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**Mother's mental representation of her infant and its effect on
infant organization and mother's perception of self**

Oshio, Sachiko, Ph.D.

University of Washington, 1992

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Mother's Mental Representation of Her Infant
and Its Effect on Infant Organization
and Mother's Perception of Self

by

Sachiko Oshio

A dissertation submitted in partial fulfillment
of the requirements for the degree of

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Abstract

Mother's Mental Representation of Her Infant and Its Effect
on Infant Organization and Mother's Perception of Self

by Sachiko Oshio

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The mother-infant relationship can be viewed in terms of visible interaction behaviors and invisible mental representations that guide the interaction. The focus of nursing in relation to the mother-infant relationship has been on assessing and changing the mother's visible interaction behaviors. The purpose of this study is to expand the understanding of the mother's mental image of her infant as it affects the mother-infant relationship.

Forty three first time mothers were recruited through prenatal classes offered by a community hospital located in a large Northwest city. Neonatal Behavioral Assessment (BNBAS, Brazelton, 1984) was performed when the infant was a few days old. An in-home interview examining the mother's mental representation of her infant (Working Model of Child Interview by Zeanah, 1989) was conducted and recorded on audio tape approximately two weeks postpartum. During the same visit, a feeding interaction was video taped and scored (NCAFS) and a questionnaire (Postpartum Self-Evaluation Questionnaire by Lederman, 1981) was administered. Finally, the infant's sleep/awake activity was recorded (NCASA) by the caregiver for seven consecutive days starting the day of

the home visit.

Three types of mental representation of infants (Balanced, Estranged, and Disengaged) are found among this group of mothers. Those with Balanced representation had a rich perception of her infant, intense emotional involvement, and were sensitive to infant's needs. Those with Disengaged representation had less clear idea of her infant as a person, task oriented caregiving perception, and cool detachment. Those with Estranged representation presented a sense of confusion, most of them conveyed a sense of estrangement from their infant, and many were struggling with issues ranged from being overwhelmed by infant care, preoccupied by one aspect of the infant, or a self centered fantasy.

Infant's crying (length of crying at one time, and distress episode during feeding interaction) were found to be associated with mother's mental representation. Mother's satisfaction and confidence were closely related to her mental representation. Infant's birth characteristics and interactive behavior pattern did not seem to affect mental representation.

It is suggested that: (a) nurses need to pay attention to relationship development in early postpartum; (b) research is needed in examining the long term consequences of this phenomenon; and (c) more theoretical and clinical work is necessary in order to develop appropriate clinical protocols.

TABLE OF CONTENTS

	Page
List of Tables	iv
Chapter 1: Introduction	1
Clinical Background of the Problem	4
Purpose of the Study	5
Significance of the Study	6
Chapter 2: Review of Literature	8
Importance of the Meaning of Relationship	9
Mental Representation of the Relationship	11
Mental Representation in Relation to Attachment .	12
Working Model of Child Interview	14
Connection of Mental Representation of the Infant to Other Factors	17
Intention of This Research	20
Chapter 3: Methods	23
Study Design	23
Hypotheses	23
Setting and Sample	24
Setting	24
Sample	25
Human rights protection	26
Measurement of Variables	27
Research Procedures	27
Data Collection Instruments	28
Chapter 4: Results	39
Characteristics of the Sample	39
Research Measures	42
Mother's Mental Representation of Her Infant	42
Mother-Infant Feeding Interaction	42
Infant Characteristics	45
Maternal Satisfaction and Confidence	46
Infant's Organization of States	46
Hypotheses	49
Hypothesis 1	49
Dimension Scale Scores	49
Examples of High and Low Cases on Dimension Scale Score	50
The Most Useful Question and Themes Found in the Answers	58
General Description of the Three Classification for This Sample ...	61
Uncomfortable Interviews	61
Hypothesis 2	65
Hypothesis 3	68
Hypothesis 4	69
Hypothesis 5	71
Summary	74

Chapter 5: Discussion	76
Mother's Mental Representation of Her Infant	76
Mother Infant Feeding Interaction	81
Infant Characteristics	83
Maternal Satisfaction and Confidence	85
Organization of Infant's State	87
Summary	90
Implications for clinical practice	92
Implications for future research	93
List of References	96
Appendix A: Instruments	102
1. Demographic Data	102
2. The Working Model of the Child Interview	103
a. Interview schedule	103
b. Coding scheme	104
c. Coding sheet	125
3. Neonatal Behavioral Assessment Scale	126
4. Postpartum Self-Evaluation Questionnaire	133
5. Nursing Child Assessment Feeding Scale	135
6. Nursing Child Assessment Sleep/Activity Record	138
Appendix B: Consent Forms	140
1. Invitation to Participate in Research	140
2. Informed Consent Form	141

LIST OF TABLES

Number		Page
1.	Maternal Age and Education	39
2.	Distribution of Mothers by Marital Status	40
3.	Distribution of Mothers by Income	40
4.	Distribution of Mothers by Race	40
5.	Distribution of Mothers by Mode of Delivery ..	41
6.	Distribution of Infants by Sex	41
7.	Infant's Birth Weight, Gestational Age, and APGAR Scores	41
8.	Distribution of Mothers by Mental Representation	43
9.	Distribution of Mothers by Mental Representation of Their Infants: Subcategories	43
10.	Classification of Representation and Mode of Delivery	44
11.	Infant's Gestational Age and Classification of Representation	44
12.	Nursing Child Assessment Feeding Scale Score ..	45
13.	Neonatal Behavioral Assessment Scale	46
14.	Postpartum Self-Evaluation Questionnaire	47
15.	Infant State Organization	48
16.	Dimension Scale Score Tendency	50
17.	Mental Representation Types and NCAFS	67
18.	Mental Representation Types and NCAFS Items ...	67
19.	Mental Representation Types and BNBAS	69
20.	Mental Representation Types and Maternal Satisfaction and Confidence	70
21.	Mental Representation Types and Infant's Organization of States	73

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CHAPTER 1

Introduction

The relationship that develops between a mother and her infant is very important for both partners. For the infant, this is the first relationship, laying the foundation for later relationship development (Stern, 1977); for the mother, especially if this is her first baby, the transition denotes a milestone for her own development (Goldberg, 1988).

Three major factors that influence the development of the relationship between mother and infant have been given considerable study. The first is the effect of early contact between the mother and the infant on promoting "bonding". Based on animal models, Klaus and Kennell (1976) suggested that early contact between mother and infant promotes the mother's "bonding" to the infant. They proposed the presence of a sensitive period when human mother and infant bond naturally. According to their theory, infants are born with biologically determined attractiveness to adults, and the synchronization of the mother-infant system happens if prolonged contact takes place within the sensitive period.

The clinical practice of obstetrics in the United States has changed significantly since the bonding research was conducted (Campos, Barret, Lamb, Goldsmith, & Sternberg, 1983). In many maternity wards, early contact is highly encouraged for all mothers, and in some childbirth centers,

mothers and their infants are seldom separated. Clinical observation shows, however, that some mothers experience difficulty relating to their infants even when they have never been separated from their infant. While much research adds to the support for the importance of early contact for optimal relationship development between mother and infant (Kennell, Jerguld, Wolfe, Chesler, Kreger, McAlpine, Steffa, & Klaus, 1974; Kontos, 1978; Carlsson, Fagerberg, Hornerman, Hwang, Larsson, Rodholm, Schaller, Danielsson, & Gundewall, 1978; Gomes-Pedro, Bento de Almeida, Silveira da Costa, & Barbosa, 1984), there is some controversy regarding the true, lasting effect of early contact on mother's relationship towards her child (Campos, Barret, Lamb, Goldsmith, & Sternberg, 1983; Brown, & Hellings, 1988).

The second factor that has been studied is the newborn infant's innate capability for interactive behavior. Brazelton (1974) observed newborn infants, and demonstrated that they are not merely passive recipients of parenting, but are actively influencing the behavior of the caretaker. He developed the Brazelton Neonatal Behavioral Assessment Scale to measure each infant's unique response style to the environment (Brazelton, 1974b, 1984). Not only has this scale been used clinically to demonstrate the uniqueness of each infant's response to new parents, the concepts contained in this scale such as sleep/awake state, irritability, and consolability are used in daily clinical

practice of perinatal nursing in helping mothers to develop a relationship with their infant (Blackburn, & Kang, 1991).

The third factor, which has not been studied as extensively as the other two, is the mother's internal working model that she brings into the newly forming mother-infant relationship. Historically, the importance of the meaning of the infant to the mother has been recognized in psychoanalytical literature (Bowlby, 1982; Cramer, 1984). From traditional psychoanalytic inquiry, Bowlby developed his attachment theory by incorporating evolution theory, ethology, and system's theory (Bowlby, 1982). One of the major contributions of the attachment theory was to propose that each infant has a "working model" about his/her own mother (Bretherton, 1987). Ainsworth extended Bowlby's ideas by developing a specific experimental procedure called Strange Situation that tests the infant's attachment behavior (Ainsworth, Blehar, Waters, & Wall, 1978). Working model dictates the behavioral pattern typically observed when the infant is separated from his/her mother as in the Strange Situation Procedure (Ainsworth, et al., 1978).

Recently, developments in infant attachment research have cast the importance of the mental representation of relationships in a different light. Working model of attachment has been explained as one type of mental representation regarding the interaction partners and interaction pattern. This mental representation is formed

based on generalized memories of past events (Bretherton, 1987; Stern, 1989). This re-conceptualization stimulated development of a method to assess the working model of attachment in adults (George, Kaplan, & Main, 1984). Research has expanded to include working model of attachment in adults, and studies of inter-generation effects of attachment have begun (Main, Kaplan, & Cassidy, 1985).

In the mother-infant relationship, there is a definite inequality in the amount of psychological complexity each partner brings to the relationship (Winnicott, 1958). It is natural to assume the mother's past and present experiences with human relationships influence this fledgling relationship. The mother's working model of the infant that guides this new relationship is a mental construction based mainly on her past experiences of interpersonal relationships, not a mere reflection of the infant characteristics (Zeanah, & Anders, 1987).

Clinical Background of the Problem

Nurses who work on maternity wards often notice that some mothers seem to have difficulty relating to their infants. These mothers are not necessarily negligent or abusive towards their infants, nor do they have poor caregiving skills compared to other mothers; they simply behave and talk as if they do not know who their infants really are. One mother might stare into her infant's face

as if asking the infant to tell her what she should be doing. Yet, another mother may treat her infant as if "it" was a doll, and treat "it" very competently, yet without emotion. In these cases, difficulties seem to stem from the mother's psychological state rather than particular characteristics of the infant.

Traditionally, when difficulty in mother-infant relationships is recognized either by nurses or the mother herself, nurses may intervene by teaching parenting skills or by emotional reassurance. These actions may modify the behavior of the mother, however without specific understanding of the difficulty the particular mother is experiencing, the intervention may not be as effective as intended. For example, a mother may be having excessive difficulty in breastfeeding because she cannot deal with the dependency needs of her infant; teaching specific breastfeeding techniques will probably not help the mother in this case. Most likely, the problem for which she has sought the nurse's consultation will be solved, but a slightly different aspect of breastfeeding will become a problem soon after unless the issue of dependency needs are addressed.

Purpose of the Study

The purpose of this study was to describe the mother's working model of her infant as a factor that affects the

mother-infant relationship in addition to the factors suggested by two previous theories: 1. Brazelton's assertion that the infant's innate behavioral responses and the mother's recognition of them are major factors in determining the development of mother-infant relationship development (Brazelton, 1984); 2. Klaus et al.'s bonding theory which emphasizes early close contact as a major determining factor of relationship development (Klaus et al., 1976).

The working model of relationship to the infant and specific behaviors related to that working model in early postpartum period have not been studied before. Also of clinical interest is the effect of the working model of this relationship on the individual adaptation of both mother and infant, such as the mother's perception of self as a mother, and infant's organization of sleep/awake states. In this study, the relationship between mother's mental representation of her infant and indicators of adaptations of the mother and infant were to be explored.

Significance of the Study

Identifying the mother's working model of her infant as a factor that affects early mother-infant relationships would add to the growing body of knowledge about internal representation of relationships. Clinically, studying the association between the working model and its manifestation

in interactive patterns is crucial to a deeper understanding of the early development of mother-infant relationships, enabling nurses to better assist their clients.

CHAPTER 2

Review of Literature

The aim of this chapter is to provide a general review of developments that have occurred in the study of mother-infant relationships as it evolved into producing a specific instrument for the measurement of a mother's mental representation of her specific child. The processes are not simple, and not all the gaps are closed in terms of explaining the progression of ideas. This chapter reviews the most salient literature in the refinement of the concept of mental representation and measurement of the same.

Literature is reviewed in clusters as follows:

1. Importance of the Meaning of Relationship

"What a person thinks about a relationship may be more important than the interaction that occurs." (Hinde, 1986).

2. Mental Representation of the Relationship

Place of representation in the relationship is discussed.

3. Mental Representation in Relation to Attachment

Invention of working model and development of attachment system research is presented.

4. Working Model Child Interview

Development of Working Child Interview, description of the interview, the classification of mothers, and related research is presented.

5. Connection of mental representation to other factors

The connection among other factors that influence the development of mother-infant relationship is explored.

6. Intention of this research

Accomplishment expected in this research is reviewed.

Importance of the Meaning of Relationship

The early mother-infant relationship contains considerable inequalities, with the mother taking a leading role in this relationship (Davis, & Wallbridge, 1981). Winnicott explains this psychological inequality between mother and infant as stemming from a difference in psychological ability. He reminds us that the mother can and does identify with the infant, while on the other hand, the infant depends on the mother, but does not identify with her initially. He states that identification is too complex a state, and is inapplicable to the early stages of infancy (Winnicott, 1958, p.301).

In addition to this difference in psychological ability, the mother has a different set of interactional skills to contribute to the relationship with her infant. Winnicott believes that, although infants can see and hear and even interact with adults to some degree, it is the mother who actively creates and maintains the relationship: ". . . without the mother's personal management of the situation, the innate abilities of the infant cannot be brought within the competence of the infant's self" (Davis

et al., 1981, p.108).

If the mother-infant relationship is so one-sided, how is it possible for the mother to interact with her infant? Mother-infant interaction can be a social interaction if the mother assigns meaning to the infant as a social being. Cramer (1984) asserts that every visible aspect of an interaction corresponds with an underlying imaginary underpinning. Hinde goes so far as to suggest that "what a person thinks about a relationship may be more important than the interaction that actually occurs" (1986, p.4).

Evidence of this process of assigning meaning is found in those aspects of the mother's behavior which indicate recognition of the person in the infant. For example, Stern (1977) confirmed that mothers often talk as though infants were actively engaging in conversation, leaving just enough silent time to allow for imagined responses from the infants.

Parents often overestimate the infant's intent. The infant may only be expressing an internal state through facial expression, vocalization, or body motion; The mother attaches meaning to these expressions, and reacts to them accordingly. While overestimation of intent can be delusional and pathological, reading meanings into the infant's action may be considered adaptive in the early mother-infant relationship (Winnicott, 1958; Stainton, 1985).

Mental Representation of the Relationship

One of the early researchers in the field of nursing who recognized the influence of mother's working model of relationships on the newly forming mother-infant relationship was Janet Kennedy (1969). She observed that some mothers had non-trusting attitudes toward relationships in general, and they were carrying that attitude into the mother-infant relationship (Kennedy, 1969). Mothers seem to have a set of expectations about the relationship based on past experiences. Kennedy explained the function of these expectations; "So, it is that a woman brings to her first meeting with him [the baby] a past history that tends to leave her more or less protected against or susceptible to the rewards and punishment a baby can deliver" (Kennedy, 1969).

Stern-Bruschweiler and Stern (1989) proposed a model for conceptualizing the role of the mother's representational world in mother-infant relationships. Their model consists of four parts which interact dynamically. These are: (1) the infant's overt interaction behaviors, (2) the mother's overt interaction behaviors, (3) the mother's representation of interaction, and (4) the infant's representation of interaction. Objectifiable interactive behaviors occur between the infant's overt interaction behaviors and the mother's overt interaction behaviors. The interaction behaviors of both partners are

interdependent and create unique interaction patterns between mother and infant. The infant's representation of interaction and the mother's representation of interaction reflect the subjective experience of interaction by the infant or the mother. The representations of interaction include not only the representation of the interaction partner (such as the representation of the infant in the mother's mind), but also the representation of self in the interaction (such as the representation of self as a mother in the mother's mind) (Stern-Bruschweiler, & Stern, 1989).

Mental Representation in Relation to Attachment

Bowlby's attachment theory was developed based on the evolutionary value of seemingly unrelated infant's behavior, such as smiling and crying, for keeping in proximity to the mother in order to assure security and care, that is attachment behavior. He was influenced by General System's theory, and speculated the presence of an attachment system that regulates attachment behavior (Bowlby, 1969, 1982). One of the most important facets of the attachment system is the working model of the world, of self, and of the attachment figure, that the infant builds through experiences with his/her environment. The working model functions as an aid for the infant to perceive and to interpret events, to forecast the future, and to construct plans (Bretherton, 1987, p.1066).

Working closely with Bowlby, Ainsworth et al. (1978) developed a standardized experimental situation based on her own long-term home observations. By observing their behavior in a set sequence of separations and reunions with the mother, one year old infants are evaluated into three classifications of Secure, Insecure-Avoidant, Insecure-Resistant (1978). In later study, Insecure-Disorganized /Disoriented classification was also included (Main, & Solomon, 1990).

In extending the original attachment theory, even adults were found to have working models about their attachment figures; i.e. their own parents, and their offspring (Bretherton, Biringen, Ridgeway, Maslin, & Sherman, 1989). These working models are sometimes called internal working models, internal representations, or mental pictures constructed in the mind. Internal working models, or mental representation of attachment are defined as "a set of conscious and/or unconscious rules for the organization or information relevant to attachment and for obtaining or limiting access to that information, that is, to information regarding attachment-related experiences, feelings, and ideations" (Main et al., 1985).

The mother's mental representation regarding her attachment relationship has been measured by the Adult Attachment Interview developed by Main et al. (1985). The construct measured by the Adult Attachment Interview is the

adult's state of mind with respect to attachment. It is assumed that the mental representation of adult attachment guides the mother to enact the caregiver role which had been learned as a child. Adult attachment classification is based on the interview about the mother's own childhood experiences and relationships. The three types identified are Dismissing, Autonomous, and Preoccupied (Main et al., 1985).

Working Model of Child Interview

The main criticism of the adult attachment model was that it did not allow for a different working model for each child. If the mother's attachment type determines the interaction pattern with her child, her interaction with all of her children should be very similar. However, the interaction context for each child in the same family can vary according to many factors (Radke-Yarrow, Richters, & Wilson, 1988). In order to measure the mother's mental representations specific to each child, the Working Model of Child Interview was developed by Zeanah, Benoit, Hirschberg, and Barton (1989). The interview is comprised of questions about the mother's impression of the personality and behavior of their infants, feelings and thoughts about their infants, difficulties they have with their infants, their reactions to these difficulties, and what the relationship is like now and will likely be in the future. Using this

interview, which is specifically designed to explore the mother's mental representation of the infant, Zeanah et al. (1989) identified three types of mothers who differed in their internal representation of their infants: "Balanced," "Disengaged," and "Estranged".

1. Balanced mothers

These mothers presented a rich description of their infant, an openness toward changes in their infants, a high intensity of involvement, and a coherent total image of the infant. Difficulty with the infant was openly acknowledged, and placed in a meaningful context. Negative affect of the child was acknowledged and accepted. Positive behavior was often credited to the infant's personality, and negative behavior was attributed to situational or developmental factors. Mothers showed respect for the infant as a person, and empathic appreciation of the infant's experience. The infant's need for dependence and independence was accepted in a developmentally appropriate manner. Caregiving was not perceived as overwhelming, and the mothers felt themselves to be adequate. Distress in the infant elicited comforting behavior from the mothers.

2. Detached mothers

The description of the infant was minimal rather than rich, and showed very little flexibility in accepting

the changes in the infant. There was a lack of caregiver involvement with the infant, and coolness and distance were noted in the mother's expression. Negative affect of the caregiver was not acknowledged directly. The mother's behavior had a forced or unconvincing quality, and their interaction was characterized by aloofness, and distancing from the infant. Difficulty with the infant was neither acknowledged, nor placed in a meaningful context. Negative affect in the infant was denied or minimized, although evidence was recognized indirectly. The infant's dependency need was not often recognized.

3. Estranged mothers

These mothers may or may not have been struggling with their estrangement. They did not show any cool detachment, and were more involved in the relationship than disengaged mothers. Their images of the infant were confused or contradictory. They had difficulty focusing on the infant or on their relationship with the infant, and were preoccupied with or distracted by other concerns. When they did focus on the baby, exclusive or excessive attention was given to one or two aspects of the baby without regard to other aspects. They were insensitive to the infant as an individual. Often they were anxious, and felt overwhelmed, confused, or disappointed by the infant,

or by their relationship with the baby. Negative affect in the infant was sometimes acknowledged, but not well integrated to who the infant was in the mind of the mother (Zeanah, 1989).

Although this instrument is relatively new, a few studies have been published to indicate its usefulness. Zeanah et al. (1989) examined the relationship between types of mothers' representation of their infants and their offspring's attachment classification, since mother's mental representation of her infant is believed to affect the infant's developing sense of self (Stern, 1989). Their investigation found the predicted direction of the relationship: in 70 percent agreement, or Kappa .50, insecure avoidant types of children had a "Disengaged" type of mother, secure types of children had "Balanced" mothers, and insecure ambivalent types of children had "Estranged" mothers. They also showed that pregnant mothers develop an elaborate internal model for the fetus and future infant prior to delivery (Zeanah, Keener, & Anders, 1986). It was not known whether the three types of representation identified by Zeanah et al. (1989) existed in the early postpartum period.

Connection of Mental Representation of the Infant to Other Factors

Mental representation of the infant is believed to guide observable interaction behavior of the mother towards her infant. Certain behavior patterns, such as sensitivity to the infant's cues, expression of positive affect, and appropriate response to the infant's distress, are expected for three types of mental representation according to Zeanah et al.'s (1989) descriptions. These mental representation may influence feeding interaction, which is the central to early relationship between mother and infant, since it takes up the majority of infant's waking time (Barnard, 1979). Feeding interaction is found to be consistent with interactive behaviors elicited in other situations (Barnard, Hammond, Booth, Bee, Mitchell, & Spieker, 1989).

Infant characteristics, often measured by Brazelton's Neonatal Behavioral Assessment Scale, are believed to affect the mother infant relationship. Brazelton believes that the infant has innate capabilities for social interaction (such as following objects with the eye, crying and stopping crying, and sustaining an awake state without breaking into a crying state or a sleep state), and that parents become more attracted to their infants when they become aware of the infant's capabilities. However, the effect of these infant behavior on mental representation of the infant in the early postpartum period is expected to be small, based on the assumption that what the mother brings into the relationship based on past relationship experiences is

greater than what the infant contributes in the initial stage of the relationship development.

The mother's confidence in her ability to cope with the tasks of motherhood and her satisfaction with motherhood and infant care are two of the important factors found to affect the mother's postpartum adaptation (Lederman, Weingarten, & Lederman, 1981). As implied in the theory of mental representation, the mother's mental representation of infant is related closely to her sense of self as a mother (Stern-Bruschweiler et al., 1989). Mental representation of the infant inherently includes working model of self as a mother to this infant, along with working model of infant as interaction partner, and working model of interaction between herself and this infant. By definition, mothers with different mental representations described previously (Zeanah et al. 1989) were expected to differ in their confidence and satisfaction about being a mother, since the mental representation of the infant would be closely interwoven with the mental representation of the self as a mother.

Infants have different issues to negotiate in each developmental stage. Attachment security is important at one year of age, but not so for the newborn. Sander (1985) proposed that in the first few months, biological regulation is the adaptive issue to be negotiated between infant and caretaker. One of the major biological regulations

negotiated in very early infancy is the infant's sleep/awake cycle. Chappell and Sander report different levels of sleep/awake organization as early as 10 days of the infant's age in relation to caregiver characteristics (1979). If the mother-infant relationship does affect the infant's organization of behavior in the early postpartum period, it is in the area of biological regulation. The regulation of sleep/awake states is one of the first tasks the mother-infant pair has to work with, and the infant's organization can be affected by the mother's activity (Chappell et al., 1979).

Intention of This Research

In order to provide the bridge between clinical observation of early postpartum mother-infant relationships and the theoretical explanation of the phenomenon, the current study was proposed. The mental representation and interactional behavior of mother and infant are all part of the dynamic system which makes up a relationship. The mother's mental representation of her infant is as important as overt interactional behavior for developing a relationship with her infant.

1) Since mother-infant relationships have not been described in these dimensions before, the first aim of this study was to describe the types of mothers' mental representation of their infants in early postpartum. It is

also a part of the purpose of this study to see whether the mother's mental representation of her infant in early postpartum can be measured by using the Working Model of the Child Interview, which has been used only for mother's of one year old infants.

2) The second aim was to observe interaction behavior to explore the manifestation of mental representation. Feeding interaction was examined as a representative of mother-infant interaction.

3) Newborn characteristics also were examined to ascertain whether they were the determining factor of the mother's mental representation. Neonatal Behavioral Assessment Scale (NBAS) was administered in order to rule out the interaction capacity of the infant as the major determining factor for the mother's internal representation of her infant. NBAS was administered in the hospital as early as feasibly possible, in order to avoid being influenced by the mother's mental representation classification.

4) The effect of the mother's mental representation of her infant on her self-image in early postpartum had not been studied. Thus, the fourth aim was to determine the relationship between the types of mental representation and the mother's perception of self. If the results of the interview analysis and the questionnaire score are very similar, the presence of the connection between the

perception of self as a mother and the mental representation of the infant is supported.

5) The early effects of mother's mental representation on her infant had not been examined before. Association between mental representation and infant's organization were also explored. Organization of states was chosen as an infant's indicator of well-being of the mother-infant interaction system.

CHAPTER 3

Methods

Descriptive, correlation design was used to describe mental representations of mothers and their association with infant characteristics, infant state, feeding interaction, and maternal perception of self. This study was a descriptive study, and no intervention was included.

Study Design

Mother-infant pairs were examined in order to determine the presence of different classifications of mothers' mental representation, and to describe the expression of each classification in the interview. In order to gain information regarding the expression of the mental representation, mother-infant interactive behavior was observed. Infant characteristics were examined in order to rule out the interactive capacity of the infant as the major determining factor for the mother's mental representation of her infant. In addition, the effects of the mother's mental representation on her perception of self and on the infant's adaptation were explored.

Hypotheses

The following hypotheses were tested:

- H1. There are distinct types of mother's mental representations about infants measured by the Working Model of the Child Interview in the early postpartum period.

- H2. Mothers who have different types of mental representation of their infants demonstrate different interaction styles during video-taped feeding observations.
- H3. There are no significant differences in the Brazelton Neonatal Behavioral Assessment Scale score measured in the hospital among the offspring of mothers with different types of mental representation.
- H4. Mothers with Disengaged representation will have the highest confidence, but not the highest satisfaction. Mothers with Balanced representation will have the highest satisfaction. Mothers with Estranged representation will have the lowest confidence and satisfaction.
- H5. Infants of "Balanced" and "Disengaged" mothers have higher organization of states compared to infants of "Estranged" mothers.

Setting and Sample

Setting. The study was conducted in the childbirth center of a small community hospital and in the homes of their clients. Clients from only this hospital were recruited to the study because of the philosophy and

practice of its childbirth center. Their philosophy was to foster a family-centered approach to childbirth; the mother and the infant were seldom separated for an extended period of time during the hospitalization. Since the early postpartum practice of keeping with or separating the infant from the mother does make a difference in the development of early mother-infant relationships (Klaus et al., 1976), this was an attempt to keep the early postpartum practice of contact or separation of mother and infant constant under optimal conditions.

Sample. Forty-four primiparous mothers were recruited through childbirth education classes offered by the community hospital. About 10% of the subjects did not complete the study. A sample size of forty was chosen mainly for feasibility due to the labor intensity of this study, and the nature of the study as a preliminary exploration of the phenomenon. Forty was the minimum number necessary in order to perform statistical comparisons of different mental representation classifications. Given the distribution of found in Zeanah et al.'s study (1989) (see Table 8) among three known classifications, a sample of forty was likely to contain at least 10 subjects in each classification group.

Only term infants without obvious congenital anomalies or serious medical complications were included in the study. It was known from previous research that preterm or sick

infants and their mothers have unique styles of interaction (Barnard, Bee, & Hammond, 1984). Mothers who had Caesarian delivery or forceps delivery were included. Recent studies have found no significant difference in Caesarian mothers' feeding interaction behavior and mothers who had vaginal delivery. Some delay in the development of the relationship compared to uncomplicated vaginal birth was expected (Culp, Osofsky, 1989; Lie, Juul, 1988; Garel, Lelong, & Kaminski, 1988; Mercer, Hackley, & Bostrom, 1983). Socio-economic status was not used to screen for subjects.

Human rights protection. The study was reviewed by the University of Washington Human Subjects Review Committee and the participating hospital's research review committee to assure the subjects' human rights. Upon recruitment, expectant mothers signed an informed consent form for newborn examination, keeping a record of the infant's activity, answering a questionnaire, participating in a taped interview, and videotaping of feeding interaction. The confidentiality of the interview, visual and instrument data, and the ability to withdraw at any time were explained. Participating mothers were given one copy of the informed consent form for their records. The researcher's name and phone number were made available to the participants. Subjects who had completed the study were compensated with a \$10 gift certificate.

Measurement of Variables

Research Procedures

Data collection took place in three time intervals.

Time point 1. 30 to 38 weeks of gestation of pregnancy. After consent was obtained during the prenatal class, demographic data were collected. A few subjects were approached after the delivery, when they indicated to the hospital nurse their interest in knowing more about the research.

Time point 2: 2 to 3 days of infant's age. The investigator administered the Neonatal Behavioral Assessment Scale (NBAS) (Brazelton, 1984) in the hospital nursery. Content of the assessment was described to the subject, but actual administration of the NBAS was not shown to the mothers in most cases. A few mothers requested to be present, and observed the administration of the NBAS through the nursery window.

Time point 3: Between 12 to 16 days of infant's age. The investigator made a home visit, and administered the Working Model of Child Interview (Zeanah et al., 1989). The Postpartum Self-Evaluation Questionnaire (Lederman, Weingarten, & Lederman, 1981) was administered. Feeding interaction was videotaped, and later scored in Nursing Child Assessment Feeding Scale (Barnard, 1979). The order of the three measurements (feeding observation, the interview, and the questionnaire) were varied depending on

the infant's readiness to eat. The Nursing Child Assessment Sleep/Activity Record (Barnard, 1979) form was given with instructions, and the subject was asked to send back the finished form in a self-addressed, stamped envelope.

Data Collection Instruments

Mother's mental representation of her infant. By analyzing the Working Model of Child Interview, the mother's mental representation of her infant was determined as one of three major classifications (Balanced, Disengaged, or Estranged) and nine sub-classification categories (Zeanah, 1989). This structured interview was developed by Zeanah et al. (1989) in order to assess the mothers' mental representation of their infants (see Appendix A-2-a). The interview takes from 45 minutes to one hour. Analysis is aimed at quantifying the elicited mother's perception of her infant. No official training was given to administer and score the interview for this study. Permission was given by Zeanah to this investigator to use this interview schedule and analysis scheme and change them in any way that was necessary to suit this population.

Interviews were scored by the investigator according to the coding scheme developed by Zeanah (1989). Interviews are analyzed in three clusters (see Appendix A-2-b for detail):

- I. Quality of representation
 - (A) Richness of description

How many words are used to elaborate on who the infant is.

- (B) Openness to change
Flexibility to accommodate changes in the infant. It is not uncertainty. Certain about the current state of the infant, but able to accept the change.
- (C) Intensity of involvement
Preoccupation, or immersement in the relationship
- (D) Coherence
Integrity of image as a whole

II. Content feature

- (A) Infant difficulty
Difficulty in caring for, or relating to infant. Mother's subjective assessment that varies from easy - challenging - burdensome.
- (B) Caregiving sensitivity
Recognition of baby as a separate individual. Mother's empathic experience. Mother's perception of variety of emotional states of the infants, and her own sensitive response.
- (C) Acceptance
Acceptance of infant's need for dependence or independence. Pushing one way or the other; or subordinating one's own need to that of the other.
- (D) Fear for safety
Overprotectiveness.

III. Affective tone of representation

Major and minor affective themes
Affect not present, or only isolated affect

Complete interviews were recorded with an audio tape-recorder, and transcribed by a native English speaker. Since this interview is relatively new, data on reliability is not published at this point. The child's security of attachment was used as a criterion to test validity, and demonstrated a fairly good association ($Kappa .50$) (Zeanah et al., 1989).

Two researchers reviewed independently all interview transcripts. One was the interviewer and author, the other was the dissertation advisor. Since this classification

schema had never before been used with mothers of newly born infants, the procedure was to have the author/interviewer and dissertation advisor, who were both familiar with Zeanah's classifications, read the interview transcripts and independently score the transcripts. In the procedure, the quality of representation, content feature, and affective tone of the classification scheme were first scored according to the definitions proposed by Zeanah; next an over-all category of Balanced, Disengaged, or Estranged was made, including subcategory classifications in each category. The two researcher later discussed their classifications and came to a consensus agreement on the major classification category. The author then reviewed the cases of initial disagreement, and based on additional material gained in the context of the interview, such as appearance, emotional tone, and non-verbal behavior, changes were made back to the interviewer's original rating on five cases (13%). One case was changed from Balanced to Disengaged, two from Balanced to Estranged, and two from Disengaged to Estranged. None of the cases were changed to the Balanced group.

There were more areas of disagreement regarding subclassifications within each major classification. Although agreement was reached regarding subclassification for the majority of the cases, some were left in disagreement. Final agreement of subclassification between

the two researchers was 75%. Zeanah reported that he had not obtained very high inter-rater reliability in subclassification (private communication, 1990). Since 75% agreement does not provide adequate confidence, subclassification was not used in the statistical analysis in this study. Subclassification by the author is reported in Table 11, and subclassification indicated in narrative descriptions of the cases in this report are determined by the author.

Each interview was scored with respect to three dimension scales of Qualitative Features of Representation, Content Features of Representation, and Affective Tone of Representation before the classification of the representation was determined. The two researchers discussed dimension scale scores in some cases. Scores were compared in 28 cases. Most of the scale scores of the researchers did not match exactly. However, in the majority of the cases (82-92%), the dimension scale scores fell within a one point difference on a five point scale. One exception was "joy" in the affective tone of the representation scale, in which only 65% were within 1 point of agreement. This may be attributed to the fact that the interviewer/author was reading the transcript with the memory of how the mother "sounded" during the interview, while the other researcher did not have the benefit of para-verbal information.

These dimension scale scores were not used directly to determine the classification of the representation. For example, not all the mothers with scores of 5 in "Richness of Perception" and "Intensity of Involvement" were automatically classified as "Balanced". Some mothers with Balanced representation had lower scores in these dimension scales, and some mothers with Estranged representation had higher scores in the same area. However, none of the mothers with Balanced representation scored a 1 in these two dimensions. Dimension scale scores were used to heighten the awareness of the pattern of representation to support the classification made by the overall impression.

Interaction characteristics during feeding.

Interaction characteristics were measured by Nursing Child Assessment Feeding Scale (NCAFS) conducted in the subject's home between two and three weeks of the infant's age. NCAFS was developed by Barnard (1979) for the specific purpose of assessing the quality of mother and infant interaction during nursing/feeding sessions. Training in scoring is required to use this tool. The availability of a trained observer for this scale who could score the interaction while remaining blind to other data in this study, and the availability of data for many other "known" populations which helps in interpreting the result are some of the advantages of using this scale.

NCAFS is a 76 binary item scale clustered into four

parent subscales (Sensitivity to cues, Response to distress, Social-emotional growth fostering, Cognitive growth fostering), and two infant subscales (Clarity of cues, Response to parent) (see Appendix A-5). Each subscale has moderate internal consistency (alpha .56 to .73). Internal consistency of the total score for both the parent and the infant (alpha .83 and .73 respectively) are better than those for each subscale. Test-retest consistency over three to four months were .75 for the parent score, and .55 for the child. Reliability over time is better for the parent than for the infant, since the infant develops and changes overtime. Validity of the scale is supported by correlation with other interaction observation measures and differentiating known subjects with interaction problems (Barnard, Hammond, Booth, Bee, Mitchell, Spieker, 1989).

One feeding session of mother-infant pair was videotaped during the home visit. Tapes were numbered and then delivered to the trained and certified scorer of Nursing Child Assessment Feeding Scale. This person was blind to each mother's classification and was not notified about the mothers' and infants' clinical history. Four randomly picked tapes (10%) were coded again at the end of the study, with 86% to 92% agreement with the original score. Subscale scores of NCAFS (Sensitivity to cues, Response to distress, Social-emotional growth fostering, Cognitive growth fostering, Clarity of cues, and

Responsiveness to Parents) as well as the total scores of mother, infant, and over all score were used in the analysis. Analysis of Variance test was used to detect the group differences among three mental representation classifications.

Characteristics of the infant. Behavioral organization, and interaction repertoire of infants was measured by seven cluster scores of Neonatal Behavioral Assessment Scale (NBAS) performed in the hospital between 1 and 5 days of age. The NBAS is a tool designed to measure subtle behavioral responses of newborn infants as they organize themselves to adapt to a new environment of extra-uterine life (Brazelton, 1984). It contains 27 behavioral response items, and some neurological testing items (see Appendix A-3). Training and certification is required in order to use this scale for research¹.

Reliability of NBAS has been examined by identifying the number of items that the infant scored similarly in two separate occasions over two days and comparing that to the number of items scored differently, and found to be moderate to low (.75 - .18) (Lynn, & Horowitz, 1984). They found that infants who had varying NBAS scores elicited more maternal response, compared to infants who had stable NBAS scores (1984). Horowitz and Lynn argued that the low test-

¹The investigator was trained and certified to reliably administer and score NBAS in January, 1990, at Oregon Health Science University in Portland, Oregon, by Dr. Sheryl T. Boyd.

retest reliability score of BNBAS might not be the indicator of an unreliable test, rather, it might reflect the subject variability, indicative of a greater repertoire of interactive behavior of the infant (1984).

Concurrent validity and face validity have been established through studies of the effects of obstetrical medication, prenatal substance abuse, and cross-cultural studies. Predictive validity is more difficult to achieve, since infants are constantly changing and developing (see Brazelton et al., 1987, for a more detailed discussion).

Since not all the items are linear, a non-parametric grouping of the NBAS items were developed by Lester, Als, and Brazelton (1982). This grouping produces seven cluster scores (Habituation, Orientation, Motor, State range, State regulation, Autonomic response, and Abnormal Reflexes). This data reduction method has previously been demonstrated to be sensitive to even minor prenatal variables such as maternal medication (Brazelton, Nugent, & Lester, 1987).

The investigator administered and scored all NBAS for this sample. In most of the cases, NBAS were administered in the nursery with dimmed light. In four cases, NBAS were administered in their homes. Investigator was blind to mother's mental representation classification when BNBAS was administered, since it was done before the interview classifying the mother's representation style was conducted. Analysis of Variance test was used to identify group

differences among offspring of mothers with three mental representation classifications.

Maternal satisfaction and confidence. The mother's satisfaction and confidence as a mother were measured by subscales of a Postpartum Self-Evaluation Questionnaire (Lederman et al., 1981) between two and three weeks postpartum. This questionnaire was developed in order to provide a quantifiable and objective measure of factors frequently cited in the literature as relevant to mother's adaptation. Out of eight scales which comprise the questionnaire, two scales were combined for use in this research: (1) mother's confidence in her ability to cope with the tasks of motherhood, and (2) mother's satisfaction with motherhood and infant care. The subject was to choose the response which best described her feeling about each statement (see Appendix A-4).

The scale for the mother's confidence in her ability to cope with the tasks of motherhood contains 13 items. The reliability was 0.8 for 3 days, and 0.74 for a 6 week interval. The scale for mother's satisfaction with motherhood and infant care has 13 items. The test-retest reliability was 0.62 for 3 days, and 0.78 for 6 weeks. Relative independence of confidence scale score and satisfaction scale score was demonstrated in Lederman et al.'s study (1981).

This questionnaire was administered at home about two

weeks postpartum. Analysis of Variance test was used to detect differences in satisfaction and confidence scores among three classifications of mental representation.

Infant's organization of states. Infant's organization of states were measured by a Nursing Child Assessment Sleep /Activity Record kept by the parents for one week starting at 12 to 16 days of the infant's age. The Nursing Child Assessment Sleep/Activity Record (NCASA) was developed by Barnard (1979) in order to assess the infant's various behavior patterns and their relationship to caregiving activities over 24 hours (see Appendix A-6). Normative data are available for amount of sleep, day/night differentiation, and amount of crying state (Barnard, 1979).

The longest sleep in 24 hours, amount of sleep in the afternoon (12 noon to 6 pm), amount of sleep in the evening (6pm to midnight), amount of sleep at night (12 midnight to 6 am), amount of sleep in the morning (6 am to 12 noon), total amount of sleep in 24 hours, total amount of awake states in 24 hours, ratio of day and night sleep, number of crying episodes in 24 hours, length of total crying in 24 hours, and length of average crying bout were used as indicators of organization of state of consciousness. Analysis of Variance test was used to detect group differences.

Demographic Background. Age, race, marital status, education and household income were collected to describe

demographic characteristics of the mother. Method of delivery, gestational age of the infant at birth, weight of the infant at birth, sex of the infant, one minute and five minutes APGAR scores were collected to describe infant birth characteristics.

CHAPTER 4

Results

Characteristics of the Sample

A total of 44 mother-infant pairs were recruited to participate in this study with 39 pairs completing the majority of the measurements. The average mother is described as middle class Caucasian, age 29.7 yrs, married, with 16 years of formal education (Tables 1-4). All of the mothers were having their first child. Fifty-six percent had delivered vaginally without any surgical intervention, 23% had Caesarian birth, and 20% had forceps assisted vaginal delivery (Table 5). The average gestational age of the infant at birth was 39.8 weeks, average weight at birth was 3500 grams, average one minute APGAR score was 7.4, and average five minute APGAR score was 8.6. Forty-nine percent were female, and 51% were male infants (Tables 6-7).

Table 1

Maternal Age and Education

Characteristic	Mean	SD	Min.	Max.
Age (Years)	29.7	4.2	19	38
Education (Years)	16.1	2.2	12	24

Table 2

Distribution of Mothers by Marital Status

Marital Status	Number	Percent
Married	38	97.4
Unmarried	1	2.6

Table 3

Distribution of Mothers by Income

Income Level (\$ 1,000)	Number	Percent
25 or Less	4	10.3
Over 25 to 50	15	38.4
Over 50 to 75	13	33.3
Over 75 to 100	2	5.1
Over 100	1	2.6
Declined to Answer	4	10.3

Table 4

Distribution of Mothers by Race

Racial Group	Number	Percent
Caucasian	37	94.8
African American	1	2.6
Hispanic American	1	2.6

Table 5

Distribution of Mothers by Mode of Delivery

Mode of Delivery	Number	Percent
Normal Vaginal Delivery	22	56.4
Caesarian Delivery	9	23.1
Forceps Assisted Delivery	8	20.5

Table 6

Distribution of Infants by Sex

Sex	Number	Percent
Male	20	51.3
Female	19	48.7

Table 7

Infant's Birth Weight, Gestational Age, and APGAR Scores

Characteristic	Mean	SD	Min.	Max.
Birth Weight (grams)	3502.5	423.1	2722	4423
Gestational Age	39.8	1.3	36	42
One Minute APGAR	7.4	1.9	1	9
Five Minutes APGAR	8.6	1.1	4	10

Research Measures

Research measures are described first, then hypotheses are examined in the next section.

Mother's Mental Representation of Her Infant

Distribution of mothers' mental representation of their infants were slightly different from the study by Zeanah et al. (1989). In this sample, the majority was classified as "Balanced", while very few were classified as "Disengaged" (Table 8). Subclassification of mental representation are shown in Table 9.

There were some demographic differences between the three classifications. Mothers with Disengaged and Estranged representation had higher incidents of surgical deliveries compared with mothers with Balanced representation (Table 10). Gestational age of infants at birth showed slight differences. Mothers with Disengaged representation carried the pregnancy longer than mothers with Balanced representation (Table 11).

Mother-Infant Feeding Interaction

One infant became ill in the middle of the study, and feeding interaction was not observed successfully. Thirty eight feeding interactions were used for this analysis. Feeding scores of this sample are similar to the norm of 1-3 months (Barnard, 1978) (Table 12). Maternal scores in this sample are slightly higher, and infant scores are slightly lower than the published norm, although they were not

Table 8

Distribution of Mothers by Mental Representation

Classification	This Sample Number	Percent	Zeanah et al., 1989 Number	Percent
Balanced	23	59.0	17	46.0
Disengaged	6	15.4	11	30.0
Estranged	10	25.6	9	24.0
Chi-square 2.4 not significant				

Table 9

Distribution of Mothers by Mental Representation of Their Infants: Subcategories

Classification	Subclassification ²	Number	Percent
Balanced	Full	14	35.9
	Restricted	3	7.7
	Strained	6	15.4
Disengaged	Impoverished	0	0
	Suppressed	6	15.4
	Fearful	0	0
Estranged	Distracted	2	5.1
	Confused	4	10.3
	Role-Reversed	1	2.6
	Self-Involved	3	7.7

² Subclassifications had low agreement between the two researchers (75 %). Presented here are subclassifications determined by the author.

Table 10

Classification of Representation and Mode of Delivery

Mode of Delivery	Classification of Representation		
	Balanced	Disengaged	Estranged
Caesarian Delivery	3	2	4
Forceps Delivery	5	3	0
Normal Vaginal Delivery	15	1	6
Chi-Square 9.15	p < .05		

Table 11

Infant's Gestational Age and Classification of Representation

Classification of Representation	Mean Gestational Age (week)
Balanced	39.4
Disengaged	40.7
Estranged	40.1
Disengaged > Balanced t = -2.32 p < .05	

statistically significant. In the taped observation, the majority of the mothers breast-fed their infants, with four mothers giving formula.

Table 12

Nursing Child Assessment Feeding Scale Score

Subscale	Mean	SD	Min	Max	Norm*
Sensitivity to cues	14.3	1.1	12	16	14.0
Response to distress	10.4	1.3	6	11	10.0
Social-emotional growth fostering	12.1	1.9	6	14	11.5
Cognitive growth fostering	7.0	1.9	3	9	6.2
Total parent score	44.1	4.4	31	50	41.7
Clarity of cues	10.8	1.9	4	13	12.1
Responsiveness to parent	6.8	1.3	4	9	6.9
Total child score	17.6	2.8	9	21	19.0

* Barnard et al., 1978. N = 281-282

Infant Characteristics

The individual item scores of Brazelton Neonatal Assessment Scale were known to the author before each interview, however the analysis was completed only after all the data were collected. The Seven Cluster System developed by Lester et al. (1982) was used for this analysis. In this system, items are clustered around seven empirical and conceptually meaningful groups, and scores are recoded in

order to make higher scores indicate optimal performance (Table 13).

Table 13

Brazelton Neonatal Behavioral Assessment Scale

Cluster	Mean	SD	Min.	Max.
Habituation ³	31.5	2.0	28	34
Orientation	42.6	12.4	13	61
Motor	25.3	4.8	15	33
Range of state	14.2	4.1	6	19
Regulation of state	22.3	7.3	7	32
Autonomic stability	18.1	3.4	13	24

Maternal Satisfaction and Confidence

Thirty-six cases were included in this analysis. Three cases were omitted from analysis due to incompleteness of the questionnaire. Maternal confidence was similar to the published norm, and maternal satisfaction was slightly lower (higher number denotes lower satisfaction) compared to the published norm both at 3 days and 6 weeks (Table 14).

Infant's Organization of States

A Nursing Child Assessment Sleep/Activity Record form was left with mothers at the time of the home visit. Thirty

³ For this cluster, N = 17 due to awakening of the infants either before or during administration of habituation items.

Table 14

Postpartum Self-Evaluation Questionnaire

Measures	Scales	
	Maternal Confidence	Maternal Satisfaction
Mean	23.9	18.7
SD	5.8	5.8
Min.	13	13
Max.	36	39
Norm (3 days)*	24.0 (N = 32)	14.5 (N = 31)
Norm (6 weeks)*	21.3 (N = 21)	17.4 (N = 21)

*Lederman, Weingarten, & Lederman, 1981

six mothers completed at least three days of the record that were used for this analysis. All the usable recording days were averaged to obtain statistics. For example, the total amount of sleep per day was obtained by averaging three days' recording if that form had only three completed recordings, and by averaging seven days' recording if the record was kept for seven days.

Mean length of the longest sleep of the day was average 3.9 hours with the minimum of 2.5 hours and maximum 7.5 hours. Infants were fed average 8.2 times a day. Overall, they tend to sleep more at night (midnight to 6 am), and awake more during evening (6 pm to midnight) ($t=-11.8$, $P < .001$) (Table 15).

Table 15

Infant State Organization

Characteristic	Mean	SD	Min.	Max.
Longest Sleep in 24 hrs	3.9	1.0	2.4	7.4
Afternoon Sleep	3.1	.6	1.6	4.1
Evening Sleep	2.9	.7	1.8	3.9
Night Sleep	4.6	.6	3.0	5.4
Morning Sleep	3.4	.6	2.0	4.9
Sleep Total for 24 hrs	13.9	1.5	10.3	16.4
Day/Night Ratio	.71	.14	.53	1.12
Feeding Episodes for 24 hrs	8.1	2.0	4.9	15.6
Cry Episodes for 24 hrs	3.0	1.8	.3	8.5
Length of Cry for 24 hrs	1.6	1.0	0.0	3.6

Feeding method was one factor that influenced the number of crying episodes. Four infants were bottle fed during the time NCASA records were kept. Breast-fed infants cried significantly more often per day (3.3 times a day), compared to their bottle-fed counterparts (1.4 times a day) ($t = 4.71$, $P < .001$). Two of the bottle feeding mothers were in "Balanced" group, and the other two were in "Estranged" group.

The day/night sleep ratio was calculated by dividing the day sleep by night sleep weighed to the length. [(amount

of sleep from 06 to 24) / 3 * (amount of sleep from 00 to 06)] Night was arbitrarily defined as the period from 00 to 06, since this is the most difficult stretch of time for the mother to be awakened⁴. If the number is close to 1, the infant is not differentiating day and night. If smaller than 1, the infant is sleeping more during the night compared to the day; If larger than 1, the infant is sleeping less during the night, and sleeping more during the day. The overall average ratio for this sample was .71.

Hypotheses

H1. There are distinct types of mother's mental representation about infants measured by the Working Model of the Child Interview in the early postpartum period.

Dimension Scale Scores

The low reliability of dimension scale scores did not warrant statistical testing. However, to demonstrate that the High-Low tendency is in accordance with the definition of the classification, the tendency of this sample is shown in Table 16.

⁴ This is not the common method of calculating day/night ratio. For example, Barnard & Eyres defined night sleep as from 6pm through 6am (1979).

Table 16

Dimension Scale Score Tendency

Scale	Balanced	Disengaged	Estranged
1. Qualitative features			
Richness of perception	Highest	Lowest	Medium
Openness to change	Highest	Medium	Medium
Intensity of Involvement	Highest	Lowest	Medium
Coherence	Highest	Lowest	Medium
2. Content features			
Infant Difficulty	Medium	Lowest	Highest
Caregiver Sensitivity	Highest	Lowest	Medium
Acceptance	Highest	Medium	Medium
Fear for Safety	Low	Lowest	Low
3. Affective tone			
Joy	Highest	Lowest	Medium
Anger	Low	Low	Medium
Anxiety	Low	Lowest	Medium
Guilt	Low	Lowest	Low
Indifference	Low	Low	Lowest

Examples of High and Low Cases on Dimension Scale Score

Some of the examples of the high and low scores on the dimension scales are presented here. It is to be noted that

all the scores were given based on the interview as a whole, not on the following few sentences presented here. These examples are given in order to provide some sense of the quality in the mothers' words which contributed to classification.

I. Qualitative Features of the Representation

A. Richness of Perception

Note the repeated probing and lack of individualized description of infant by subject #1035. In comparison, subject #1040 was able to describe a specific episode including the situation leading up to it, the infant's behavior, feelings, and communication intent as perceived by the mother.

Low #1035

(Disengaged Suppressed)

- Q: Do you remember what you thought about the baby at the time of the birth?
- A: Hum, I don't remember. It seems like it happened so quickly.
- Q: When was it that you remembered seeing him?
- A: It was later in that day. I was so tired and people kept coming. I did not get good sleep the night before.
- Q: So what do you remember about him?
- A: Hum,...
- Q: Was he awake?
- A: Yeah, he was awake, and I nursed him.
- Q: How did you feel?
- A: It was pretty special.

High #1040

(Balanced Full)

- Q: When does Liam become upset or difficult?
- A: In the tub. When he's hungry. Yesterday, he was asleep when we left for this funeral service. All the way through the service he was fine. He slept. But at the reception afterwards, he started getting hungry and fussy. And then it was like, "I want it now!" He was so angry and we had to leave, and we kept saying our goodbyes, and he was getting worse and worse. And I was getting more and more stressed out, like, "We gotta just feed him." So, we were just going to a park right there, and I said, "No,

let's just go home." We were only like right downtown. But he was so angry he was just screaming because his feeding was late. Like, "I want my food now." He was just so mad. ...

B. Openness to Change

Many mothers were fairly open to change since they were still trying to decide what kind of person their newborn infant was. Subject #1043 had difficulty talking about the relationship, and consequently could not articulate any expected change. Subject #1015 showed a sense of wonder in the changing infant and allowed for unanticipated developments.

Low #1043

(Disengaged Suppressed)

Q: What kind of relationship do you think you're going to have with this baby in five years?

A: (Laughter) There's that question again. I don't know. What does this question mean? What kind of answers are you thinking people will say?

Q: They say all kinds of things. Some of them say, "Oh, I'm just a caretaker for this baby." Others say, "This is the closest relationship I've ever had except with God or something." It really varies from people to people.

A: Well, I don't know. Now as well as later, I expect we'll have a mommy/daughter

High #1015

(Disengaged Suppressed)

Q: Do you imagine doing things with her?

A: Yes, I look forward to taking her to the park. Just laughing and talking with her. Teaching her things. It's all going to be a new experience. Already it seems she's growing so fast. She is and she isn't. She's only three weeks old, but she's changed so much. Even like, every couple days I can notice a difference. It's amazing.

Q: So, in five years?

A: So, imagine in five years what she's going to be like, and wonder what her personality will be? What kinds of things she'll be interested in

relationship, but I don't really know what that is.

doing, and who she'll look like. Just hope we can make her happy.

C. Intensity of Involvement

Subject #1007 had home photo therapy for her infant with hyperbilirubinemia. Although photo therapy was blamed for the delayed establishment of the mother-infant relationship in this interview, this mother had difficulty relating to her infant before jaundice was noticed, and well after the photo therapy was over. Subject #1016 had a very intense, but anxious sense of attachment.

Low #1007

(Estranged Distracted)

Q: What is your relationship with Peter like?

A: Well, we haven't had a very true relationship yet, because I feel this equipment has been between us, so it's been very hard. I felt like a robot rather than a mother who can just pick him up and love him, and dance.

Q: Robot in terms of?

A: Duties. ... start moving like a robot. "OK Peter, now it's time to eat, now it's time to sleep. Have you had your morning stool?"

High #1016

(Balanced Strained)

Q: What is your relationship with Evan like? How would you describe your relationship with him?

A: That I'm in love for the first time in my life except for his dad. I love him so much. I can't believe how much you can love a child. ... But the feeling I have for him, it's very difficult to describe. Really. I'm in love with this little boy. It's rather wonderful, but it's sort of scary, too. Well, if something ever happened to him... I talked to a guy about wills today, and life insurance. And you know? I didn't have a will. But, if something happens to me it's very important what happens to him. (mother crying)

D. Coherence

Although low coherence was one of the definitive characteristics for Estranged representation, many examples of incoherence were found among mothers with Disengaged representation. Subject #1017 talks in length without giving much substance. An example of high coherence is much easier to read and understand.

Low #1017

(Disengaged Suppressed)

Q: Let's talk about your relationship with Brian. How would you describe your relationship with Brian?

A: Well, it's a really different... It's really different. When you are expecting or pregnant you have all these people say "Oh, just wait till you have ..." It's just a really ... It's hard to describe. I know that he would come first, whatever, you know? I guess, especially just that first week I didn't really think that much about myself. I would forget. I'd have to remind myself to eat something because I was so concerned about him. It's just a really ... I don't know how to describe it. I never really thought of... it's weird to think of myself as being a parent, even though we planned on having children. It's just such a unique experience.

High #1006

(Balanced Full)

Q: What is your relationship with this baby like?

A: He's still sort of an extension of me because I don't go anywhere without him. He's with me all the time. We certainly keep each other company. We entertain each other. He entertains me and I entertain him. He's very... I'm sort of the main person that he's dependent on, so that's kind of... I'm it when it comes to food. So, he's attached to me most of the day, literally. sometimes that's overwhelming. Especially, if I'm tired and it's the end of the day, and he just wants to eat all the time. Sometimes that gets to be overwhelming, that I'm the one person that can really fulfill that need and I can't just pan him off to somebody else. But, most of the time I really enjoy being the main person, because I just really enjoy being a mom. I've always wanted to be a mommy and I got a

cute little guy to be a
mommy to, so it's fun.

II. Content Features of the Representation

A. Infant Difficulty

Subject #1001 only explained what the baby did not like, and the difficulty of having sleep interrupted. The infant of subject #1032 had reacted to iron build-up, and had to be seen by the family doctor in emergency.

Low #1001

(Balanced Restricted)

Q: Let's talk about the difficulty you have with the baby or times when she gets upset or become difficult.

A: The two hardest things are changing her diaper, she doesn't like it at all. She gets pretty fussy. And she's up every two and half hours at night. In the early morning feeding at like 5 or so, she gets like she wants to be up, and we want to be asleep. So that's the most difficult (thing).

High #1032

(Balanced Full)

Q: What kind of emotional reaction you went through?

A: I cried. I cried when she cried because I felt helpless, and I felt like she was crying to me to take care of her and I'm the mother and I'm supposed to know these things and I could not figure out what was wrong. Emotionally it was hard. I cried and felt for her so much. I know she depended on me to figure out what was wrong. I just couldn't figure out what was wrong. I just couldn't figure it out. I called my mother-in-law and I was just bawling. And she reassured me ... Everything will be fine, and the doctor ... emotionally, I felt more secure when we got to the doctor's office and she checked her out and she was healthy. Still, I was an emotional basket case.

B. Caregiver Sensitivity

Subject #1003 did not show much empathy for her infant. Subject #1025 got down to the infant level and managed to engage in a social interaction, although the infant had not developed a real social smile.

Low #1003

(Estranged Confused)

Q: What is your emotional reaction to this difficult time?

A: I just kind of, ohhh, you know. It's hard to know how much you should hold him, or how much, you know, how long can you hold him, and how long to try and pacify him. And when you lay him down and let him cry, it's hard to know how long you should let him cry for, because it's kind of hard to sit and hear your baby cry. But after about, usually it's been about five minutes. And he usually settles down.

High #1025

(Balanced Strained)

Q: Does she smile?

A: Well, I think she does. But, supposedly they don't yet. But, I swear she smiles. Usually, when she's active alert. Particularly when she's on the diaper changing table. That's her favorite place. Of course, I get down to eye level with her, because I sit down on the bed and I bend over and we kind of giggle and do things like that...

C. Acceptance

Subject #1026 was irritated by the frequency of feeding, and seemed to be envious of others who enjoyed the baby care. Subject #1037 was thoroughly enjoying being the mother and doing maternal tasks.

Low #1026

(Disengaged Suppressed)

Q: What displeases you about this relationship?

A: ... I think sometimes now I feel like, "I'm just food for her." You know? Feeding her all the time.

High #1037

(Balanced Full)

Q: What is your relationship with Ellie? How do you describe your relationship with her at this time?

A: ... What is our

Sometimes that ... I think I've just noticed that in the last couple of days, where it's like, "Oh, I have to feed her again. I have to feed her again. Oh, here she comes, I have to feed her again." Where I'd rather sometimes just play with her or enjoy her in another way. Instead, someone else will take care of changing her or something and then they bring her to me and I have to feed her. Not that I don't like feeding her, but that sometimes...

relationship like? I sure think she's a doll. She's so cute, like in the middle of the night when I get up. I go to her crib, and I don't mind at all being up in the middle of the night with her, because every time I look at her I just think she's so cute, and it's sort of fun to get up in the middle of the night and see her again. I just think she's great. She's the greatest....

D. Fear for Safety

There is no example to show for Low Score of Fear for Safety since those who scored low did not mention anything of the fear. Subject #1016 had moderate fear (High means fear of death, which was not recognized among this sample).

Low (no example)

Moderate #1016

(Balanced Strained)

Q: Do you think about the future? Like five years from now, what kind of boy will Evan be like? Do you think about it?

A: ...I try not to think of him having problems, whether they be personality problems, or behavioral problems, or learning problems or anything.

Q: So you try to focus on the positive?

A: Yes, Yes. Like many mothers to be, I imagine, I was very worried when he was still in me that

he wouldn't be alright. Being a child of the sixties, there was some abuse of my body earlier. Drugs and stuff, long time ago, like when I was in my teens. Of course, that was always hanging over my head that I did something bad to my body in 1969 that's going to affect my baby now, so I was very worried. Not very worried. I didn't lay awake at night thinking about it, but, it did cross my mind.

The Most Useful Question and Themes Found in the Answers

Classification into three major categories was done according to the impression from the total interview rather than from answers to certain questions only, however, some of the questions provided more information about the mother's mental representations of their infants than others. The question "What is your relationship with (baby's name) like?" was one of the most fruitful questions.

According to Zeanah's definition, interviews with mothers with balanced representations are characterized by recognition of their infants as individuals, by the mother's engrossment in the relationship, and by empathic appreciation for the infants' experiences. In contrast, mothers with Disengaged representations may seem not to recognize the infant as an individual, and mothers with estranged representations present confused or contradictory images of their infant (Zeanah et al., 1989). Indicators of

these traits such as recognition of individuality in the infant, empathic experience, and developmentally appropriate interaction were found among this sample in several different areas described below. The following are descriptions of characteristic answers by mothers to the question, "What is your relationship with (baby's name) like?", in this sample.

Engrossment in relationship expressed in strong emotions. More mothers with balanced representation expressed strong positive emotions such as "excitement", "joy", "fun", "comforting and powerful feeling", etc. None of the mothers with Disengaged representation had such expressions.

Engrossment in relationship described. A majority of the mothers who described their relationship as "growing", "developing", or "getting to know better" were with Balanced representation. Only one "Estranged" and no "Disengaged" mothers mentioned that. On describing the relationship, many "Balanced" mothers used words such as "close", "bonded", or "attached". Only two "Estranged" and no "Disengaged" mothers used such words.

Affectionate name as an indicator of engrossment in relationship. Mothers with balanced representations in this sample often used some form of loving names for the baby while talking about their relationship with them. Many mothers with balanced representation mentioned such names as

"Sweat pea", "My little daughter", "Little guy", "Doll" and so on in their reply to the above question. None of the mothers with Disengaged representation used such terms while talking about their relationship.

Lack of engrossment. Several mothers with Estranged representation or Disengaged representation described their relationship with their infant in terms of "duty". Only one mother with balanced representation expressed that concept.

Recognizing the individual in the infant, and addressing the infant as "you". A few of the mothers with Balanced representation addressed their baby as "you", thus included the baby in the conversation, while answering this question. None of the mothers with other representations demonstrated this trait. Some mothers with balanced representation stated that the baby is "really a little person". One mother with Disengaged representation also used the same word "little person", but in a context that seemed unreal to her.

Empathic appreciation of infant's experience. Several mothers with Balanced representation mentioned that their infant clearly recognized them, and a few others also with balanced representations stated that there was reciprocity in communication between themselves and their infants. One mother with estranged representation mentioned that her infant showed brief periods of recognition.

General Description of the Three Classification for This Sample

Interviews of mothers with Balanced representation were characterized by intense emotional involvement, recognition of an individualized person in their child, and a sense of development of the mutual relationship. Mothers with Disengaged representation showed less emotional involvement with their infant, and talked about their caretaking role in terms of duty. Estranged representation had mixed group of mothers, each having some strain in developing relationship with their infant; Some were clearly overwhelmed by the demand of caring for newborn infant, and others could not focus on their infant due to a particular concern. There were some whose relationships with their infant was not role appropriate, and those who were more preoccupied with themselves than their infant.

Uncomfortable Interviews

Although Zeanah's classification guidelines do not include any instruction regarding the interviewer's feelings, the author/researcher felt it was an important part of the interview. Some interviews were more uncomfortable to the author/interviewer than other interviews. The following are descriptions of the situations and the author/interviewer's feelings.

1015

This mother was classified as Disengaged Suppressed.

Uncomfortable feelings arose mainly from the fact that she kept asking questions during the interview. Questions such as "Can that (hair color) skip a generation?" or "Can their hair color change after six months?" were raised although she knew the answers already. Each time I answered, she gave me concrete examples indicating she already knew the answers. Some comments she made seemed to disconfirm instructions she received at the hospital. She stated "Sometimes maybe it even compounds the gas problem. So I try not to give her too much, but I was told to feed her on demand (in the hospital by nurses)." She had a Caesarian birth after two and a half days of induction; when I failed to respond sympathetically to her comment, "I was sort of glad she didn't come the natural way", she asked "Have you any children?". I perceived that she was saying that I would not understand unless I had one. Her husband was out of town for the week of the interview. Originally, he was the one who was interested in the study, and he practically signed her up to participate in this study.

1026

This mother was classified as Disengaged Suppressed. I felt she was not paying attention to the baby's signs of irritation, but continued to bounce the baby constantly throughout the interview. I could sense by

her demeanor that the mother was getting irritated with my questions. Towards the end of the interview, I commented on the baby's fussiness, and jokingly said, "Give me attention, mommy". At that moment, the baby threw up milk, and as I reached for the burp cloth, the table (which had only three legs) toppled. I had to apologize profusely, and felt very uncomfortable about the whole situation.

1030

This mother was classified as Estranged Role Reversed. She seemed extremely anxious, and constantly talked, waiving her hands, blinking and looking away. I felt like I needed to be reassuring her constantly, rather than simply asking questions and waiting for her answers.

1035

This mother was classified as Disengaged Suppressed. She did not have much to say about her infant, and was not responsive to my probing. Many of the questions were answered by "I don't know". Her husband was standing just out of sight during the whole visit without saying a word. I felt it was strange that he should be so vigilant yet not come out to see me.

#1043

This mother was classified as Disengaged Suppressed. She did not comprehend the questions about the

relationship between the baby and herself. She said "I don't know. I don't know what that question means." and "What does this question mean? What kind of answers are you thinking people will say?". She sounded as if I was asking her a trick question to catch her on something. She said she had a "lousy" relationship with her own mother. I commented on the picture of two cats on the book shelf after the interview, and she talked at length with tears in her eyes about what kind of relationship she had with them. She had lost these cats only a few months before.

Four out of five interviews during which the author/interviewer felt uncomfortable, four were classified as Disengaged Suppressed. In these cases the mothers were defensive, and not "with me". One of the characteristics of Disengaged Suppressed representation is described in Zeanah's definition as "The caregiver ... seems to be defensively maintaining emotional distance". It might be that these mothers generally maintain a defensive distance in many interpersonal relationships.

One of the uncomfortable cases was with a mother with Estranged Role Reversed representation. The source of discomfort came from my feelings that she was expecting me to take care of her rather than talk with her in an adult-to-adult manner. In Zeanah's definition, mothers with

Estranged Role Reversed representation are characterized by "an implicit or explicit desire in the caregiver for the infant to bear an excessive psychological burden for the relationship". Again, the same pattern of interpersonal relationship with the infant may exist in the client-interviewer relationship.

H2. Mothers who have different types of mental representation of their infant demonstrate different interaction styles during video-taped feeding observations.

Hypothesis 2 was not supported. There was no significant difference in total feeding scores, subscale scores, or maternal and infant contingency item scores between the three classifications of mothers. However, slight tendencies were recognized in expected directions (Table 17). Total maternal scale scores were highest for mothers with balanced representation, and infant total scores were highest for those infants with "Disengaged" mothers. The same tendency was recognized in maternal contingency items and infant contingency items. Distress episodes were observed with higher frequency among mothers of Disengaged or Estranged representation than those with Balanced representation.

Some items showed more variance between groups compared

to other items (none of these differences were statistically significant) (Table 18):

Item #36 "Parent laughs or smiles during the feeding": 86% of mothers with balanced representation scored yes on this item, compared to 69% of the other representations combined.

Item #38 "Parent smiles, verbalizes or touches child within 5 seconds of child smiling or vocalizing at parent": 91% of balanced representation mothers scored yes, compared to 75% of the other representations combined.

Item #9 "Parent varies the intensity of verbal stimulation during feeding": 95% of balanced, 81% of the other two representation combined scored yes to this item.

Distress episode: Compared to 50% for the Disengaged group, and 40% for the Estranged group, only twenty seven percent of infants from the "Balanced" group had distress episodes during the feeding interaction.

Although none of these tendencies were statistically significant, they were in the expected directions. These tendencies suggest that mothers with balanced representation may have more lively verbal exchange with positive affects in the interaction. They may tend to maintain their infants' states better, thus preventing distress episodes. These are in accordance with the definition of the balanced representation in that the mother recognizes the infant as a person, that she is engrossed in the relationship, and that she believes that the relationship affects the infant.

Table 17

Mental Representation Types and NCAFS

Measures	Balanced	Disengaged	Estranged	F	p
Sensitivity to Cues	14.4	14.5	14.0	.54	n.s.
Response to Distress	10.3	10.2	10.7	.47	n.s.
Social-Emotional Growth Fostering	12.3	12.0	11.7	.34	n.s.
Cognitive Growth Fostering	7.3	6.8	6.5	.67	n.s.
Clarity of Cues	11.1	10.8	10.2	.73	n.s.
Responsiveness to Parent	6.9	7.3	6.3	1.29	n.s.
Total Feeding Score	62.3	61.7	59.4	.69	n.s.
Total Maternal Score	44.6	44.0	43.3	.27	n.s.
Total Child Score	18.0	18.2	16.5	1.10	n.s.

Table 18

Mental Representation Types and NCAFS Items

Item (% Yes)	Balanced	Disengaged + Estranged	Chi-Square	p
Laugh/Smile	86	69	.83	n.s.
Contingent response to child vocalization or smile	91	75	.77	n.s.
Varied verbal stimulation	95	81	.76	n.s.
Distress	27	43	.55	n.s.

H3. There are no significant differences in the Brazelton Neonatal Behavioral Assessment Scale score measured in the hospital among offspring of mothers with different types of mental representation.

Hypothesis 3 was not disproved. There was no statistically significant difference of cluster scores for the offspring of the three types of mothers (Table 19). However, there were some tendencies in cluster scores that may merit further investigation. For example, the orientation score was slightly higher for the offspring of mothers with Disengaged and Balanced representations compared to those of mothers with Estranged representations. The Habituation score was the highest for the "Disengaged" group, and the lowest for the "Estranged" group. The Motor score was highest for infants of the "Balanced" mothers. The Range of state score was highest for offspring of mothers with Disengaged representation. State regulation was highest for infants of "Estranged" mothers. All these differences were not statistically significant. Early influence of parenting styles, effects of mode of delivery, and gestational age will be discussed in the next chapter.

Table 19

Mental Representation Types and BNBAS

Measures	Balanced	Disengaged	Estranged	F	p
Habituation	32.0	33.0	30.5	1.46	n.s.
Orientation	43.1	43.5	40.8	.15	n.s.
Motor	26.1	24.8	23.5	1.01	n.s.
State Range	13.7	15.3	14.7	.46	n.s.
State Regulation	20.7	23.1	25.1	1.34	n.s.
Autonomic Stability	17.8	19.5	18.1	.60	n.s.
Abnormal Reflex	1.8	2.0	1.9	.03	n.s.

H4. Mothers with Disengaged representation will have the highest confidence, but not the highest satisfaction. Mothers with Balanced representation will have the highest satisfaction. Mothers with Estranged representation will have the lowest confidence and satisfaction.

Mothers of the three different mental representations differed in maternal confidence and maternal satisfaction measured by the Postpartum Questionnaire (Lederman, et al. 1981). Hypotheses 4 was supported (Table 20). Maternal confidence scores were significantly different among three

groups ($F = 4.28, p < .05$). Post hoc analysis revealed that the maternal confidence scores of mothers with Estranged representation were lower compared to those of the other two groups. Maternal confidence was lower for "Estranged" mothers compared to "Balanced" ($t = -2.19, p < .05$), and also lower compared to "Disengaged" mothers ($t = 3.87, p < .01$).

Maternal satisfaction scores also were statistically different between mothers of the three different mental representations ($F = 5.56, p < .01$). Maternal satisfaction was higher among the "Balanced" mothers, compared to the "Estranged" mothers ($t = -3.34, p < .01$). High satisfaction was characteristic especially for Balanced Full classification mothers.

Table 20

Mental Representation Types and Maternal Satisfaction and Confidence

Measures	Balanced	Disengaged	Estranged	F	p
Maternal Confidence	23.3	19.6	28.1	4.28	<.05
Maternal Satisfaction	17.0	18.0	24.0	5.57	<.01

The mother who scored lowest on satisfaction was classified as Estranged Confused. She expressed bewilderment about what she should be doing as a mother.

I guess, I'm his primary caregiver, definitely. I try real hard to do whatever I'm supposed to do as a mom, like give him his baths and change him when I should and feed him when I should. Change his clothing and

stuff like that. But, sometimes I think I don't really know what I'm doing, like interacting with him, for example. Like for playing with him and stimulating him, and things like that, I kind of feel like I don't really know what I should be doing, and I probably feel like I should take a class or something, to figure out a little bit better.

The mother who scored lowest on confidence was classified as Balanced Strained. She had been struggling with difficult breast feeding for two weeks, and had just decided to switch to bottle feeding. The feeding situation for her was still heavily emotional-laden even after switching to bottle feeding.

... This afternoon when he woke up, and I went to change him first before I got the bottle. By the time I got the bottle, he was just screaming. When I finally got the bottle in him, I started to cry because he was so upset that he was just screaming. I felt like I wasn't fast enough, or I hadn't been prepared or whatever. The crying does start to wear me down. I start to feel like I'm not doing things right.

Maternal Confidence was inversely correlated to one minute APGAR score ($r = .42, p. < .01$). In other words, mothers whose infants had some difficulty at birth had higher confidence in fulfilling the maternal role. This seemingly contradictory result will be discussed further in the next chapter.

H5 Infants of "Balanced" mothers have higher organization of states compared to infants of "Estranged" and "Disengaged" mothers.

There were no significant differences in the length of

the longest sleep of the day among the offspring of mothers of the three classifications of representation (Table 21). The tendency was in the predicted direction in that the infants of "Balanced" group had the longest sleep, "Disengaged" group had the next longest, and "Estranged" group had the shortest sleep.

There were also no statistically significant difference in the number of crying episodes or total length of crying per day. Number of crying episodes per day was highest among Balanced representation group (3.2 times a day). Lowest was Estranged group with only 2.2 times a day. However, when the length of the crying/fussing periods were calculated, the group that had the longest periods of fussiness per day was Estranged group with 1 hour 48 minutes per day. The shortest was Balanced group with 1 hour 27 minutes per day. The offspring of mothers with Balanced representation cried more often, but for shorter durations (33 min. per bout). On the other hand, the infants with mothers of Estranged representation tended to cry less often but longer (44 min. per bout).

The infants whose crying episodes were most frequent (more than five times a day) had mothers with Balanced representation. The same three mothers had the highest possible score on the Cognitive Growth Fostering Scale of NCAFS, indicating the possibility of over stimulation.

Nearly all the infants slept longer during the night

Table 21

Mental Representation Types and Infant's Organization of States

Measures	Balanced	Disengaged	Estranged	F	p
Longest Sleep in 24 hrs (hrs)	4.0	3.8	3.7	.20	n.s.
Afternoon Sleep (12 to 18) (hrs)	3.1	2.9	3.1	.27	n.s.
Evening Sleep (18 to 24) (hrs)	2.8	2.8	3.1	1.11	n.s.
Night Sleep (0 to 6) (hrs)	4.6	4.7	4.4	.36	n.s.
Morning Sleep (6 to 12) (hrs)	3.4	3.2	3.4	.13	n.s.
Sleep Total per 24 hrs (hrs)	13.8	13.7	14.1	.11	n.s.
Awake Total per 24 hrs (hrs)	3.9	3.6	3.4	.66	n.s.
Day/Night Ratio	.71	.65	.76	.97	n.s.
Feeding Episode per 24 hrs	8.6	7.6	7.4	1.45	n.s.
Cry Episodes per 24 hrs	3.2	3.2	2.2	1.00	n.s.
Length of Cry per 24 hrs (hrs)	1.5	1.7	1.8	.32	n.s.
Length of Cry per Bout (min.)	32.6	34.7	44.6	.86	n.s.

(average ratio .71) except for two in Estranged group who slept more during the day. Again, there was no significant difference among offspring of mothers with different

classifications of representation.

Summary

Mothers with Balanced, Disengaged, and Estranged representation of infants were found among this group of subjects. Hypothesis 1 was supported. Characteristics of mothers within each classification of representation at two weeks postpartum were provided. Portions of interviews were included in this report in order to provide examples of expressions found. One interview question which was found particularly useful, was further discussed, describing common themes identified in the mother's answers. The feelings of the interviewer were examined to shed additional light on how mental representation may be guiding interpersonal interactions.

Nursing Child Assessment Scale scores for video-taped feeding interactions did not indicate different interaction styles between the three different representations. Hypotheses 2 was not supported. Some tendencies towards predicted directions, such as lower distress episodes and higher laugh/smile in Balanced group, were found.

Neonatal Behavior Assessment Scale scores did not show any significant differences between offspring of the three classifications of representation. While this does not prove that infants of mothers with different mental representations were the same, there was nothing that proved

otherwise. Hypotheses 3 was not disproved.

As predicted, maternal confidence and satisfaction were significantly associated with classification of representation. High satisfaction was the hallmark of mothers with Balanced representation, and low confidence was characteristic of Estranged representation mothers. Hypotheses 4 was supported.

Infant state organization was not significantly associated with classification of representation. Hypotheses 5 was not supported. Some suggestive tendencies were recognized in the amount of cry/fuss state.

CHAPTER 5

Discussion

This study explored the mental representations of first time mothers of their two week old infants. The main aim of the study was to describe some manifestations of the three types of mother's mental representations of their infant during the early postpartum period. In addition to this main aim, this study had several objectives exploring the relationship between variables, mainly to serve as a guide for future study. Infants were examined in order to demonstrate that the individual characteristics of infants were not the only determining factor of mental representation. Feeding interactions were observed in order to examine how internal representation is reflected in actual interaction. Effects of mental representation on individual adaptation of both mother and infants were explored using the Post-partum Self-Evaluation Questionnaire for the mother, and Sleep/Activity Record for the infant.

In the following sections, measurements are discussed separately in terms of findings and implications for future research. Since many of the findings of this research suggests only tendencies and not statistically significant effects, the limitations and meaning of the findings are discussed.

Mother's Mental Representation of Her Infant

The mothers with Balanced representation were found in slightly higher proportion compared to the sample in Zeanah

et al.'s study (59%, 46% respectively). Several factors might have affected this disproportion, including the subject characteristics, the special hospital practice, and the timing of the interview.

This sample of subjects was recruited on a completely voluntary bases. Mothers were first approached by a nurse from the hospital, and if interested in participating, were contacted by the researcher to explain the research further. Although the three mental representation types were not explicitly explained to the subject, they all knew this study was about mother-infant relationship development. For unspecified reasons, four subjects withdrew from the study after signing the consent and before the data collection began. Mothers who felt uncertain or insecure about talking about relationships may not have volunteered, or have withdrawn, thus setting the sample askew. Population based random sampling, or including known subjects with difficulties in their relationship might have countered this imbalance.

The subjects were recruited from only one hospital. This hospital was chosen in order to keep the influence of mother-infant separation on the relationship development minimal since the policy of this hospital was to promote relationship development by keeping the mother and infant together almost constantly. Most mothers who deliver in this hospital know about this, and some choose to deliver

there for this very reason. The choice of the hospital may have introduced a two-fold bias: one is that the hospital practice of keeping the infant with the mother promoted healthy relationship development, and thus a higher percentage of mothers with Balanced representation; the other is that many mothers who delivered at this hospital had a tendency to value mother-infant closeness. Comparing subjects from other hospitals with different policies may clarify these points.

Zeanah et al. (1989) interviewed mothers when their children were one year old; in the current study, the interview was done when the infants were two weeks old. The timing of interviews might have had an effect on the distribution of mental representation types. There are three possibilities of how timing may have affected the distribution. (1) The first possibility is that the first two weeks of postpartum is the "honeymoon" stage for the mother and infant, and many negative aspects of the relationship have not surfaced, thus creating an illusion of a higher proportion of Balanced representation. (2) The second possibility is that this is the true distribution among this population. The trajectory of relationship development may be determined as early as two weeks postpartum, and this might be the true indicator of how their relationship will develop. (3) Another possibility is that at two weeks postpartum, the mother's mental energy is

still devoted to processing the labor and delivery experience. Many mothers started to talk about the labor when asked about their first impression of the infant. The high percentage of surgical deliveries among mothers with Disengaged or Estranged representation may indicate that they could not focus on the infant until processing of the traumatic experience was closed.

Follow-up study after one or two years will demonstrate which explanation is most likely. If (1) is true, there will be less mothers with Balanced representation. If (2) is true, the proportion of three distribution will remain the same. If (3) is true, there will be less Disengaged and Estranged mental representations.

Association between surgical delivery and Disengaged and Estranged representation raises another question. Compared to the proportion of past-due (41 weeks of gestation or over) deliveries of mothers with Balanced representation (13%), a much higher proportion of past-due deliveries were found among Disengaged (50%) and Estranged (40%) representation mothers, leading to larger infants and thus increasing the chances of surgical intervention. Some authors suggest the relationship between labor on-set and psychological readiness to become a mother (Eganhouse, 1991). It may merit designing a study comparing those who spontaneously started labor before or on the due date, and those who had labor induced medically due to post-term

pregnancy.

Since this interview was used for an early postpartum group for the first time, some considerations should be given to factors that might improve the usefulness of this interview in this particular population. Zeanah developed this interview with the influence of the Adult Attachment Interview (AAI), with which this author had not been familiar until after the data collection was completed. Some of the probing techniques, and detailed instructions about clarifying the answer found in AAI might have been very useful in this interview. It is recommended to develop further guidelines on how to administer the Working Model of Child Interview to mothers of young infants, based on the interview results of this study.

For example, there are some elements of the relationship that came up spontaneously in the interview, such as sense of discovery of person in the infant, mutuality of the relationship, and feelings about the infant's dependency needs. However, it is not really clear that when these were not mentioned during the interview that they did not exist, or that they existed but were simply not mentioned. Directly asking about them might be guiding the mother's answer and giving away what the interviewer is looking for. Developing skills to encourage the mother to talk about all she feels about the relationship should ensure that these factors will come up if they exist.

Coding guidelines need some adjustment for the early postpartum population. For example, specific indicators for coding the Richness of Perception scale can be developed, since newborn infants are limited in their interaction repertoire, and mothers have known their infant only for a short time. "Only physical description such as hair color, weight, muscle strength are provided", may be at the lower end of the scale, while "Infant's emerging personality is described with believable episodes of action or reaction of the infant, with some insight into the feelings or thought of the infant" may be at the higher end of the same scale.

The most useful question in the interview for this population was "What is your relationship with (infant's name)?" Which elicited much information for discriminating the three types of representation. If a brief form of assessment about mental representation were to be developed for clinical practice, this would be the first question included.

Mother Infant Feeding Interaction

No statistically significant differences in Nursing Child Assessment Feeding Scale scores were found among the three major classifications of mental representation. However, some theoretically feasible tendencies were recognized.

One of these tendencies is the higher incidence of

distress episodes for mothers with Disengaged and Estranged representation compared to those with Balanced representation. This could mean that mothers with Disengaged and Estranged representation are more frequently failing to keep the infant in the optimal state. In other words, mother's interactive behavior may not have been adequately sensitive to maintain the infant's awake-but-not-crying state. Similar findings were implied in a study by Thoman, Acebo, & Becker (1983). They found the high occurrence of crying in social situations among infants with less optimal mothering. They interpreted the high incidence of crying in social situations as an indicator of a failure to maintain equilibrium in the mother-infant interaction system (Thoman et al., 1983).

Lack of statistically significant differences in mother-infant interaction styles when the effect is expected warrants more careful evaluation of the measurements. Several possible requirements to better answer the question are proposed. The first is subject number; an increased number of subjects in a future study may demonstrate whether these tendencies were truly meaningful. Smallest group in this analysis was six (Disengaged representation) which made it extremely difficult to achieve statistically significant level.

Secondly, instead of a 'yes' or 'no' answer for each item, a five to seven point scale might provide more powers

for discriminating differences between the three classifications of representation if there are any. Especially pertinent is the fact that the NCAFS does not have any indicator of too much stimulation or response. 'Yes' on the item is always interpreted as good, and does not differentiate appropriate levels of stimulation from over-stimulation. The seven point scale used in the original Nursing Child Assessment Satellite Training project provides this discrimination (Barnard, & Eyres, 1979).

Thirdly, it would be useful to develop a new coding scheme for observation of feeding interaction, in accordance with expected behavior tendencies of mothers with different types of mental representation. Extrapolating from the mental representation description, coinciding interactive behaviors may be targeted for observation. For example, characteristics of Balanced representation, such as sensitivity and emotional involvement, may be observed in response frequency and affect intensity respectively.

Infant Characteristics

As expected, no statistically significant differences in infant characteristics measured by Brazelton Neonatal Behavioral Assessment Scale were found among the three major classifications of representation in this study. There remains the question of causality. The assumption for this study was that what mothers bring in to the mother-infant

relationship in terms of history and pattern of human relationship was much stronger determinant of mother's mental representation of her infant compare to what infants bring in to this relationship through their behavior. Thus, it was hypothesized no relationship between infant's behavior pattern measured by Neonatal Behavioral Assessment Scale and mother's mental representation types. Some authors take different stands. Waters, Vaughn, & Egeland argued that infants contributed to the determination of interaction styles between mothers and themselves, and that this interaction styles in turn determined the attachment type of the infant later on (1980). They administered BNBAS at seven days of age with resulting scores that predicted three attachment types for these infants (secure, insecure-avoidant, insecure-ambivalent) at one year of age. They asserted that the infant's interaction style at the age of seven days is solely determined by the infants' inborn capacity, and mothers were the ones who were malleable to change in their interaction style accordingly (Waters et al., 1980). Taken this position, NBAS should have a strong effect on mother's mental representation since interaction style does not change without affecting mental representation.

On the other hand, opposite direction of effect is suggested by Gomes-Pedro et al. (1984). They reported the differences in NBAS scores on the infant as an effect of

early contact between mother and infant. This difference was not seen on the day of the delivery, but was detected on the third day of the infant's life (Gomes-Pedro et al., 1984). This result indicates that infant behavior can be modified under the influence of different mothering approaches to such a degree that it can be detected in a few days. In the current study, NBAS was performed on infants one to five days of age on the day of the mother's discharge. It is possible that the parenting style of the mother guided by her mental representation of the infant have already had an effect on NBAS scores by the time of administration.

Timing of administering NBAS will have an important theoretical meaning when designing a future study. If feasible, repeated examination will provide more information regarding the infant's inborn characteristics, acquired interactional style after birth, and the direction of effects. It may well be the two way influence, and extremely difficult to separate out the cause and effect.

Maternal Satisfaction and Confidence

These were the only variables which produced statistically significant results as had been predicted. This was no surprise, since the definition of the classification of representation inherently include the factors of maternal satisfaction and maternal competency;

although mental representation of infant is not a concept solely determined by these two factors. This result served to confirm the validity of the interview⁵.

The reasons why mothers with disengaged representation demonstrated higher maternal confidence may be related to their defensiveness. According to Zeanah's definition of Disengaged representation, "Difficulties with the infant are usually not acknowledged directly, nor placed into a meaningful context". The same mechanism of not admitting or not recognizing the difficulty may have been at work when mothers evaluated themselves in the questionnaire. A similar implication was suggested in a study of maternal self-efficacy (Donovan, Leavitt, & Walsh, 1990). Maternal self-efficacy is a similar concept to maternal confidence, and described as the judgement of one's ability to perform competently and effectively in baby care situations (Teti, & Gelfand, 1991). Donovan et al. placed mothers in an experimental situation where the success rate at a task was controlled to be the same for all mothers (thus no one could be more effective than others), and identified mothers with high illusory self-efficacy according to the mother's self evaluation of their own success rate at the task (1990). Mothers with high illusory self-efficacy in their study were

⁵ Although the questionnaire was completed at the same time as the interview, the analysis of the questionnaire was not started until all the scoring and classification of the interview was completed in order not to skew the classification of the interview.

inattentive to infants, and responded defensively if the infants became difficult (Donovan et al., 1990), indicating a similar tendency of defensiveness and inflated sense of confidence found in the current study.

Organization of Infant's State

There were no statistically significant differences in organization of sleep and activity for the three groups of mental representation. In this section, some considerations are given to the possible reasons why no significant differences were found in this sample.

The first problem encountered was the accuracy of the sleep/activity record kept by the mother. Not only did number of days of the recordings vary from three days to seven days, but mothers differed in how detailed the recordings they kept were. Length of activities such as sleep, feeding, and crying were counted in half-hour blocks. Some mothers very carefully drew lines to indicate when the particular activity started or ended at 10 minute intervals, others drew lines haphazardly making it difficult to guess exactly when each activity started. Some mothers indicated every crying episode, and others seemed to record only more prolonged episodes. More detailed guidelines on how to keep the record may have been necessary.

Another issue was that mothers who were recording were also taking part in the activity recorded. Even though

there was no evidence that any of the mothers intentionally falsified the record, some bias may have entered in recording the number or length of crying episodes. For example, if a mother had to be up for a prolonged amount of time late in the night consoling the baby, it might have felt longer subjectively than it actually was. Use of time-lapse video may be useful for future study, especially for night time activity recording, when the infant is likely to be in the crib when not feeding or fussing.

Twenty-four-hour organization of sleep/awake states was difficult to evaluate. One reason was that sleep organization is not a simple process of linear increase or decrease. For example, it may not indicate the optimal development for an infant that slept through the night from the beginning; jaundiced infants often become lethargic, and sleep for long periods, thus not obtaining enough milk. Simply comparing the average length of the sleep among the three groups as this analysis has done may not have been very meaningful. Since the optimal length of sleep is not known for the newborn infant (Is three hours sleep better than four hours?), another alternative may be to judge the length against the expectation of the mother. As discussed below, the mother is evaluating and attempting to modulate her infant's sleep/awake cycle according to her conscious or unconscious expectations.

Since feeding and sleeping are very closely related

during the newborn period (Keener, Zeanah, & Anders, 1988), the mother's philosophy about feeding may be affecting the sleep pattern. Very sensitive mothers who are motivated to breastfeed on demand might react to every small fuss of the infant by feeding, thus fragmenting the sleep episodes. Mothers who are trying to get the infant to feed on a schedule may try to entertain the baby with other methods until the set time arrives, thus increasing the awake time. Depending on what the mothers' goals are, infants' adaptation may manifest in different sleep/awake patterns.

In the face of the different temporal organizations each infant-mother pair is accomplishing, the use of the stability score developed by Thoman (1986) may be appropriate for the future. She derived the stability score by comparing the proportion of different states in several separate data collection points. In this method, the proportion of each state (how much infants sleep, how much they cry, etc.) does not matter. Rather, the consistency of the proportion of the states for the particular infant over several weeks is evaluated. Thoman found that this consistency is the first type of organization that occurs in the infants' states before the temporal sequences become predictable. In this method, the organization of the infant's states can be evaluated even when there is no fixed rhythmicity (Thoman, 1986).

The frequency of crying and length of crying might be

more under the mother's control compared to the amount of sleep and the timing of sleep. Soothing a crying baby is a major part of the mothering activity. Although there were no statistically significant differences among the three classifications of representation, the tendency indicated that the infants in the "Estranged" group cried longer. As related in the discussion of distress episodes in NCAFS, these may be an indicator of low interaction organization.

On the other hand, the high frequency for crying among the "Balanced" group may be the result of high sensitivity of these mothers to the infant's cues, and openness to acknowledge the negative emotions in infants as described in Zeanah's definition of Balanced representation (Zeanah, 1989). Sound activated recorders placed near the crib will provide a more objective record of the infant's crying activity.

Summary

The Working Model of Child Interview performed well in the early postpartum period. Small modifications in the instruction and coding would make the interview more usable for this time period. All three mental representation classifications were found among the subjects. Follow up study is necessary to clarify the question of the stability of the representation classification.

Mother-infant interaction quality measured by Nursing

Child Assessment Feeding Scale did not differentiate interaction styles of mothers and infants in the three different representation classifications. The tendency of higher distress incidents among Disengaged and Estranged mothers were consistent with the tendency found in the sleep/activity records.

Newborn characteristics measured by Neonatal Behavioral Assessment Scale did not show any statistically significant differences among the three representation classifications. The question of timing of the interaction style establishment between mother and infant, and the causal link between infant characteristics and mother's mental representation need to be addressed in future research.

Mother's confidence and satisfaction measured by the Postpartum Self-Evaluation Questionnaire supported the classifications of representation. Mothers with Balanced representation had the highest satisfaction, and mothers with Estranged representation had the lowest confidence and satisfaction. The meaning of higher confidence among mothers with disengaged representation, and among those who had infants with low APGAR scores were explored.

The accuracy of sleep/activity records obtained by Nursing Child Assessment Sleep/Activity could be improved or verified by using video/audio recordings. Stability scores obtained from multiple data points over several weeks will be worthwhile for future study.

Implications for clinical practice

This study demonstrated that mothers are experiencing remarkably different degrees of involvement with their infants in the early postpartum period, accompanied by an array of emotions ranging from indifference and guilt to extreme joy. Traditionally, nurses have given information and taught techniques of infant care to prepare mothers to take on the role of "the mother". This approach does not address aspects of the relationship development. Nurses need to skillfully ask questions regarding how the relationship is developing and how comfortable the mother is with this relationship, and then affirm what the mothers are experiencing.

Result of a recent study (Stern, 1992) supports the idea that mental representation and interactive behavior are closely related and changes almost simultaneously with each other. If intervention is instituted to change one mode (for example, interactive behavior) and succeeds, the other (in this case, mental representation related to this relationship) changes (Stern, 1992). Some nursing interventions that may improve a part of the mothers' behavior or feelings are suggested here.

Nurses can help mothers to see their infants as unique individuals by demonstrating and involving mothers in administering Neonatal Behavioral Assessment. Nurses can help increase the sensitivity of mothers by teaching the

language of the infant, that is how to read infant cues and how to bring the infant to the desired state of consciousness incorporating in daily care and offering classes for mothers. Nurses can treat mothers as the main player in caring for their newborn, not as dependent patients who are to be passively taken care of by nurses. When problem is perceived in mother-infant relationship development, observation of interaction style, especially response to infant's distress may yield useful information.

Nurses can accumulate clinical documentation by paying more attention to detect if there is any emerging patterns in regard with the interpersonal relationship style, postterm pregnancy, surgical delivery, and mother-infant relationship development. Mothers who have difficulty relating with the health care provider may be evaluated carefully, since they may also have difficulty developing their relationship with the newborn. Relationships between mental representation classifications and other phenomena of clinical interest such as failure to thrive, postpartum depression, child abuse and neglect need to be explored in research settings and also in clinical practices.

Implications for future research

This study was a exploratory research by design. It demonstrated that three mental representation classifications exist in the early postpartum. As indicated

in discussions of each instrument, modification of the interview and refinement of other measurement tools are necessary for future research of the same theme. Stability of the mental representation at this early stage of relationship development remains as a question. Follow-up study at one or two years of age will demonstrate which trajectory explanation is most likely.

Mother's mental representation of infant can use substantial work to clarify the concept. Several different studies can be planned in order to further understanding of mental representation in early mother-infant relationship development. In order to confirm the importance of effects on the early relationship development in long term effect, the longitudinal study is necessary. Series of mental representation assessment starting prenatally, then, brief perinatal interview, followed by two weeks, six weeks, and one year interview will give data on stability of mother's mental representation of infant over the first year, and will aid in determining when is the best time in order to predict future relationship development problem up to a year.

Effect of traumatic delivery on mental representation was another question this study raised but did not have the answer. Incorporating interview questions to assess the labor and delivery experience, and the degree of resolution over time while assessing mother's mental representation

will give a clue as to the influence of delivery experience on mental representation.

Inherent in the mental representation is the working model of self as a mother that was reflected in high association between mental representation type and maternal satisfaction and confidence score of Postpