies were physically normal, strong and not serious. It was possible that having less information or not clearly knowing about the baby after birth despite looking forward to hearing or seeing her baby throughout her pregnancy and being concerned about her baby because of no experience about preterm baby, the mother was worried and anxious about the baby's safety, the baby's development, the baby's life or was uncertain about what might happen to her baby. In the case that mother felt the condition was not so serious after first seeing her baby was strong and physically normal at birth because it was possible that on what mother concerned or worry for her baby particularly on the baby's congenital anomaly during pregnancy was not occurred. Her baby had normal physical development as she wanted. So, when she first saw her baby's general appearance was normal even for a moment, her feeling was relaxed and she felt that her baby was fine, nothing was serious.

Seeking Closeness

In this study, mothers resumed to get the connection to their babies after it was disrupted immediately after birth by beginning to seek closeness to their babies. Seeking closeness, most mothers initially hesitated to touch the baby at first visit. They only saw and talked with their babies. Most mothers delayed touching their babies because of their concern about the appearance and health condition of the babies, mothers' understanding about asepsis, nurse facilitating and supporting. Touching the baby, most mothers were afraid of harming the baby because of being so small, infection, disconnection of tubes and lines attached to her baby or being in pain or in critical condition. In addition, most mothers also spent little time (15-30 minutes) with their babies because the babies' health condition was critical and being

kept in incubator, mothers felt worthless as they could do nothing with the babies, could not control their emotional balance or did not appreciate some nursing activities. These findings were congruent with previous study. As Mende et al. (1987) found in an observational study, mothers hesitated to engage in active interaction with their infants but primarily spent time looking at them during their first two visits despite explicit ward policy to verbally encourage mother to touch their babies from the beginning. The length of time mothers spent during the first two visits was 15 and 24 minutes respectively. This may indicate that those mothers needed to adjust to the unexpected appearances of their babies by primarily looking. It also reflected the fear that touching an infant who might so easily die would make the potential loss much more difficult to endure. Additionally, those mothers may need to mourn the loss of their hope for full term babies. However, both this study and Minde et al. (1987) also found that the length of visit increased substantially from early to later visits simultaneously with the increased maternal interacting with their babies.

Interestingly, Tilokskulchai et al. (2002) found that at first visit preterm babies in neonatal unit, most mothers frequently touched, then inspected, verbalized, and facially expressed to their babies. The mean length of time mothers spent with their babies was only 9 minutes (range 2-18 minutes) that is less than the finding in this study despite the sample of preterm babies they study being relatively less ill. Their short time of visiting was because mothers did not want to disturb the baby, rather, they wanted him sleep more, particularly mothers who rarely touched their babies. In addition, it was because the length of time mothers experienced during visiting their babies in this study was estimated by mothers while in the other the time was recorded in the observational study by the researcher and was more accurate.

In this study, visiting baby in NICU meant that the mother could closely interact with her baby. During postpartum period, most mothers visited their baby every day but rather after discharge from the hospital, they visited around two to three times a week. Cost of the traveling, long distance from home to the hospital and traditional postpartum practice limited mothers frequency of visiting their babies. At each visit, most mothers stayed with their babies around 15-30 minutes while few of them stayed only 10 minutes. During visiting, they interacted with their babies by looking, talking, touching, and taking care as well as getting more information about their babies from health care providers. With greater frequency of visiting and more time spent with their babies, mothers' worry decreased and maternal attachment to the baby was facilitated. This finding is congruent with previous studies. Consolvo (1986) and McGoven (1984) suggested that frequent parental visiting be advocated as a means to enhance parental involvement and attachment, increase parental care taking skills, enhance parental feelings of competence and confidence, and decrease parental anxiety. Giacoia, Rutledge and West (1985) found that the mean number of weekly parental visits was 6.6 for babies who were hospitalized in the hospital they were born in and was 3.6 for babies who were immediately transferred to another hospital. Care of siblings, demands of employment, cost of the trip and traveling distance limited mothers' abilities to visit their babies. Brown et al. (1989) also found that mothers visited their babies 2-3 times (parental visits was 4 times) a week during the first 6 weeks of hospitalization in NICU. Fewer visits were by mother who were unmarried and younger, and had medicaid insurance, annual income less than $10,000, and no private transportation.

As mentioned above, more frequent visits and staying longer with their babies in NICU, mothers interacted more with their babies, maternal attachment to their

babies was facilitated and their anxiety decreased. Therefore, in order to facilitate maternal attachment to their babies, it is crucial for nurses to encourage mothers to frequently visit and extend the length of visiting as well as facilitate their sufficiently interacting or involvement with their babies in NICU.

Mutual Mother-Baby Interacting

In this study, mutual mother-baby interacting occurred when baby's health condition was improved, in which baby began to respond to mother's interacting during seeking closeness to the baby. The baby's responsive behaviors elicited mother response and reinforced the mother to progress their relationship by identifying and taking care for her baby. The baby responded to the mothers' interacting by moving the body or extremities, opening eyes, grasping, smiling, crying or sleeping while mothers closely interacted with their babies by seeing, talking and touching. These babies' responsive behaviors not only elicited mothers' response to the baby but also excited the mothers and contributed to the mothers' happiness.

In this study, most preterm babies were very low birth weight infants (birth weight 1,000-1,200g) with 26-33 weeks of gestation. Their diagnosis was premature baby with respiratory distress, and was on mechanical respirator for supporting their respiration. Initially, during seeking closeness, there was less interaction between mother and baby. Most mothers hesitated to interact with babies while most babies lay without body movement. Rather, when babies' health condition was improved, the baby's responding elicited the mother's response, and then mutual mother-baby interacting occurred. This is congruent with previous studies. Mother and preterm baby interaction had been considered to be at a disadvantage regarding the establishment of satisfactory interactions. Satisfactory mutual mother-baby interaction depended not only upon the mother being sensitive and responsive to the infant's

behavior but also on the infant's competence in providing rewarding feedback to the mother (Goldberg, 1977 cited by Schermann-Eizirik et al., 1997). Various studies demonstrated the competence of the mother and preterm infants in interaction.

Minde, Perrotta, and Marton (1985) addressed that the responsiveness in infants depended on the characteristics of both infant and mother. The infant displayed behaviors that signaled readiness for interactions or that suggested a need for "time-out". The mother's ability to read these cues and respond appropriately was critically important to the development of the child and was related to later outcome. Minde et al. (1978) found that maternal behaviors of talking to others, holding, feeding and instrumental touching depended on the size or the medical state of the infants. Infant behaviors showed that infants with gestation less than 29 weeks did not respond to any type of maternal stimulation while infants with gestation more than 29 weeks showed significantly more eye-openings when their mothers touched them. The preterm infant's immaturity made him less adept to handling stimulation (Blackburn and Lowen, 1986). Very low birth weight infants were less attentive and active; less adept in gross and fine motor skills (Oehler et al., 1996). In contrast, Schermann et al. (1997) found that the interactive social behavior between preterm infants and full-term infant on the mother-infant interaction was not different.

Preterm birth affected both mother and infant. The immaturity of preterm baby made the baby less adept at handling stimulation. Damage to the central nervous system is likely to make it even more difficult for the infant to handle interaction. The mother's style of interacting is also likely to be affected by the preterm birth. During early interaction in the NICU mothers of high risk infants used an en face position less and smiled less (Minde et al., 1983). Some mothers of very low birth weight infants were less responsiveness to infant cues while others were overactive, talked

less, and showed less affection than mothers of full-term infants (Field, 1977; Minde et al., 1985; Zarling et al., 1988).

Oehler, Hannan, and Catlett (1993) found that maternal behaviors mothers used to elicit the preterm infant response included talking, touching, encouraging the baby to grip their finger, kissing, and holding close. Most mothers felt their infants did respond to them even in the immediate postpartum period. The most baby's behaviors responded to mothers that encouraged interaction including waking or eye opening and orienting, body movement, and gripping the mother's finger. Other behaviors were positive face (smiling/grinning), and negative face (grimaces or cries). Negative face, some mothers reported as a signal to stop interacting. Mothers reported having seen their infants cry, calming as a signal to continue interaction and withdrawing from touch as a signal to stop. In addition, most mothers reported infant behaviors that influenced their behaviors either to continue or to stop interaction. Mother also reported infant looking away or turning away as he was exploring the environment. Mothers reported staring was infant's attempt to get to know them. Most mothers reported that they talked to or touched the infant in response. Having seen the infant cry, most felt their infant did not feel well or was uncomfortable. The difficulties interacting with their infant mothers reported due to their prematurity and hospitalization, infant's sleeping, environmental problems (noise, incubator), infant's reactions. Mothers responded to benefits of visiting included teaching the infant to know someone was there for him, "getting to know them" and letting the baby know that he was loved.

Committing to Mothering

Committing to mothering in this study, mothers planned for the future for their babies and explored their roles in nurturing or taking care for their babies in order to

achieve their plans after they were pleased in mutual mother-baby interaction post birth. Planning for the future, mothers wanted their babies achieve the safety, comfort, growth, development, being well, and having good relationship. It was possible that after mothers were pleased in their mutual interaction with babies in which the baby health condition had improved, mothers were more encouraged, confident and hopeful. Therefore, they began to plan for the future for their babies. It seemed like some mothers had committed to baby during her pregnancy. With hopefulness during pregnancy, some mother fantasized about her healthy baby and committed to love and provide the best caretaking for her.

According to Goulet et al. (1998), commitment was a critical attribute of parent-infant attachment. It referred to the enduring nature of the attachment relationship. Being committed, parent placed the baby at the centre of their life and their family and created responsibilities to him. Therefore, committing to mothering in this study, mothers valued their babies and found their own ways in caretaking and nurturing for them.

Having Concerned for the Baby

In this study, mother usually engaged her interest in the appearance of the baby (being small, preferring to gender, baby crying, being normal, and having defect), health conditioning of the baby (being alive, developing complication, improving health), and being well of the baby. Having concern for the baby not only could affect mother emotional distress but also could facilitate or impede maternal attachment to the baby.

Most preterm babies in this study were 30-33 weeks of gestation (range 26-33 weeks) and their birth weight were 1,000-1,200g (range less than 1,000-1,400g). All of them were or were being hospitalized in NICU with the diagnosis of premature

baby with respiratory problems that needed supporting with mechanical ventilator. All of them were kept in incubator and surrounded with high technological equipment for monitoring, curing or caring. These preterm infants were perceived as the tiny and very fragile infants at risk for infection, complications, and uncertainty of their lives that were not as the mothers' expectation during pregnancy. In addition, most mothers perceived these preterm infants' health were improved by moving their bodies, opening eyes, crying, spontaneously breathing, being fed, or gaining weight.

These characteristics of the preterm infants as mentioned are normal for full term infants as mothers expected during pregnancy or experienced with previous children. Most of them were frightened, disappointed, sorrowed, upset, worried, afraid, felt guilty, or helpless. These findings are consistent with the previous studies that revealed feelings of stress, strain, anxiety, depression, sadness, failure, shame, guilt, fear, helpless and inadequacy among mothers with preterm infants (Choi, 1973; Harper et al., 1976; Blackburn and Lowen, 1986; Pederson et al., 1987; Gennaro, 1988; Casteel, 1990; Affleck et al., 1991; Stjernqvist, 1992; Padden and Glenn, 1997; Singer et al., 1999; Taylor et al., 2001). As Padden and Glenn (1997) found, one-third of mothers with preterm infants admitted in NICU in the UK were distressed at the appearance of the infants during first seeing them in NICU. Singer et al. (1999) found that mothers of very low birth weight infants had more psychological distress than mothers of full term infants.

This study found that prematurity of the baby, not only affected psychological distress of the mother but also affected the maternal attachment to the baby. The prematurity of the babies affected delayed attachment of the mothers. The appearance of the infants that did not conform to the expectation, were not like normal full term infant, and subsequently, a failed to release effective responses, because the very

small size and fragile appearance of the baby prevented the mother from touching or interacting with baby. The preterm infant's disorganized behavior may disrupt the patterned interaction sequences with the mother (one mother perceived that it seemed like she was blamed when her baby gazed at her). This result is consistent with Bialoskurski, Cox, and Hayes (1999). They found that when the infant's appearance and behavior did not conform to the maternal expectation at a conscious or unconscious level, then bond formation may be delayed because the infant is not able to play his or her part in the establishment of attachment.

Therefore, as mentioned above, both psychological distress of the mothers due to the prematurity of the baby and the prematurity of the baby reinforced the delayed formation of maternal-infant attachment. Affleck et al. (1991) found that during hospitalization the parents reported experiencing distress, uncertainty, regret, and feelings of detachment.

Concerned about the preterm baby particularly during first visiting in the NICU, most mothers hesitated to interact with the babies, some mothers did not agree to stay close overnight with her baby in NICU despite the doctor's offering, and some mothers did not want to frequently visit their baby although most of them reported their love for the baby was increased and loved the baby more than the previous children. These caused the delayed maternal attachment to the babies. However, these may be the coping strategies mothers use as self-protecting mechanism during stressful time that prevented them from excessive grief in the crisis events. This was congruent with Bialoskurski, Cox, and Hayes (1999) who indicated a delay in attachment is a coping strategy on the part of mother or family to prevent excessive grief in case the infant dies, the infant's health is poor and the outcome uncertain.

In contrast, concerned about prematurity of the baby, some mothers were so upset and worried about the babies that they wanted to frequently visit, stay close, touch, hold and embrace their babies. Some mothers reported that their attachment to babies was increased or felt love their babies more than the previous children. In these cases, maternal attachment to the preterm baby was facilitated. It was possible that these mothers were worried and upset with their babies that were left alone in NICU, did not receive affectionate touch from parent as the previous children did after birth, or were hurt by aversive procedures and treatment. In addition, they had to be kept in the incubator and surrounded with high technological equipment in NICU that was not convenient or comfortable as in the womb or at home. They lacked everything that the previous children had received. With the feelings of worry and upset with the baby, mothers felt love or attachment with her baby and wanted to take care for the baby as though they wanted to compensate for what the baby lost. The mothers' worrying and upset facilitated maternal attachment to babies have not been supported by research.

This study found that whenever mothers knew from the doctor or nurse during visiting their babies in NICU or by telephoning that their babies had developed any complication that needed specific investigation and treatment mothers felt upset, worried, or unable to accept. The babies' complications mothers were concerned about were lung and eye complications. In this study, it was noted that the information mothers received from doctor or nurse during each visit to their babies in NICU usually concerned the baby sickness, complication and its treatment, particularly during early hospitalization in NICU when the baby was so critical and most mothers were grieving. Therefore, it is possible that this information may add to the emotional distress so much that it influenced some mothers to not want to frequently visit their

baby. Knowing more about her baby's poor health condition, mother could not better accept her baby. Infrequent visiting, mother could clearly see how much her baby progressed and had enough time for her to adjust her emotion to the crisis of her baby. However, in some case, her worry was decrease if she could directly know the actual baby's information from health care providers and see the baby by herself. Knowing from health care providers by telephoning without directly seeing her baby, the mother may perceive excessive stress. Cox and Bialoskurski (2001) identified that lack of reliable up-to-date information from professionals was one infant-related factor associated with maternal attachment formation. Most mothers wanted to know the actual information of her baby. Therefore, providing the actual information and facilitating her to see her baby may facilitate the formation of attachment. However, dependent upon each individual, nurses should carefully give the actual baby's information to mother so that mother was not more stressed rather than reinforced in her attachment to her baby.

The study was found that whenever the baby's health condition was improved by responding to the maternal interacting by the perception of the mother, she was glad and was induced to respond to baby's responding and was reinforced to progress their relationship by recognizing and care taking for their babies. The baby responded to the mother's interaction by moving extremities, grasping, opening the eyes, crying, or sleeping. Even some responsive behaviors such as the baby's reflexes caused the mother to be excited and pleased.

As Klaus and Kennell (1982) indicated, the influences on maternal attachment, mother's behavior toward infant and the infant's response to mother were found to influence mother-infant attachment. Among mothers who were sensitive to their

baby's behavioral response and responded effectively to baby, maternal attachment to the baby was facilitated.

Therefore, nurses' support and provision of encouragement to mothers during their interaction with the baby may be helpful for mothers in further their relationship.

Adjusting Emotionally to the Crisis

In this study, all mothers were found to experience emotional distress with their preterm infants, particularly during hospitalization in the NICU including being stressed, upset, being sad, feeling guilty of her fault, being fearful, worrying, frightened, and being helpless. They were emotionally experienced with their babies' characteristics (appearance, development), baby's health condition (uncertainty of the baby's illness, live, complication), baby's well-being (safety/ harm, hurt/suffer/), and the environment (health care providers, procedural and medical treatment, equipment, separation from baby, and other children).

These findings are consistent with previous studies (Choi, 1973; Harper et al., 1976; Jeffcoate et al., 1979; Trause and Kramer, 1983; Blackburn and Lowen, 1986; Pederson et al., 1987; Gennaro, 1988; Casteel, 1990; Affleck et al., 1991; Stjernqvist, 1992; Singer et al., 1999; Taylor et al., 2001). These emotional distresses affected maternal attachment to the baby. They facilitated or hindered maternal attachment to babies. Avant (1981) found that anxiety had negative effects on maternal attachment among primiparous mothers during the first 3 days postpartum. Highly anxious mothers had a low attachment score and mothers with high attachment scores had low anxiety ratings. Mercer and Ferketich (1990) also indicated that anxiety had negative effects on maternal attachment through 8 months after birth, and explained 23% of the maternal attachment of low risk mothers at postpartal hospitalization and 18% at 8 months. In addition, Mercer and Ferketich (1994) found that anxiety explained 15%

of maternal attachment of inexperienced mothers at postpartal hospitalization and 9% at 4 months. Also, Armstrong and Hutti (1998) found that maternal anxiety indicated the complex nature of attachment.

Therefore, decreasing mothers' emotional distress can be used as a strategy in enhancing maternal attachment to the baby during hospitalization. Nurses in NICU needed to be skilled not only in the physical care of high risk newborn but also in psychological aspect of working with frightened grieving family in order to decrease mothers' emotional distress that subsequently enable them to interact and participate in taking care for their babies.

Supporting Connections

In this study, supporting connections played a significant role in modifying mothers' abilities to attach or interact with the babies and to take part in taking care for the babies. The study found that the husband was significant in supporting mother in the process of establishing maternal attachment to the preterm baby. Husbands helped the mother cope with a variety of stresses after knowing she was pregnant and particularly during the baby's hospitalization in NICU. He helped the mother accept and continue her pregnancy, accept the baby's appearance and health condition, and confidentially interact with and take care for the baby.

During early baby hospitalization in NICU, mothers were often stressed with the uncertainty of the baby' s life, the tiny and very fragile nature of the baby, the complications baby had, the procedures and treatment the baby received and the equipment being used with the babies. Supporting the mothers, husbands provided mothers the informational, emotional, and instrumental support. The support could enable mothers to deal with stress, interact and spend extended periods of time in the NICU with the infant.

The finding in this study is consistent with the previous studies that indicated the infant's father's support as facilitating the formation of the mother's emotional attachment to her infant (Minde et al., 1980; Brazelton, 1982; Klaus and Kennell, 1982; Mercer, 1983; Rubin, 1984; Mercer and Ferketich, 1990, 1994; Bloom, 1998; Bialoskurski, Cox and Hayes, 1999). Bloom (1998) found that maternal attachment in adolescence indicated a close and satisfying relationship of the father with the adolescent mother, had a positive influence on maternal attachment behaviors. In instances where this support was lacking or the relationship between mother and father was not stable, attachment was affected adversely. Also, Bialoskurski, Cox, and Hayes (1999) indicated that lack of social support for the mother increased stress experienced by the family. This situation acted as delaying factor in establishing attachment. Mercer and Ferketich (1994) found that partner relationship explained 9% and 12% of the variance of maternal infant attachment for experienced mothers at postpartal hospitalization and at 4 months respectively. Minde et al. (1980) studied the determinants of mother-infant interaction during visits in the premature nursery. The results showed that the relationship with the father of the infant was the strong predictor of mother-infant interaction. It provided a 33% increase in the accuracy of prediction. Also, Wongchan (2002) found the positive relationship between paternal support and mother-infant bonding. ($r=.40$, $p<.01$). The paternal support was a strong predictor of mother-infant bonding ($r=.33$, $p<.05$).

The finding of the significance of husband in supporting the mother to deal with stress, accept and interact with her baby as mentioned above indicated the important contribution to the nurses and other health care providers that support by husband could affect mother-baby attachment relationship. It could be used as the strategy in facilitating maternal attachment to baby. Therefore, nurses and health care

providers should help and reinforce husbands in supporting mothers to pass through the critical situation and could effectively resume her attachment to her baby.

Support of Belief: Traditional Thai Practice

In this study, support of belief was the interesting subcategory in the category of supporting connections emerging in the process of maternal attachment. As mentioned above, support of belief refers to holding a religious belief or natural superstition belief that the mother used in maintaining her psychological and spiritual balance. Most mothers usually prayed to the Buddha or the sacred things for help or made a vow for her baby being healthy or physical normal development while some mothers offered alms to monks “Takbatre” for supporting their comfort. Some mothers accepted what happened to her and her baby that it was because of their fate or because of her belief in “the law of Karma” or “Kot haeng kam”.

Interestingly, despite the confidence in advanced medical cure and care in NICU with high technological equipment and physical and psychological nursing care, most mothers also prayed, made a vow “Bon baan san klaw”, made merit “Tumbun”, offered alms “Takbatre” or accepted what happened to them was because of their fate in order to supporting their psychological and spiritual balance. More interestingly, they needed support of belief both while at home and at hospital and also during pregnancy and through out their babies’ hospitalization in NICU. It was a great support for the mother.

Making merit “Tumbun” (Manowongsa, 2003) refers to doing good things as mentioned in religious doctrine. Thais’ ways of life, since their birth until their death is so familiar with making merit. They strongly believe they ought to regularly make and gain merit which would bring them happiness, peaceful life and other good things. Gaining merit will strengthen them to overcome any obstacles or misfortune

they are suffering. They intend to gain more merit because they also believe their accumulated merit would help them to be in heaven or a peaceful place after their death. Even more merit they gained would help them reach nirvana.

A common rule in making merit is to prepare one's mind and thoughts. The mind has to be purified and ready. Gaining merit, however, must not bring any trouble or worry to oneself or others. The ways of making and gaining merit included offering alms, praying, and maintaining religious commandments. If all of these are perfectly met, it represents a great merit making. Rather, most people see that making merit is to offer alms. It is the first step of a fully-gained merit. On this occasion only alms offering will be considered as it is a very common Thai way of life.

Offering alms "Takbatre" is a making merit by putting food in the bowl of a monk in the belief that one is gaining merit by giving. Every morning around 6.00 am - 7.00 am, monks silently walk along the streets to receive offerings. Foods offered to monks are well prepared and include newly cooked rice, various kinds of savories, sweet and fruits. Some people may prepare flowers, joss sticks and candles. When the monks arrive, people will ask them to stop and place foods into the bowl monks are carrying. Flowers, joss sticks and candles are put on the metal lid of the bowl or into monks' bag. Then, they will get blessed. While monks are blessing, people should pour water which shows their wish to devote the merits they gained to their relatives who have already passed away.

Praying is an effort to communicate with a deity or spirit, including God, Saints, Buddha, or others either to offer praise, to make a request, or simply to express one's thoughts and emotions. The words of the praying may either be a set hymn or incantation, or a spontaneous utterance in the believer's own words (Wikipedia, 2006). In Buddhist tradition, praying is a ritual expression of wishes for success in the

practice and in helping all begins. It can be a way of expressing respect and appreciation to the individual person of the Buddha, who is said to still exist though in a higher dimension. One may pray to the Buddha for protection or assistance, taking a more subordinate role (Wikipedia, 2006). When praying and requesting a favor to the Buddha, Thai people take three joss sticks, a flower that may be orchid or lotus, and a small candle. They light the joss sticks and kneel three times and put the joss sticks in front of the statue. Some people cover the Buddha statue with a thin golden leaf to honor Buddha teachings. Some people also offer garlands “Dook Mali” to the Buddha statue. Their white color symbolizes the beauty of the Buddha teachings. When they get old, they symbolize life’s impermanence (Wikipedia, 2006).

Besides praying to the Buddha placed on the shelf in the house or placed in the main building in a temple “Bot”, some people pray to the other supernatural objects, the powerful sacred objects or the sacred things “Sing saksit” such as small objects kept on the body like the Buddha statue or sacred amulets or other objects which people wear for protection or success (Buddhism, 2006).

Praying may be done privately and individually, or it may be done corporately in the presence of fellow believers. Praying is sometimes accompanied with ringing a bell, burning incense or paper, lighting a candle or candles, and facing a specific direction. A variety of body postures may be adapted: standing, sitting, kneeling, prostrate on the floor, eyes opened, eyes closed, hands folded or clasped, hands upraised, and others. Prayers may be recited from memory, read from a book of prayers, or composed spontaneously as they are prayed (Wikipedia, 2006).

Making a vow “Bon baan san klaw” is to promise solemnly to a deity to do something or to behave in a certain manner (Farlex, 2006). Making a vow, like praying, is a ritual expression of wishes for success in the practice by spontaneous

utterance in the believer's own words or speaking in their minds to the Buddha or other "Sing saksit" that they respect or appreciate as mentioned above. Rather, making a vow, the believers also solemnly offer or promise to give benefit or offerings to the Buddha or "Sing saksit" if their wishes were success (Puekskon, 1998). People make a vow to the Buddha when seeking help in solving a personal or family problem.

Thais' belief is based on the Buddhist doctrine. The concept is as stated in a Thai proverb "if one do good one will receive good; if one do evil one will receive evil". It means the result of Karma which represents the evaluation of all life events, that is, one will receive the outcome of what one has already initiated. "The current life is a consequence of the past action" that is the concept of Karma (Thaibuddhism, 2004).

The law of Karma, the law of cause and effect, is important in helping us understand the cause of inequalities among mankind. We are all conditioned by our wholesome or unwholesome thoughts, words and actions. Whatever actions we perform intentionally are motivated by wholesome or unwholesome thoughts. Based on these motivations, we create accordingly good or bad karma. Good karma brings good results while bad karma brings bad results. The results of our good and bad karma can ripen either within this lifetime or hereafter (Dhammananda, 2006).

The karmic law is a natural, universal law. Through this law, all beings gain the results of their deeds which enable some to be born rich, handsome and well-respected, while others are born poor, ugly and of low birth. The Buddha said that pleasant and unpleasant feelings are not created by God as reward or punishment, but arise as a natural effect of our own good and bad actions. Everyone has to experience

the good and bad effects of his or her actions, regardless of whether he or she believes in karma or not (Dhammananda, 2006).

Therefore, man is certainly not an experiment started by a supernatural being and who can be done away with when unwanted. Buddhism regards man as being capable of developing his understanding to free himself from suffering if he is shown how his ignorance can be removed (Dhammananda, 2006).

In this study, most mothers were Buddhist. With the support of beliefs by Tum bun, Tak batre, praying, making a vow or accepting in the law of Karma, mothers' worrying was decreased; they could sleep well, felt comfort, better, and became happy. In some case, maternal attachment to the baby was facilitated. Therefore, when mothers are struggling to get connected to their babies within the crisis situation after birth, nurses need to understand the mothers' culture or the ways of their lives, to educate them about the benefits of the support of beliefs and to provide strategies to help them integrate their beliefs in caring for their babies and their selves.

Life Experiences: Experiencing with Own Mother Attachment

In this study, life experiences of the mothers about baby being kept in incubator, complication, survival or death; being a mother by herself; her own parent's attachment; or her children without interacting with them or never experienced with preterm baby before were found to affect mothers' feelings about their babies, hopelessness, encouragement, understanding the feelings of motherhood or maternal attachment to babies.

In this study, experiencing with own mother's attachment was found to affect mothers' attachment to their babies. Most mothers experienced a loving attachment relationship with their own parents. They sincerely addressed it affected their attachment to their babies. This finding was congruent with the previous studies

(Minde et al., 1980; Brazelton, 1982; Mercer, 1983; Rubin, 1984; Klaus and Kennell, 1982, 1983, 2001; Fonagy et al., 1991; Mercer and Ferketich, 1990; Main, 1991; Schwartz, 1992; Zachariah, 1994; Rutter, 1995; Goulet et al., 1998; Kretehmar and Jacobvitz, 2002) and confirmed the attachment was transmitted intergenerationally.

According to attachment theory, Bowlby (1969) defined attachment is an enduring affection, gradually developed during the child's first year of life. In the development of attachment, the child creates sets of internal working model of self, other, and the interpersonal environment. This working model provided a mechanism of continuity from early childhood through to early adulthood. Having the advantages of secure attachment would help a child develop secure attachment with peers during adolescence. Bowlby (1969) claimed that a person's earliest working model of self and of caregiver in the context of first attachment was the model that determined how future relations were established and maintained. Experiences involving the disruption of parent-child bonds frequently lead to impairment in the individual's capacity to develop later relationships (Bowlby, 1980).

Similarly, Klaus and Kennell (1976; 1982; 1998) defined attachment as a unique relationship between two people that is specific and endures through time. It is crucial to the survival and development of infants. It is the major source for all the infant's subsequent attachments and is the formative relationship for the child developing a sense of himself. Throughout his lifetime the strength and character of this attachment will influence the quality of all future ties to other individuals (Klaus and Kennell, 1976). Thus, attachment is crucial for the infant's physical, psychological and emotional health and survival, as well as the child's well-being as an adult and a potential parent for a subsequent generation. In addition, Klaus and Kennell (1982; 1983; 2001) also postulated in the attachment model that own mother

attachment to mother was one of the parental factors that influenced parent-infant attachment.

Furthermore, Goulet et al. (1998) addressed that literature on attachment highlighted the importance of the relationship that one had with one's own parents (Fonagy et al., 1991; Main, 1991; Zachariah, 1994; Rutter, 1995). Main's (1991) work on the evaluation of the mental images of attachment that adult have with their own parents reinforced the hypothesis that attachment is transmitted intergenerationally. Zachariah's (1994) study on the influences of maternal-fetal attachment on mother-daughter, and husband-wife relationship partially supported the intergenerational model of attachment relationship. Mother-daughter and husband-wife attachment were positively correlated while maternal-fetal attachment scores were not related to mother-daughter, and husband-wife attachment scores.

Other previous studies supported the concept that attachment is transmitted intergenerationally. Mercer and Ferketich (1990) studied the predictors of parental attachment during early parenthood. They found the intergenerational influence among low risk couples. The relationship with their mother as a child had direct positive effects on attachment at early postpartum in low risk women. Additional, Mercer and Ferketich (1994) found that the relationship with their mother as a child explained 6% of the variance of maternal infant attachment for experienced mothers at 4 months. Also, in a study of some determinants of mother-infant interaction during visits in the premature nursery and the first three months of infant's stay at home, Minde and associates (1980) found that the relationship with own mother could explain almost half of the variance of mother-infant relationship (R^2=47).

In the case of mothers with preterm babies in this study, even though their attachment to babies was delayed nevertheless, it gradually increased over time during

the period of hospitalization in NICU. The experience with their own mothers' attachment interplayed with the resumed attachment.

Therefore, in order to facilitate maternal attachment to baby, it is necessary for nurses to understand the history of mothers' relationships with their own mothers and use it as a strategy in facilitating the resumption of the relationships between mothers and babies.

However, no experienced with her own mother's attachment in one mother was not affected her attachment to her baby. One mother insisted that her unsatisfying experience would certainly not affect her love for her baby because of her understanding about baby's needs for love, warmth, and close contact from mother by her direct experience with her own mother. Therefore, she compensated by committing to give warmth and frequently touch her baby.

Additionally, Harris (1998), one of the main critics of Bowlby's attachment theory, believed that parents did not shape their child's personality or character. A child's peers had more influence on them than their parents. Children would not use everything that they learned from their parents. Children learned how to behave, for the most part, from other people in their social group. Adults did the same; they acted more like the people in their social groups than their parents. Therefore, in this study, in the case of the mother who was not satisfied with own mother's attachment but insisted to do with her baby unlike her own mother did was probably because she learned how to behave more from her experience with her husband's love or even from her own parent's attachment with her siblings than from her own parent interact with her.

Therefore, whether mothers experienced satisfying or non-satisfying attachment with their own mothers, maternal attachment to baby could occur. So,

nurses should facilitate mothers to early interact and take care for their babies in order to achieve resuming their attachment to babies after the initially established attachment was withdrawn by the preterm birth.

Health Care System Facilitating

In this study, health care system facilitating provided to mother and baby comprised health care providing, health care communicating and environmental care facilitating. Confident in or appreciating the care given, feeling free to contact with health care providers, or feeling satisfied in the environment facilitated mother-infant relationship, and maternal attachment to baby can be facilitated. In contrast, not appreciating the care given, not feeling free to contact with health care providers or feeling unsatisfied in the NICU environment prevented the formation of maternal attachment to the baby.

In health care system facilitating, nurses were the significant health care providers who worked in the psychological aspects of grieving families in addition to the physical care of high-risk newborn. In the care provision to mothers, it was found that most mothers could not interact much or know much about their babies' condition at birth. With the lack of sufficient information, mothers were worried. Generally, mothers with normal full-term baby could see the babies' appearance, hear their babies cried; were told how healthy, how much their babies' weight, and which gender their babies were; and could interact with their babies while they were lying on the mothers' chest before they were brought to clean and keep warm and then live together in the postpartum ward. Rather mothers with preterm babies in this study were of very low birth weight (birth weight=1,000-1,200g) and 26-33 weeks of gestation, their babies were in critical condition at birth that needed emergency care and were moved urgently to the NICU for intensive care, so that they could hardly

interact with their babies, hear their crying or even know about their babies' conditions. These made most mothers anxious and worried about their preterm babies besides being disappointed that their babies were not normal or fully as their expectation. Although the focus of care initially was on the baby's survival at birth, later on information was provided about their babies and support to mother was significant. Furthermore, some mothers could not see or know about the actual health condition or the seriousness of their baby during early postpartum period because nobody wanted her to know the actual baby's situation for the reason that she could not accept this crisis situation. However, in this case, mother first visited her baby after her family had gone home. She felt more comforted after seeing that her baby was better than she expected. Knowing the actual information or seeing the real situation, mother could better accept and emotionally adapt to the event than the others thought. Subsequently she could interact with her baby earlier. Therefore, assessing the mother's needs and providing sufficient information with appropriate manner, time and space were helpful for mothers. Nurses in labor room, postpartum ward and NICU were in the position to assess needs, provide appropriate information and emotionally support to mothers together with their families to comfortably pass through this period and subsequently facilitate the mother's interacting with her baby.

While in the NICU, some nursing activities prevented mothers from interacting with their babies such as routine morning nursing care and some invasive procedure that hurt their baby. Some mothers did not so much appreciate the nurse who hurt her baby while providing care and could not accept or control her emotional balance and sometime she did not want to frequently visit her baby. These may disrupt mothers in the attachment formation to babies.

In the case of mothers who could only see without touching their baby while the nurse was providing routine nursing care to the baby, it was possible that the baby was in critical condition that needed more skill and very short time for nursing care so that the procedure had to be done at that time. Therefore, explanations to provide more understanding and support for the mother were needed, or else routine morning nursing care may be postponed during mother's visiting. In the case of the baby not being in critical condition or was already improved, the nurse may allow the mother to take part in caring for her baby. Participation in taking care instead of just seeing the nurse caring for her baby would make the mother feel worthy and encouraged as well as facilitates her attachment to the baby.

Mother who did not appreciate the invasive nursing care nurse provided to the baby because of her concern about her baby being hurt, sometimes did not want to frequently visit the baby and talk with the nurse in NICU. These may be the strategies the mother used to cope with her emotional grief. The mother always felt that she could not help her baby despite her being also a healthcare provider, thought of her fault that caused her baby to be born prematurely and upset with her baby being kept in an incubator and attached with many lines and tubing. Therefore, seeing her baby was hurt during visiting, she could not maintain her emotional balance. So, it is crucial for nurses to understand the grieving process that the mother is experiencing, the strategies that the mother uses in coping with her emotional problems and to support her to pass through this crisis event.

This study additionally found that some mother felt she was blamed after nurse suggested her to frequently visit her baby. It was possible that she was feeling guilt at her fault that caused the baby to be born prematurely and to be in critical condition. Infrequently visiting her baby, even though it was used as her strategy to

maintain her emotional balance, nevertheless caused her more stress due to her feeling of guilty for learning baby in NICU when nurse suggested her to frequently visit the baby. Therefore, in providing some suggestion to mother particularly during her grieving, nurse should carefully assess the mother's needs, emotional problems and the related factors in order to help mother appropriately cope with crisis situation. For mother who could emotionally adjust to the crisis, maternal attachment to her baby could be facilitated.

Interestingly, there were some mothers who delayed first touching their babies. One first touched her baby at the sixth visits (B1: p7) while the other two (B2: p13, D3: p5) delayed beyond 10 to 14 days post birth because fear of infection and were not facilitated by nurses during each visiting despite explicit NICU policy to verbally encourage mothers to touch their babies from the beginning. It was possible that these mothers did not clearly understand the precaution technique that could prevent their babies from infection. During this period, they were grieving with the crisis situation that restricted their ability to take in any more information while nurses did not frequently encourage and support them to touch their babies. Additionally, during this time the mothers' focuses were on their babies' survival or the uncertainty of their babies' lives that caused them to be less concentrated in contacting to their babies. Therefore, in order to facilitate maternal attachment to baby, nurses should appropriately assess and enhance mothers' knowledge about precaution technique, as well as frequently encourage and closely support them in touching their babies.

However, health care providing in this study, the mothers were facilitated to interact with and take care for their babies, were told about babies' health conditions and medical treatment and procedures their babies received, and given explanation

about precaution technique, and equipment used with babies. Thus, mothers' knowledge was enhanced, their worry was decreased and maternal attachment to babies was facilitated. Moreover, seeing nurses closely caring for their babies every day while in NICU, mothers were confident in the care given to the babies.

In health care communicating, most mothers usually communicated with nurses by face-to-face communicating in order to access the accurate information about their babies. They sometimes called nurses to ask about the baby's information particularly when they could not visit their babies. Through communication, most mothers understood more about their babies, enhanced their knowledge, felt more relaxed and the feelings towards their babies could be changed. However, some mothers were uncomfortable, anxious or felt uncertainty after knowing their babies' complication or baby lives' uncertainty. Therefore, communicating with mothers, nurses should carefully assess mothers' needs and the abilities mothers could accept or understand and provided them with the appropriate information.

Interestingly, some mothers did not have the courage to communicate with health care providers particularly with the doctor who took care for their babies despite their wanting to know about their babies' health condition. They waited for the doctor to inform them. Being discouraged to request any information of the mothers probably may be the result of the "Kreng jai" attitude which roughly means "feeling considerate for another person, not wanting to impose or cause another person trouble, or hurt his/her feeling". It is the "ego" orientation of the Thai. "Ego" or "face" or preserving one another's ego is the basic rule of all Thai interactions both on the continuum of familiarity-unfamiliarity, and the continuum of superior-inferior, with difference only in degree. Even a superior would also observe not to intrude too much of the subordinate or the inferior's ego. For a Thai, this is not something to be

taken for granted. They intuitively observe this root of interpersonal social rules. Each knows his appropriate role, appropriate means to handle interactions when roles come into contact, and how far one can go, and so on (Komin, 1991). Thus, in case of mothers (inferior) waiting for their babies' information by no request to the doctor (superior), it is known in Thai culture, as interpersonal social rules, that it is the doctor's role to inform them. Therefore, in health care communicating, doctor and nurse and to understand the interpersonal social rules in Thai culture in order to appropriately handle the interaction with mother.

Environmental care facilitating in this study was found to affect mother's physical and emotional contact to baby. The NICU environment is full of high technological equipment, light and sound of the monitoring equipment and alarm, as well as critical babies who were being kept in incubator and surrounded with many lines and tubing. Its atmosphere was frightening to mothers who had never previously experienced it. Even the unit's name "Hor phupuey nuk tharokrakkerd [unit for the critical baby or neonatal intensive care unit]" mother had seen before seeing her baby at first visit was so frightening that she could not accept it and felt faint because of her imagination about her baby seriousness. Additionally, there were more strict guidelines or rules for parents to practice during visiting their babies in the NICU.

In this study, it was found that equipment used with the babies limited mothers in interacting with their babies during visiting. Most babies were being kept in incubators, attached with intravenous lines, retaining nasogastric tube for feeding, being on mechanical ventilator for respiratory support, being on pulse oximeter for monitoring oxygen saturation in blood stream or being on phototherapy for the treatment of hyperbilirubinemia and so forth. Surrounded with this equipment and lacking of knowledge about them caused mothers were frightened, worried, anxious,

or afraid. Touching babies, mothers were afraid of disconnection of these tubing and lines that might harm the babies and also afraid of babies getting infected. Therefore, enhancing the mothers' knowledge and comforting mothers in interacting with their babies in order to facilitate mothers to interact with their babies were necessary.

During this study, there were many babies of different gestational age, birth weight, and degree of critical sickness hospitalized in the NICU. Most of them were also kept in incubator and surrounded with a variety of high technological equipment. Seeing these babies were the same or more critical than her baby and particularly could survive during visiting her baby in NICU was helpful for mothers in coping with the crisis situation. It reinforced mothers' encouragement and her hope. Therefore, during visiting baby in NICU, nurses should give mother a chance to see around NICU environment including other critical babies and/or to talk with other mothers whose their babies also being hospitalized in the NICU and/or could survive. It was a mean for sharing experiences and supporting to each other. Eventually, it could be used as a strategy in helping mothers to cope with their problems.

This study was additionally found that poster presentation in NICU particular about preterm babies who could survive after curing and caring was helpful for mother. It reinforced mother's encouragement and her hope as well as enhanced her confidence in care given by the health care team. By this way, mother could learn more about the preterm baby and his progression. Therefore, providing information about preterm baby in any form of contribution to mothers such as poster presentation, pamphlet and so on could be used as a mean in enhancing mother's knowledge and supporting mother to cope with the feeling of uncertainty of her baby's life.

Visiting baby in NICU, it was found that the NICU environment was not private for mother to freely interact with the baby, had no private room or rooming-in and no allowance for mother to stay overnight with her baby, and limited time and number of visitors in each visits caused mother did not feel free with nurse during visiting with her relatives. These limited mothers to comfortably interact and stay longer with baby.

It was possible that some mothers did not clearly understand the structure of care in the NICU that was complex and different from the other opened wards, the characteristics and the seriousness of the babies that needed intensive care and needed some rules or regulations for practice. Comparing to the opened ward or private room, mother might feel uncomfortable particularly when visiting with her relatives in the NICU. Visiting baby in NICU, sometimes, not only the parent that needed to visit but also their relatives and friends did. It was a tradition for Thai particularly Islamic Thai that when one in the family was sick and needed hospitalization, the relatives would visit for praying for and encouraging him to get well soon. In this study, an Islamic mother felt uncomfortable during a visit with her relatives. She could not stay longer with her baby because she had to take turn among them in each visiting. Explanation and giving information to mother or sometime lightening of the regulation practice was necessary.

Implication for Nursing Practice and Education

The substantive theory of maternal attachment to the preterm infant in the NICU emerged in this study explained the process of mothers' experiences preterm baby hospitalization in the NICU dealing with affected attachment and the struggling to get normally connected to the babies. Understanding action/interaction of mothers experiencing with babies in developing attachment and the condition related in each

phase of this process were useful for nurses to modify them into practice and education for enhancing or discovering the appropriate strategies to facilitate mothers in attachment formation to their babies while in the NICU.

Nursing Practice: Modify Emerged Maternal Attachment Theory to Practice in the NICU.

According to the hypothesis from this study that having concern for the baby, adjusting emotionally to the crisis, supporting connections, life experiences, and health care system facilitating were related to the actions/interactions mothers experienced with their babies in each phase of the maternal attachment process in the NICU. Thus, providing adequate support and facilitate health care system to mothers should diminish their concern for baby and emotional distress to the crisis and subsequently enhance maternal attachment to their babies.

Facilitating mothers in developing attachment to their babies, nurses were in the position to take their roles since mothers were pregnant. During the time that mothers were being close to the fetus by feeling value towards the baby, and talking/touching through abdominal skin for encouraging and communicating love to babies, nurses should consistently give to mothers the knowledge how to care for self for enhancing the baby's growth, development, and safety; the crucial need for close interaction with their fetus and should consistently reinforce and support them to continue their interaction to babies throughout this period. In addition, encouraging or reinforcing the significant others in the mothers' families particularly their husbands to share their participation in this phase was also necessary in facilitating maternal attachment to the baby.

During birth, mothers could hardly see, talk, and touch their babies due to the emergency care and intensive care their babies needed immediately at birth. Their

babies were moved away urgently to the NICU or the other hospital NICU. Additionally, some mothers were delayed to firstly visit to their babies due to their health condition post birth, long distance between hospitals in case of their babies were referred to the other hospital at birth, traditional postpartum practice, and no allowance of their husbands to visit because fear of mother's inability to accept the baby's condition. Most mothers were worried and anxious about their baby's characteristics and health condition. The connection between mothers and babies was disrupted. Therefore, in this phase, in order to facilitate mothers to continue their attachment to baby after it was established during pregnancy, nurses working in the labor room should not only focus on the baby but also should provide the strategy to the grieving mothers. Nurses may give mothers more information about the baby's birth weight, gender, characteristic, health condition and the necessity to move away to NICU or refer the babies to another hospital NICU. Nurses should give mothers a chance to closely see, talk, or touch their babies for a period if possible before their separation. Nurses also should give close emotional support to mothers in order to decrease their worry and anxiety. In addition, during the peuperium period, nurses working on the obstetric wards should also provide the strategies to facilitate mothers to continue maternal attachment to their babies besides routine postpartum care. Obstetric nurses may support mothers the information about the babies' characteristics, and health condition by cooperating with nurses working in the NICU where their babies were hospitalized, provide emotional support accompany with their families, and visit the babies together with them. In case of their babies being referred to the another hospital NICU, obstetric nurses should provide a chance to mothers to talk with neonatal nurse who took care for their babies in order to get more information about their babies, may be by telephone.

In NICU, mothers resumed the connection to babies after it was disrupted at birth by began seeking the closeness to babies. In this phase, neonatal nurses should take their roles not only in physical care of the high-risk newborn but also in psychological aspect of working with the frightening grieving mothers and their families. During this phase, mothers were grieving with the crisis situation of preterm birth in which their babies were hospitalized in the NICU for intensive care. They were frightened, upset, sad, worried, anxious, afraid, felt guilt, hopeless, and disappointed with their babies that were in critical condition with the uncertainty of their lives, being small, easily fragile, at risk for any complication, and being in the unfamiliar NICU environment full of high technological equipment and a variety of rules or regulation for practice. These limited mothers in interacting with their babies particularly at first visiting. Seeking closeness, mothers at first hesitated to look, talk and touch their babies because fear of harm and infection or some mothers could not accept or maintain their emotional balance. Some mothers delayed interacting with their babies during this phase. Therefore, in order to facilitate maternal attachment to babies in this phase, neonatal nurses should provide strategies to mothers to courageously and comfortably interact with babies, may be by supporting mothers the information to enhance their knowledge about the prematurity, the sickness, the equipment using with the babies, the investigation, medical treatment and caretaking. Nurses should provide emotional support to mothers in whom they could appropriately adjust their emotional state to the crisis and subsequently reinforce them to interact with the babies, maybe by staying close to mothers during mothers interacting with baby, or facilitating their husbands to visit with mothers.

When baby health condition was improved, mutual mother-baby interacting occurred. When the baby responded to the mother’s interaction, the mother was glad.

It was well for nurses to encourage mother to progress their relationship leading to identifying, and taking care for baby. Identifying the baby, mothers were happy. Nurses should also reinforce the mother during identifying their baby. In this period mothers began to take part in taking care for their babies while being hesitate to take care for them. Mothers have no skill in taking care of the small baby. Therefore, nurse should provide the strategy to enhance mothers' knowledge and support mother in order to enhance their encouragement and confidence in taking care for their babies.

Committing to mothering after being pleased in mutual mother-baby interaction, mothers began planning for the future for babies to achieve growth, development, safety, comfort, well-being of the baby and good relationship between mother and baby; and found their own mothers' roles to achieve the desired planning. Nurses should provide the knowledge and the suggestion to mothers in planning for the future for babies and in exploring mother's role.

In conclusion, modifying emerged substantive theory of maternal attachment to the preterm baby in the NICU in nursing practice, nurses should be aware of these significant principles in providing the strategies to facilitate maternal attachment formation to the baby.

- Mother values baby as "Baby is my heart".
- Preterm birth and hospitalization of the preterm baby in NICU is a crisis situation of mother and her family.
- Mother experienced emotional grief with the crisis situation of preterm birth and hospitalization of the preterm baby in the NICU
- Maternal attachment is the basis for mother in caretaking and nurturing her baby.

- Maternal attachment to preterm baby begins during pregnancy and gradually progresses after birth even it is disrupted at birth.
- The process of maternal attachment is composed of 4 phases (establishing the connections, disrupting of the connections, resuming to get connected, and becoming connected) is influenced by varieties of conditions (having concern for the baby, adjusting emotionally to the crisis, supporting connection, life experiences, and health care system facilitating).
- Maternal attachment process occurred among mother’s emotional distress and concern about baby in critical condition.
- Maternal attachment behaviors are both verbal and non verbal behavior that the mother expresses to her baby.
- The sensitiveness and responsiveness of mother and baby are significant in their interaction.
- Focus of care is not only on the high-risk preterm baby, but also at the frightening grieving mother and family.
- Nurses are the significant person in health care team in facilitating maternal attachment to baby.
- Father and mother’s family are the significant persons in supporting mother in the process of maternal attachment to baby.
- Consistent assessment is needed throughout the process of maternal attachment that can change over time.
- Some mothers do “Traditional postpartum practice” that can prevent them from early interacting with the baby.

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- Most mothers used support of belief “Takbatre”, “Tumbun” “praying”, “make a vow” and “belief in rule of Karma” in maintaining psychological and spiritual aspects.
- Communicating between health care provider and mother should aware of “Kreng jai attitude”.
- Sensitive and careful response to mother’s behavior/reaction are significant in the communication during the crisis period.
- Actual information with appropriate support is needed in facilitating maternal attachment to baby in some mother.
- NICU environment is a strange and frightening experience for mother and her family.
- Appreciation, confidence and feeling free to the health care system facilitating facilitates the process of maternal attachment to baby.

Nursing Education: Modify Emerged Maternal Attachment Theory to Education

The study of the process of maternal attachment the mothers developed to their preterm babies during hospitalization in the NICU using grounded theory in this study is of benefit for nursing education as follows.

1. Struggling to get connected: The process of maternal attachment to the preterm baby in the NICU, the substantive theory emerged in this study can enhance the knowledge /middle range theory of attachment in nursing profession.
2. The concepts emerged in this substantive theory and their relations enhance the understanding of the phenomenon dealing with the maternal attachment occurring in the NICU environment.

3. Using grounded theory in discovery other middle range theory in nursing is significant in developing new body of knowledge in nursing.

The methodology in discovering the middle range theory, the theory and the concepts emerged in the process of maternal attachment to the preterm baby in NICU in this study; nursing educators should design them in the nursing curriculum for the benefits of nursing students. They can understand more about the development of theory grounded from data and the foundation of knowledge that conceptualizes the maternal attachment to the preterm baby from mother's perspective and can used it as the strategy to assess and facilitate maternal attachment to the preterm baby in the NICU.

Awareness of modifying emerged substantive theory of maternal attachment to preterm baby in the NICU in nursing practice and nursing education, professional nurses, nursing educators and nursing students can cooperate in providing the strategy to facilitate maternal attachment to the preterm infant in the NICU. Subsequently, the achievement of promoting effective parental skills and discharge intact family from the NICU can occur.

Recommendation for Nursing Research

Further qualitative research is needed to complete and find more categories particularly with the different groups of mothers such as mothers who were not living with spouses/partners. Further research is needed to develop and test model/test variables with other populations. Mothers who lost their preterm babies during hospitalization in the NICU should be further studied. In addition, further research for instrument development using for assessment the maternal attachment to preterm infant during in the NICU is needed. Further research for intervention is also needed after full appreciation in completing or finding more categories and testing the model.

Further related research is also needed. This study found that father of preterm baby was also the significant person who was in grief with the crisis situation and took a significant role in facilitating and supporting the mother in developing maternal attachment to their preterm baby during hospitalization in the NICU. Further qualitative research should also focus on the process of paternal attachment to the preterm baby in the NICU.

Strength and Limitation of the Study

The strength of this study "Struggling to Get Connected: The Process of Maternal Attachment to the Preterm Infant in the NICU" is the first study on the maternal attachment process in Thai mothers who experienced their babies hospitalization in the NICU. It was the emerged substantive theory that enhanced the middle range theory of attachment in nursing profession. The foundation of the knowledge from this study provides a comprehensive understanding of what conditions are involved in the action/interaction mothers use to get connected to the preterm babies in the NICU. The findings of this study can be used as a foundation for the development of maternal attachment scale for nurses to evaluate maternal attachment to preterm baby in Thai mothers. The foundation of this knowledge can also be used to develop a strategy in assessing and facilitating the maternal attachment to preterm baby.

The other strength of this study is the credibility of this study conducted by member checking. In the late stage of data collection when a tentative theory had been developed, five participants were intensively participated in the process of verifying the statements or descriptions representing the overall perceptions and experiences of the participants.

The limitation of this study is that the findings from this study are contextual, a small number of the selected group of mothers with preterm baby, and may be limited in its generalizability. Larger studies are needed to examine the similarities and differences.

Summary

The purpose of this study was to understand the experience of mothers in developing maternal attachment to preterm infant during hospitalization in the NICU using grounded theory. Fifteen Thai mothers whose preterm infants had birth weights less than 1,500g, without congenital anomalies, and experienced mechanical ventilation were interviewed and audiotaped. Four mother-preterm infant dyads interaction were observed and videotaped. The audiotaped and videotaped were transcribed for analysis. Textual data were analyzed through the constant comparative method developed by Strauss and Corbin. Findings from the analysis demonstrated the major task mothers addressed in order to get connected to their preterm babies after it was disrupted after birth. “Struggling to Get Connected” was the basic social process of maternal attachment to the preterm baby in the NICU emerged in this study. It was the process that occurred through the crisis circumstance of preterm birth that was composed of 4 phases including establishing the connections, disrupting of the connection, resuming to get connected and becoming connected. The actions/interactions mothers used in order to get the connection to their preterm babies in the NICU sequentially were being close to the fetus, withdrawal contacting, seeking closeness, mutual mother-baby interacting and committing to mothering. The development of this process was influenced by the conditions of having concern for the baby, adjusting emotionally to the crisis, supporting connection, life experiencing, and health care system facilitating. Experiencing with own mother attachment

influenced the maternal attachment to the baby confirmed “Attachment was intergenerationally transmitted”. Importantly, the support of belief, traditional postpartum practice and “Kreng Jai” attitude were found to have significant roles in the process in Thai mothers. These findings resulted in generating the initial theory of maternal attachment to the preterm infant and a model of “Struggling to get connected” that explained the process of maternal attachment to the preterm infant in the NICU in Thai mothers. Previous research studies describing the basic social process of maternal attachment to the preterm infants were limited. Understanding this process is valued for nurses to modify their clinical practice and education. Supporting and providing effective health care system facilitating were significant in facilitating maternal attachment to preterm infant in the NICU. Future direction of qualitative and quantitative investigation was recommended.

REFERENCES

Ainsworth, M. (1972). Attachment and dependency: a comparison. In J. Gewirtz (ed.), *Attachment and dependency,* pp. 179-216. Washington, D.C: Winstons.

Ainsworth, M. D. S., Blehar, M. C., Waters, E., and Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation.* Hillsdale: Lawrence Erlbaum Associates.

Affleck, G., Tennen, H., and Rowe, J. (1991). *Infants in crisis: How parents cope with newborn intensive care and its aftermath.* New York: Springer-Verlag.

Als, H., and Brazelton, T. B. (1981). A new model of assessing the behavioral organization of preterm and fullterm infants. *Journal of the American Academy of Child Psychiatry* 20: 239-263.

Armstrong, D., and Hutti, M. (1998). Pregnancy after perinatal loss: The relationship between anxiety and prenatal attachment. *Journal of Obstetric, Gynecologic and Neonatal Nursing* 27(2): 183-189.

Authaseree, S., et al. (1992). *The study of maternal-newborn attachment behavior During 2 hours after birth.* Faculty of Nursing, Mahidol University.

Avant, K. (1979). Nursing diagnosis: Maternal attachment. *Advanced Nursing Science* 2(1): 45-55.

Avant, K. C., (1981). Anxiety as a potential factor affecting maternal attachment. *Journal of Obstetric, Gynecologic, and Neonatal Nursing* 17: 49-51.

Avery, G. B., Fletcher, M. A., and MacDonald, M. G. (1999). *Neonatology:*

pathophysiology and management of the newborn. 5th ed. Philadelphia: Lippincott Williams & Wilkins.

Behrman, R. E., and Kliegman, R. M. (1998). *Nelson Essentials of Pediatrics*. 3rd ed. Singapore: W.B. Saunders.

Behrman, R. E., and Shiono, P. H. (2002). Neonatal risk factors. In A. A. Fanaroff, and R. J. Martin, (eds.), *Neonatal-Perinatal Medicine: Diseases of the fetus & infant.* Vol.1, 7th ed. St. Louis: Mosby.

Bennett, D. (1990). Reactions of mothers of preterm infants. *Midwife Health Visitor and Community Nurse* 26(9): 323-24.

Bialoskurski, M., Cox, C. L., and Hayes, J. A. (1999). The nature of attachment in a neonatal intensive care unit. *Journal of Perinatal Neonatal Nursing* 13(1): 66-77.

Blackburn, S. (1995). Problems of Preterm infants after discharge. *Journal of Obstetric, Gynecologic, and Neonatal Nursing* 24(1): 43-49.

Blackburn, S., and Lowen, L. (1986). Impact of an infant's premature birth on the granparents and parents. *Journal of Obstetric, Gynaecologic & Neonatal Nursing* 15(2): 173-178.

Bloom, K. (1998). Perceived relationship with the father of the baby and maternal attachment in adolescents. *Journal of Obstetric, Gynaecologic & Neonatal Nursing* 27(4): 420-430.

Bobak, I. M., Lowdermilk, D. L., and Jensen, M. D. (1995). *Maternity nursing.* 4th ed. St. Louis: Mosby.

Bowby, J. (1969). Attachment and loss. Vol. I: Attachment. New York: Basic Books.

Bowlby, J. (1980). *Attachment and loss. Vol. III: Sadness and depression.* London:

The Hogarth Press.

Brazelton, T. B. (1981). *On becoming a family: the growth of attachment.* New York: Dell.

Brazelton, T. B. (1982). Comment. In M. H. Klaus; and J. H. Kennell (eds.), *Parent-infant Bonding*, pp. St Louis: C.V. Mosby.

Brazelton, T. B., and Kramer, B. G. (1990). The earliest relationship: parents, infants and the drama on early attachment. New York: Addison-Wesley.

Brown, L. P. et al. (1989). Very low birth weight infants: Prenatal visiting and telephoning during initial infant hospitalization. *Nursing Research* 38(4): 233-236.

Bretherton, I. (1992). The origin of attachment theory: John Bowby and Mary Ainsworth. *Developmental Psychology* 28: 759-775.

Burns, N. (1988). Standards for qualitative research. *Nursing Science Quarterly* (October, 19): 44-52.

Burns, N., and Grove, S. K. (2001). *The practice of nursing research: Conduct, critique & utilization.* 4th ed. US: W.B. Saunders.

Cannon, R. B. (1977). The development of maternal touch during early mother -infant interaction. *Journal of Obstetric Gynecological Neonatal Nursing* 6(2):28-33.

Carson, K., and Virden, S. (1984). Can prenatal teaching promote maternal attachment? Practicing nursetest Carter-Jessop's prenatal attachment intervention. *Health Care for Women Internationa* 5: 355-369.

Casteel, J. K. (1990). Affects and cognitions of mothers and fathers of preterm infants. *Maternal-Child Nursing Journal* 19(3): 211-220.

Chaisup, V. (1997). *The relationship between selected factors and relationships of mothers and premature infants*. Master's Thesis. Maternal and Child Nursing, Faculty of Graduate Studies, Mahidol University.

Charoensri, P. (2002). *Effects of multi-modalities sensory stimulation program on the growth of premature infants and maternal infant attachment*. Master's Thesis. Pediatric Nursing, Faculty of Graduate Studies, Mahidol University.

Chenitz, W. C., and Swanson, J. M. (1986). *From practice to grounded theory: Qualitative research in nursing*. California: Addison-Wesley Publishing.

Choi, M. (1973). A comparison of maternal psychological reaction to premature and full-size newborns. *Maternal Child Nursing* 2: 1-13.

Coffman, S. (1992). Parent and infant attachment: Review of nursing research 1981-1990. *Pediatric Nursing* 18(4): 421-425.

Comm, M. K. J. M., Daramola, S. O., and Ikpatt, S. F. (1982). Some factors affecting mother-child relationships following low birth weight delivery in Nigerian sociocultural environment. *Child Abuse & Neglect* 6(1): 57-62.

Consolvo, C. (1986). Relieving parental anxiety in the care-by-parent unit. *Journal of Obstetrical, Gynecological, and Neonatal Nursing* 86: 154-159.

Cox, C. L., and Bialoskurski, M. (2001). Neonatal intensive care: Communication and attachment. *British Journal of Nursing* 10(10): 668-676.

Cranley, M. S. (1981). Development of a tool for the measurement of maternal attachment during pregnancy. *Nursing Research* 30, 281-284.

Crawford, J. W. (1982). Mother-infant interaction in preterm and full-term infants. *Child Development* 53: 957-962.

Danyuthasilpe, C. (1998). *The effects of structured information on anxiety and Adaptation toward the mother's role with premature infants*. Master's Thesis. Public Health Nursing, Faculty of Graduate Studies, Mahidol University.

Department of Health, Ministry of Public Health. *Thailand Health Profile 1990-2000*: 185.

Dhammananda, V. D. K. S. (2006). Practical Buddhism[Online]. Available from: http://www.ksridhammananda.com/pictures/PUBLI/new/PRACTICAL%20edited.pdf#search=%22Dhammananda%20practical%20buddhism%22 [2006, June 18]

Dizon, M. A. B. (1984). Secure attachment, anxious attachment. *Journal of Psychosocial Nursing* (March): 17-30.

Esterik, V. P. (1985). The cultural context of breastfeeding in rural Thailand. In V. Hull; and M. Simpson (eds), *Breastfeeding, Childh health and child spacing: Cross-cultural perspectives,* pp. 139-165. Sydney: Croom-Helm.

Fagerhaugh, S. Y. (1986). Analyzing data for basic social process. In W. C. Chenitz; and J. M. Swanson (eds.), pp. 133-145. *From Practice to Grounded Theory: Qualitative Research in Nursing.* California: Addison Wesley Publishing.

Fanaroff, A., and Martin, R. (1997). *Neonatal-perinatal medicine: Diseases of the fetus and infant.* 6th ed. St. Louis: Mosby.

Farlex (2005). The free dictionary[Online]. Available from: http://www.thefreedictionary.com/vow[2006, June 21]

Field, T. (1977). Effects of early separation, interactive deficits, and experimental manipulation in infant-mother face-to-face interaction. *Child Development* 48(3-4): 763-771.

Field, T. (1981). Gaze behavior of normal and high-risk infants during early interactions. *Journal of the American Academy of Child Psychiatry* 20: 308-317.

Fonagy, P., Steel, H., and Steel, M. (1991). Maternal representations of attachment during pregnancy predict the organization of infant-mother attachment at one year of age. *Child Development* 62: 891-905.

Gay, J. (1981). A conceptual framework of bonding. *Journal of Obstetric, Gynecologic, and Neonatal Nursing* (November/December): 440-444.

Gennaro, S. (1988). Postpartal anxiety and depression in mothers of term and preterm infants. *Nursing Research* 37(2): 82-85.

Giacoia, G., Rutledge, D., and West, K. (1985). Factors affecting visitation of sick newborns. *Clinical Pediatrics* 24: 259-262.

Glaser, B. G., and Strauss, A. (1967). *The discovery of grounded theory.* Chicago: Aldine Publishing.

Glaser, B. G. (1978). *Theoretical sensitivity.* California: The Sociology Press.

Glaser, B. G. (1992). *Basics of grounded theory analysis.* California: Sociology Press.

Glass, P. (1999). The vulnerable neonate and the neonatal intensive care environment. In G. B. Avery; M. A. Fletcher; and M. G. MacDonald (eds.), *Neonatology: Pathophysiology and Management of the Newborn.* 5th ed. pp. 91-108. Philadelphia: Lippincott Williams & Wilkins.

Goldberg, S. (1977). Social competence in infancy: A model of parent-infant interaction. *Merril-Palmer Q* 23: 163-177.

Goldberg, S. (1978). Prematurity: Effects on parent-infant interaction. *Journal of Pediatric Psychology* 3(3): 137-144.

Gorski, P. A., Davidson, M. F., and Brazelton, T. B. (1979). Stages of behavioral organization in the high-risk neonate: Theoretical and clinical considerations. *Seminars in Perinatology* 3: 61-72.

Gottlieb, L. (1978). Maternal attachment in primiparas. *Journal of Obstetric, Gynecologic, and Neonatal Nursing* 7: 39-44.

Goulet, C., Bell, L., Tribble, D., Paul, D., and Lang, A. (1998). A Concept analysis of parent-infant attachment. *Journal of Advanced Nursing* 28 (5): 1071-1081.

Griffin, T. (1990). Nurse barriers to parenting in the special care nursery. *Journal of Perinatal Neonatal Nursing* 4(2): 56-67.

Guba, E. G., and Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin, and Y. S. Lincoln, *Handbook of Qualitative Research.* Thousand Oaks: SAGE Publications.

Harper, R. G., Sia, C., Sokal, S., and Sokal, M. (1976). Observations on unrestricted parental contact with infants in neonatal intensive care unit. *Journal of Pediatrics* 89: 441-445.

Harris, J. R. (1998). The nurture assumption: Why children turn out the way they do. In Erin J. Lee (ed.), *The attachment system throughout the life course: Review and criticisms of attachment theory*[Online]. Available from: http://www.personalityresearch.org/papers/lee.html [2006, June 28].

Harrison, L. L. (1997). Parenting the high-risk neonate. In F. H. Nichols; and E. Z. Zwelling, (eds.), *Maternal-newborn nursing: Theory and practice.* pp 1409-1431. Philadelphia: W. B. Saunders.

Hauck, M. P. (1985). The development of parent's attachment to their firstborn infants:

sex differences and change overtime. Paper presented at 93rd Annual convention of the American Psychological Association, Los Angeles.

Hayes, V. E., and Knox, J. E. (1984). The experience of stress in parents of children hospitalized with long-term disabilities. *Journal of Advanced Nursing* 9: 333-341.

Holmes, D. L., Nagy, J. N., Slaymaker, F., Sosnowski, R. J., Prinz, S. M., and Pasternak, J. F. (1982). Early influences of prematurity, illness, and prolonged hospitalization on infant behavior. *Developmental Psychology* 18:744-750.

Jeffcoate, J. A., Humphrey, M. E., and Lloyd, J. K. (1979). Role perception and response to stress in fathers and mothers following preterm delivery. *Social Science and Medicine* 13: 139-145.

Kaewsarn, P., Moyle, W., and Creedy, D. (2003). Traditional postpartum practice among Thai women. *Journal of Advanced Nursing* 41(4): 358-366.

Kaplan, P. M., and Mason, E. (1960). Maternal reactions to premature birth viewed as an acute emotional disorder. *American Journal of Orthopsychiatry* 30(3): 539-547.

Kennell, J. H., and Klaus, M. H. (1998). Bonding: Observations that alter perinatal care. *Pediatric Review* 19: 4-12.

Kenner, C., Lott, J. W., and Flandermeyer, A. A. (1998). *Comprehensive neonatal nursing: A physiologic perspective.* Philadelphia: WB Saunders Company.

Kenner, C., and Lott, J. W. (2003). *Comprehensive neonatal nursing.* 3rd ed. Philadelphia: Saunders.

Klaus, K., et al. (1980). Some determinants of mother-infant interaction in the

Premature Nursery. *The American Academy of Child Psychology* 19(1): 1-21.

Klaus, M. H., and Kennell, J. H. (1970). Mother separated from their newborn infant. *Pediatric Clinic of North America* (November): 1015-1037.

Klaus, M. H., and Kennell, J. H. (1976). *Maternal-infant bonding.* St. Louis: Mosby.

Klaus, M. H., and Kennell, J. H. (1982). *Parent- infant bonding.* St. Louis: Mosby.

Klaus, M. H., and Kennell, J. H. (1983). *Bonding: The beginnings of parent- infant attachment.* St. Louis: Mosby.

Klaus, M. H., and Kennell, J. H. (2001). Care of the parents. In M. H. Klaus; and A. A. Fanaroff (eds.), *Care of the High-Risk Neonate.* 5th ed. pp. 195-222. Philadelphia: W. B. Saunders.

Klein, M., and Stern, L. (1971). Low birth weight and the battered child syndrome. *American Journal of Diseases of Children* 122: 15-18.

Komin, S. (1991). National character in the Thai nine values orientations[Online]. Available from: http://www.fulbrightthai.org.data/culture/NATIONAL%20character%20IN520THE%20THAI%20NINE%20VALUES%20CLUSTER.doc [2006, June21]

Koniak, D., Ludington-hoe, S., Chaze, B. A., Sachs, S. M. (1985). The impact of preterm birth on maternal perception of the neonate. *Journal of Perinatology* 5: 29-35.

Korner, A. F., Brown, B. W., Jr., Dimiceli, S., Forrest, T., Stevenson, D.K., Lane, N.M., and Constantinou, J. (1989). Stable individual differences in developmentally changing preterm infants: A replicated study. *Child Development* 60: 502-513.

Kretchmar, M. D., and Jacobvitz, D. B. (2002). Observing mother-child relationships

across generation: Boundary patterns, attachment, and the transmission of caregiving. *Family Process* 41(3): 351-381.

Kussano, C.A. and Maehara, S., (1998). Japanese and Brazilian maternal bonding behavior towards preterm infants: a comparative study. *Journal of Neonatal Nursing,* January: 23-28.

Lancaster, J. Impact of intensive care on the parent-infant relationship. In S. B. Korones (ed.), *High risk newborn infants: the basis for intensive nursing care*. 4th ed. pp. 407-471. St. Louis: C.V. Mosby.

Laohapensang, P. (1983). *A comparison of maternal coping behaviors and maternal-infant bonding between mothers of the first full-term baby and mothers of the first preterm baby.* Master's Thesis. Maternal and Child Health Nursing, Faculty of Graduate Studies, Mahidol University.

Leonard, C. H., Clyman, R. S., Piecuch, R. E., Ballard, R. A., and Behle, M. B. (1990). Effect of medical and social risk factors on outcome of prematurity and very low birth weight. *Journal of Pediatrics* 116(4): 620-626.

Levy-Shiff, R., Sharir, H., and Mogilner, M. B. (1989). Mother-and father-preterm infant relationship in the hospital preterm nursery. *Child Development* 60: 93-102.

Lincoln, Y.S., and Guba, E.G. (1985). *Naturalistic inquiry.* Beverly: SAGE Publications.

Littleton, Y. L., and Engebretson, J. C. (2002). *Maternal, neonatal, and women's health Nursing*. New York: Delmar.

Lobar, S., and Phillips, S. (1992). A clinical assessment strategy for maternal

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

acquaintance-attachment behaviors. *Issues in Comprehensive Pediatric Nursing* 15: 249-259.

Lojanawongsagorn, P. (1998). *Comparison of the effects of information provided to mothers of premature infants on levels of maternal stress and mother-infant attachment.* Master's Thesis. Maternal and Child Health Nursing, Faculty of Graduate Studies, Mahidol University.

Lowdermilk, D. L., Perry, S. E., and Piotrowaki, K. A. (2003). *Maternity Nursing.* 6th ed. St. Louis: Mosby.

Main, M. (1991). Metacognitive knowledge, metacognitive monitoring, and singular (coherent) vs. multiple (incoherent) model of attachment: Findings and directions for future research. In G. M. Parkes, J. Stevenson-Hinde, and P. Marris (eds.), *Attachment across life cycle,* pp. 127-159. Tavistock/Routledge: New York.

Manowongsa, A. (2003). Traditional of making merit[Online]. Available from: http://www.thaifolk.com/doc/tumbun_e.htm[2006, June16]

McCain, G. C. (1990). Parenting growing preterm infants. *Pediatric Nursing* 16(5): 467-470.

McGovern, M. (1984). Separation of the baby from the parents. *Nursing Times* 80: 28-30.

McGrath, J. M. (2003). Family-centered care. In C. Kenner; and J. W. Lott (eds.), *Comprehensive neonatal nursing,* 3rd ed. pp. 89-107. Philadelphia: Saunders.

Mercer R. T. (1977). Postpartum: illness and acquaintance attachment process. *American Journal of Nursing* 7: 1174-1178.

Mercer R. T. (1981). A theoretical framework to studying factors that impact on the

maternal role. *Nursing Research* 30: 73-77.

Mercer, R. T. (1983). Parent-infant attachment. In L. J. Sonstegard; K. M. Kowalski; and B. Jenings (eds.), *Women's Health: Childbearing,* Vol2. Grune & Stratton: New York.

Mercer, R. T. (1985). The process of maternal role attainment over the first year. *Nursing Research* 34(4): 198-204.

Mercer, R. T. (1986). *First time motherhood: Experiences from teens to forties.* New York: Springer Publishing Company.

Mercer, R. T. (1990). *Parents at risk.* New York: Springer Publishing Company.

Mercer, R. T. (1995). *Becoming a mother.* New York: Springer Publishing Company.

Mercer, R. T., and Ferketich, S. L. (1990). Predictors of parental attachment during early parenthood. *Journal of Advanced Nursing* 15: 268-280.

Mercer R. T., and Ferketich, S. L. (1994). Predictors of maternal role competence by risk status. *Nursing Research* 43: 38-43.

Mercer, R. T., and Ferketich, S. L. (1994). Maternal-infant of experienced and inexperienced mothers during infancy. *Nursing Research* 43(6): 344-351.

Mercer R. T., and Ferketich, S. L. (1995). Experienced and inexperienced mothers' maternal competence during infancy. *Research in Nursing* 18(4): 333-343.

Mercer R. T.. and Hackley, K. C. (1982). *Factors having an impact on maternal role attainment the first year of motherhood***.** Springfield, V.A: The National Technical Information Service.

Mercer, R. T., Hackley, K. C., and Bostrom, A. (1982). Factors having an impact on

Maternal role attainment the first year of motherhood (Report No. MC-R-05-060435). Betheda, MD: Maternal and Child Health (Social Security Act, Title V).

Merenstein, G. B., and Gardner, S. L. (1989). *Handbook of neonatal intensive care.* St. Louis: The C. V. Mosby.

Miles, M. S. (1989). Parents of critically ill premature infants: Sources of stress. *Critical Care Nursing Quarterly* 12 (3): 69-74.

Miles, M. S., et al. (1992). The stress response of mothers and fathers of preterm infants. *Research in Nursing and Health* 15: 261-269.

Miller, D.B., and Holditch-Davis, D. (1992). Interaction of parents and nurses with high-risk preterm infants. *Research in Nursing and Health* 15: 187-197.

Miles, M. S., and Holditch-Davis, D. (1997). Parenting the prematurely born child: pathways of influence. *Seminars in Perinatology* 21(3): 254-266.

Minde, K., et al. (1978). Mother-child relationships in the premature nursery: an Observational study. *Pediatrics* 61(3): 373-379.

Minde, K. K., Marton, P., Manning, D., and Hines, B. (1980). Some determinants of mother-infant interaction in the Premature Nursery. *The American Academy of Child Psychology* 19(1): 1-21.

Minde, K., et al. (1983). Effects of neonatal complications in premature infants on early parentpinfant interactions. *Developmental Medicine and Child Neurology* 25(6): 763-777.

Minde, K., Perrotta, M., and Marton, P. (1985). Maternal caretaking and play with fullterm and premature infant. *Journal of Child Psychiatry and Allied Disciplines* 26(3): 231-244.

Ministry of Public Health, Department of Health, Bureau of health Promotion[Online]. Available from: http://www. Anamai.moph.go.th/hp/momandchild/mcindex2.htm [2003, December 15]

Moore, D. (1983). Prepared childbirth and marital satisfaction during the antepartum and postpartum periods. *Nursing Research* 32: 73-79.

Mott, S. R., James, S. R., and Sperhac, A. M. (1990). *Nursing care of children families.* 2nd California: Addison-Wesley.

Numprasert, W. (1996). *Kangaroo care for low birth weight infants of the bonding and adaptation role on mothers.* Master's Thesis. Maternity and Newborn Nursing, Faculty of Graduate Studies, Mahidol University.

Oehler, J. M., Thompson, R. J., Goldstein, R. F., Gustafson, K. E., and Brazy, J. E. (1996). Behavioral characteristics of very low birth weight infant of varying biologic risk at 6, 15, and 24 months of age. *Journal of Obstetric, Gynaecologic & Neonatal Nursing* 25(3): 233-239.

Oehler, J. M., Hannan, T., and Catlett, A. (1993). Maternal views of preterm infants' responsiveness to social interaction. *Neonatal Network* 12(6): 67-74.

Olds, S. B., London, M. L., and Ladewig, P.A.W. (2000). *Maternal newborn nursing: A family and community-based approach,* 6th ed. New Jersey: Prentice Hall Health.

O' Shea, J., and Timmins, F. (2002). An overview of parents' experiences of neonatal intensive care: Do we care for those parents? *Journal of Neonatal Nursing* 8(6): 178-183.

Padden, T., and Gllenn, S. (1997). Maternal experiences of preterm birth and neonatal intensive care. *Journal of Reproductive and Infant Psychology* 15(2): 121-39.

Pederson, DR., Bento, S., and Chance, MB. (1987). Maternal emotional responses to preterm birth. *American Journal of Orthopsychiatry* 57: 15-21.

Prasopkittikun, T. (2001). *The determinants of competent parenting among Thai mothers in providing preterm infants' HOME environment.* Doctoral Dissertation, Nursing Science, University of Michigan.

Phongphit, S., and Hewison, K. (1990). *Thai village life: Cultural and transition in the Northeast.* Bangkok: Moohan Press.

Puekskon, S. (1998). พุทธศาสตร์ศึกษาโดยวิธีอุปมาอุปมัย เรื่องวิธีทำบุญให้ได้ผลที่สุด ตอนที่๖ การอธิษฐาน [Online]. Available from: http://www.dabos.or.th/tm6.html[2006, June21]

Rodchompoo, T. (1992). *Relationship between maternal responsive behaviors to premature birth and mother-infant attachment during postpartum period at mother and Child Hospital, Health Promotion Center Region 6 Khon Kaen.* Master's Thesis. Nursing Science in Family Nursing, Graduate School, Khon Kaen University.

Rubin, R. (1984). *Maternal identity and the maternal experience*. Springer: New York.

Rubin, R. (1977). Binding -in in the postpartum period. *Maternal Child Nursing Journal* 6: 67-75.

Rubin, R. (1984). *Maternal identity and the maternal experience.* New York: Springer Publishing.

Rujiraprasert, N. (1996). *The relationship between social support, selected factors and maternal role attainment in mother of low birth infants.* Master's Thesis. Maternal and Child Nursing, Faculty of Graduate Studies, Mahidol University.

Rutter, M. (1995). Clinical implications of attachment concepts: Retrospect and

prospect. *Journal of Child Psychology and Psychiatry* 36(4): 549-571.

Schermann-Eizirik, L., Hagekull, B., Bohlin, G., Persson, K., and Sedin, G. (1997). Interaction between mothers and infants born at risk during the first six months of corrected age. *ACTA Pediatrics* 86: 864-872.

Schroeder, M. A. (1977). Is the immediate postpartum period crucial to the mother-child relationship? *Journal of Obstetric, Gynecologic, and Neonatal Nursing* 6: 37-40.

Schwartz, D. P. (1992). *The intergenerational transmission of attachment in preterm and full term infants*. Doctoral Dissertation. University of Michigan.

Sherwen, L. N., Scoloveno, M. A., and Weingarten, C. T. (1995). *Nursing care of the childbearing family.* 2nd ed. Norwalk: Appleton & Lange.

Singer, L. T., et al. (1999). Maternal Psychological distress and parenting stress after the birth of very low birth weight infant. *The Journal of American Medical Association* 281(9): 799-805.

Stjernqvist, K. M. (1992). Extremely low birth weight infants less than 901 gm. Impact on the family during the first year. *Scandinavia Journal of Social Medicine* 20(4): 226-233.

Strauss, A. L. (1987). *Qualitative analysis for social scientists.* Cambridge: Cambridge University Press.

Strauss, A., and Corbin, J. (1990). *Basics of qualitative research: Grounded theory, procedures, and techniques.* New York: SAGE Publications.

Strauss, A., and Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory.* Thousand Oaks: SAGE Publications.

Streubert, H. J., and Carpenter, D. R. (1995). *Qualitative research in nursing: Advancing the humanistic imperative.* Philadelphia: J. B. Lippincott.

Suwannaten, S. (1999). *Biological risk factors, coping resources, infant's condition perception, and separation anxiety of preterm infants' mothers.* Master's Thesis. Graduate School, Khon Kaen University.

Taylor, H. G. (2001). Long-term family outcomes for children with very low birth weights. *Archives of Pediatrics & Adolescent Medicine* 155(2): 155-161.

Thaibuddhism. (2004). Buddhism nowadays[Online]. Available from: http://www.thaiworldview.com/buddha/bouddha3.htm[2006, June18]

Thangthongkum, S. (1990). *The relationship between anxiety and adaptation to maternal role in mother of premature infants*. Master Thesis. Nursing Science, Faculty of Graduate Studies, Mahidol University.

Thompson, M., and Westrich, R. (1989). Restriction of mother-infant contact in the immediate postnatal period. In I. Chalmers, M. Enkin, and MJMC. Kierse (eds.), *Effective care in pregnancy*, pp.1322-1330. Oxford: Oxford University Press.

Tilokskulchai, F., Phatthanasiriwethin, S., Vichisukon, K., and Serisathien, Y. (2002). Attachment behaviors in mothers of preterm infants: A descriptive study in Thai mothers. *Journal of Perinatal Neonatal Nursing* 16 (3):69-83.

Trause, M. A., and Kramer, L. I. (1983). The effects of premature birth on parents and their relationship. *Developmental Medicine and Child Neurology* 25: 459-465.

Trickett, P. K., and Susman, E. J. (1988). Parental perceptions of childrearing practices in physically abusive and nonabusive families. *Developmental Psychology* 24: 270- 276.

Trisayaluk, T. (1999). *Effects of maternal-infant interaction on maternal-infant attachment and growth of premature infants.* Master's Thesis. Maternal and Child Health Nursing, Faculty of Graduate Studies, Mahidol University.

Troy, N. W. (1993). Early contact and maternal attachment among women using public health care facilities. *Applied Nursing Research* 6(4):161-166.

Walker, L. O. (1992). *Parent-infant nursing science: Paradigms, phenomena, methods.* Philadelphia: F. A. Davis.

Wikipedia. (2006). Prayer[Online]. Available from: http://en.wikipedia.org/wiki/Prayer [2006, June19]

Wong, D. L., Hockenberry, M. J., Wilson, D., Winkelstein, M.L., and Kline, N. E. (2003). *Wong's nursing care of infants and children*. 7th ed. St. Louis: Mosby.

Wongchan, N. (2002). *Relationships between maternal factors, separation, parternal support and severity of illness in newborn with respiratory distress and mother-infant bonding.* Master's thesis. Nursing Science, Faculty of Nursing, Chulalongkorn University.

Yamanantakul , P. (1995). *The relationship between stress level, coping behavior and relates factors of mothers of premature babies admitted at neonatal intensive care unit.* Master's Thesis. Parenting-Child Nursing, Faculty of Nursing, Prince of Songkla University.

Yecco, G. J. (1993). Neurobehavioral development and developmental support of premature infants. *The Journal of Perinatal and Neonatal Nursing* 7(1): 56-65.

Youth With A Mission Thailand National Offoce. (2002). Buddhism[Online]. Available from: http://www.yxamthai.org/office/buddhism.htm[2006, June18]

Zachariah, R. (1994). Maternal-fetal attachment: influence of mother-daughter and husband-wife relationships. *Research in Nursing and Health*, 17:37-44.

Zahr, L. K. (1991). The relationship between maternal confidence and mother-infant behaviors in premature infants. *Research in Nursing and Health* 14(4): 279-286.

Zarling, C. L., Hirsch, B. J., and Landry, S. H. (1988). Maternal social networks and mother-infant interactions in full-term and very low birthweight, preterm infants. *Child Development* 59(1): 178-185.

______. (2004). Prayers[Online]. Available from: http://www.thaiworldview.com/buddha/ceremo15.htm[2006, June18]

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APPENDICES

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APPENDIX A

Demographic Data Collection Form

แบบสัมภาษณ์/บันทึกข้อมูลพื้นฐานประชากร

ลำดับที่.......................

วันที่สัมภาษณ์/บันทึก……………

มารดา

เลขที่โรงพยาบาล………………………………..

ที่อยู่………………………………………………………..…โทร……………………

อายุ………….ปี การศึกษา……………………………ศาสนา………………………

อาชีพ…………………รายได้ต่อเดือน………………………………บาท

สถานภาพสมรส ……คู่ …...แยกกันอยู่ ……หย่าร้าง ……อื่นๆ

สามี อายุ………ปี การศึกษา…………………ศาสนา…………………

อาชีพ…………………………..รายได้ต่อเดือน…………… บาท

ที่อยู่……………………………………………………….. โทร………………….

ลักษณะครอบครัว………………..จำนวนคนในครอบครัว…...คน ได้แก่…….…………………

……………………………………………………………………………………..

ลักษณะความเป็นอยู่ในครอบครัว

……………………………………………………………………………………
……………………………………………………………………………………
……………………………………………………………………………………

การตั้งครรภ์/การคลอด

จำนวนบุตร …... คน ผู้ป่วยเป็นบุตรคนที่ …….. เคยแท้ง…… คน

เคยคลอดก่อนกำหนด…….คน ได้แก่คนที่………..

ฝากครรภ์ที่…………………… เมื่ออายุครรภ์……เดือน จำนวนครั้งของการฝากครรภ์…….

ความเจ็บป่วย/ภาวะแทรกซ้อนขณะตั้งครรภ์………………………………………………

……………………………………………………………………………..

การคลอด……คลอดปกติ …….ผ่าท้องคลอด …….อื่นๆ ระบุ………………………..

พักรักษาในโรงพยาบาล…….วัน ภาวะแทรกซ้อนหลังคลอด……………………………

……………………………………………………………………………..

การมาเยี่ยมบุตร

มาเยี่ยม…………ครั้ง/สัปดาห์ แต่ละครั้งเยี่ยมนาน …………..ชั่วโมง

พฤติกรรมขณะเยี่ยม…………………………………………………………

……………………………………………………………………………..

……………………………………………………………………………..

ทารก

เลขที่โรงพยาบาล………………………….

วันที่คลอด…………　อายุครรภ์……สัปดาห์โดยบัลลาร์ด อายุ………วัน (นับถึงวันที่สัมภาษณ์/บันทึก)

คะแนนแอพการ์……………… น้ำหนักแรคลอด…………กรัม

คลอดที่โรงพยาบาล……………………ย้ายจากโรงพยาบาล…………………..วันที่…………….

การวินิจฉัย……………………………………………………………………………………

รับการรักษาในหอผู้ป่วยหนักทารกแรกเกิด (NICU)………วัน ตั้งแต่วันที่…………ถึง วันที่………

ย้ายไปรับการรักษาในหอผู้ป่วยทารกแรกเกิดวันที่…………………ถึง ปัจจุบัน

รับการรักษาด้วยเครื่องช่วยหายใจ……วัน　　ตั้งแต่วันที่…………ถึง วันที่…………

รับการรักษาด้วยออกซิเจน…………วัน　　ตั้งแต่วันที่…………ถึง วันที่…………

ปัญหาความเจ็บป่วยของทารก

วันที่	ปัญหา	การตรวจรักษา	ผลการตรวจรักษา

สรุปแผนการรักษาพยาบาล………………………………………………………………………
……………………………………………………………………………………………..
……………………………………………………………………………………………..
……………………………………………………………………………………………..
……………………………………………………………………………………………..
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……………………………………………………………………………………………..

ลักษณะ/อาการ/อาการแสดงของทารก…………………………………………………………...
……………………………………………………………………………………………..
……………………………………………………………………………………………..

APPENDIX B

DEMOGRAPHIC CHARACTERISTICS OF THE PARTICIPANTS AND INFANTS

Name	Age (yr)	Religion	Edu	Occupatio	Income	Order/ no.	Age (day)	GA (wk)	BW (g)	Diagnosis
A1	26	Buddish	L6	Employee	4,950/	2/2	6	29	1400	Preterm, RDS, Asphyxia
A2	17	Buddish	L12	Housewife	3000-4000 (H)	1/1	2	31	1100	Preterm, RD, Hypothermia
A3	22	Buddish	Dipl.	Housewife	10,000 (H)	3/1	2	27	1160	Preterm, PROM, Severe Asphyxia
A4	18	Islam	L12	Housewife	8,000 (H)	2/2	2	26	950	Preterm, RD, Hypothermia
A5	30	Islam	L12	Housewife	15,000 (H)	3/3	4	29	1020	Preterm, Dyspnea, r/o RDS
B1	25	Buddish	Bac	Employee	8,000	1/1	12	27	1330	Preterm, Severe Asphyxia Maternal DM
B2	16	Islam	L8	Employee	10,000 (Total)	1/1	14	30	1000	Preterm, RDS, maternal Thalassemia Trait

Name	Age (yr)	Religion	Edu	Occupati-on	Income	Order/ no.	Age (day)	GA (wk)	BW (g)	Diagnosis
C1	35	Buddish	Dipl.	Trader	18,000/	2/2	17	28	1400	Preterm, mild birth asphyxia, Hypothermia
C2	34	Buddish	L6	Rubber Gardener	2,100-2,400/	3/3	16	29	1090	Preterm, mild birth asphyxia,
C3	37	Buddish	L12	Employee	>5,000/	2/2	19	29	890	Preterm, ELBW, mild birth asphyxia, RDS
D1	41	Buddish	Bac	Government Officer	~20,000 (H)	3/3	27	31	740	Preterm, ELBW, Maternal HbEA
D2	18	Buddish	L9	Housewife	1,500/m (H)	2/2	27	29	1100	Preterm, severe RDS,
D3	19	Buddish	Dipl.	Employee	5,000/m	1/1	26	33	1390	Preterm, RD
E1	27	Buddish	L9	Employee	10,000 (total)	3/3	30	31	1360	Preterm, mild RDS
E2	16	Buddish	L8	Housewife	5,000-6,000/m (H)	1/1	30	30	1200	Preterm, moderate asphyxia, severe RDS

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APPENDIX C

DEMOGRAPHIC CHARACTERISTICS OF THE PARTICIPANTS

Demographic Characteristics	n	% (mean)
Age (yr)		
16-19	6	40
22-27	4	22.6
30-37	4	26.67
>40	1	6.67
Religion		
Buddhism	12	80
Islamic	3	20
Education		
Bachelor	2	13.33
Diploma	3	20
Mathayomsuksa (grade8-12)	8	53.33
Prathomsuksa (grad6)	2	13.33
Occupation		
House wives	6	40
Employees	6	40
Others (government officers Traders, para rubber gardeners)	3	20
Income		
<5,000	4	26.67
5,000-10,000	8	53.33
10,000-15,000	1	6.67
>15,000	2	13.33
Accommodation		
Songkhla province	14	93.33
Others	1	6.67
Perceived cause of preterm birth		
Unknown	8	53.33
Accident (Fall)	2	13.33
Complication of pregnancy	3	20
Health problem	2	13.3

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APPENDIX D

DEMOGRAPHIC CHARACTERISTICS OF THE PRETERM INFANTS

Demographic Characteristic	n	% (mean)
Gestational age		
26-28	4	26.67
29	5	33.33
30-33	6	40
Birth weight		
< 1,000	3	20
1,000-1,200	7	46.67
1,201-1,400	5	33
Gender		
Male	12	80
Female	3	20
Chronological age (week)		
0-1	5	33.33
1-2	2	13.33
2-3	3	20
3-4	3	20
4-5	2	13.33
Birth order		
1	5	33.33
2	5	33.33
3	5	33.33
Diagnosis: Preterm baby with		
-RDS, asphyxia	7	46.67
-RDS, others	8	53.33
Hospitalized NICU		
University Hospital	5	33.33
Center Hospital	10	66.66

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APPENDIX E

Interview Guide for Mother

1. Tell me what come to your mind when you think of your baby

   Probes:

   1) Tell me about your feelings/emotion when first interact with your baby
   2) Tell me what made you feel and interact like that
   3) Tell me about your feeling when interact with your baby right now
   4) Tell me how does your feeling change
   5) What words do you use to describe these feelings to your baby?
   6) How will I know you are in love/good relationship to your baby? And what do you do?

2. Is there anything else that you want to tell me about your feelings to your baby?

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APPENDIX F

Table 1 Struggling to get connected: The process of maternal attachment to the preterm infant in the NICU

Level I codes	Level II codes (Subcategories)	Level III coded (Categories)	Conceptual process
	Accepting the pregnancy	Being close to the fetus	Establishing the connections
Having signs of pregnancy Timing of first knowing Being confirm of pregnancy	-Knowing she is pregnant		
	-Wanting/not wanting pregnancy -Deciding to continue pregnancy		
-Touching through the abdominal skin -"Baby is my heart"	Valuing the baby -Caring for self - Transmitting love to the baby through the abdominal skin		
	Minimal contacting with the baby -Minimal touching at birth -Seeing the baby momentarily - Delayed first seeing baby in NICU	Withdrawal contacting	Disrupting of the connections
	Visiting baby in NICU	Seeking closeness	Resuming to get connected
	Visual contacting -Seeing baby with uncontrollable emotional balance -Seeing for knowing the baby		
	Vocalizing -Talking to encouraging		
	Physical contacting -Delayed first touching -Touching with tender loving -Consistent touching in crisis		

Table 1 Struggling to get connected: The process of maternal attachment to the preterm infant in the NICU (cont')

Level 1 codes	Level II codes (Subcategories)	Level III coded (Categories)	Conceptual process
	Baby behavioral responding Recognizing Taking care for baby -Being incompetent in taking care -Taking part in caring for baby -Desiring to take care by herself	Mutual mother-baby interacting	Resuming to get connected (cont')
	Being pleased by mother-baby interacting Planning for the future Exploring the mother's roles	Committing to mothering	Becoming connected
Being small Preferring to gender Crying Being normal Having a defect	Appearance of the baby	Having concern for the baby	Conditions
Being alive Developing of complication Improving of health	Health conditioning of the baby Being well of the baby		
	Being stressed Upset Being sad Being guilty of her fault Being fearful Worrying Frightening Being helpless	Adjusting emotionally to the crisis	
	Informational supporting Emotional supporting Instrumental supporting Appraisal supporting Support of belief	Supporting connections	

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Table 1 Struggling to get connected: The process of maternal attachment to the preterm infant in the NICU (cont')

Level I codes	Level II codes (Subcategories)	Level III codes (Categories)	Conceptual process
	Experiencing about preterm baby Experiencing about interaction with baby Experiencing her own parent's attachment	Life experiences	Conditions (cont')
	Health care providing	Health care system facilitating	
Face-to-face communicating Telephoning	Health care communicating		
	Environmental care facilitating		

APPENDIX G

ใบยินยอมของประชากรตัวอย่างหรือผู้มีส่วนร่วมในการวิจัย

(Informed Consent Form)

ชื่อโครงการ กระบวนการพัฒนาความรู้สึกรักใคร่ผูกพันของมารดาต่อบุตรคลอดก่อนกำหนดในหน่วยบริบาลทารก
เลขที่ ประชากรตัวอย่างหรือผู้มีส่วนร่วมในการวิจัย ……………………..................................

ข้าพเจ้าได้รับทราบจากผู้วิจัยชื่อ นางรัชตะวรรณ โอฬาพิริยกุล
ที่อยู่ 594/86 ซอยมหาวงษ์เหนือ ถนนอโศก ดินแดง เขตดินแดง กรุงเทพฯ 10300 ซึ่งได้ลงนามด้านท้ายของหนังสือนี้ ถึงวัตถุประสงค์ ลักษณะ และแนวทางการศึกษาวิจัย รวมทั้งทราบถึงผลดี ผลข้างเคียง และความเสี่ยงที่อาจเกิดขึ้น ข้าพเจ้าได้ซักถาม ทำความเข้าใจเกี่ยวกับการศึกษาดังกล่าวนี้ เป็นที่เรียบร้อยแล้ว

ข้าพเจ้ายินดีเข้าร่วมการศึกษาวิจัยครั้งนี้โดยสมัครใจ และอาจถอนตัวจากการเข้าร่วมศึกษานี้เมื่อใดก็ได้ โดยไม่จำเป็นต้องแจ้งเหตุผล และยอมรับผลข้างเคียง ที่อาจเกิดขึ้นและจะปฏิบัติตัวตามคำแนะนำของผู้ทำการวิจัย

ข้าพเจ้าได้รับทราบจากผู้ทำการวิจัยว่า หากข้าพเจ้าได้รับความผิดปกติเนื่องจากการศึกษา ข้าพเจ้าจะได้รับความคุ้มครองทางกฎหมาย และจะแจ้งผู้ทำการวิจัยทันที ในกรณีที่มิได้แจ้งให้ผู้ทำการวิจัยทราบในทันทีถึงความผิดปกติที่เกิดขึ้น จะถือว่าข้าพเจ้าทำให้การคุ้มครองความปลอดภัยเป็นโมฆะ (ตามที่กฎหมายกำหนด)

ข้าพเจ้ายินดีให้ข้อมูลของข้าพเจ้ากับผู้วิจัย เพื่อเป็นประโยชน์ในการศึกษาวิจัยครั้งนี้

สุดท้ายนี้ ข้าพเจ้ายินดีเข้าร่วมการศึกษานี้ ภายใต้เงื่อนไขที่ระบุไว้แล้วในข้างต้น

……………………………	……………………………….
สถานที่ / วันที่	ลงนามประชากรตัวอย่างหรือผู้มีส่วนร่วมในการวิจัย
	…………………………………
……………………………	(...)
สถานที่ / วันที่	ลงนามผู้วิจัยหลัก
	…………………………………
……………………………	(...)
สถานที่ / วันที่	ลงนามพยาน

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BIOGRAPHY

I'm Rachtawon Orapiriyakul. I was born on 21 November, 1952 at Trang Province, Thailand. I graduated bachelor degree (Honor) in Nursing from Faculty of Nursing, Chiang Mai University in 1973 and master degree in Medical Social Science from Mahidol University in 1980. I worked as a nurse in Pediatric Department, Faculty of Medicine and Ramathibodi Hospital, Mahidol University since 1973-1975 and have worked as an instructor and assistant professor in Pediatric Nursing Department, Faculty of Nursing, Prince of Songkla University since 1975-present. I wrote two books of "The neonatal nursing care: nursing process approach and "The nursing care of the critically ill neonates". My research studies are "Parents' opinions toward child development center service, Faculty of Nursing, Prince of Songkla University" and "Factors affecting the risk behavior towards Tetanus neonatorum of health workers, traditional birth attendants and house wives, Krabi province".

Studying in this Philosophical Program in Nursing Science, I was grant by The Royal Thai Government either during studying at Faculty of Nursing, Chulalongkorn University, Thailand or at School of Nursing, University at Buffalo, State University of New York, USA. In addition, my research project of the dissertation was financial supported by the Graduate School, Chulalongkorn University.

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย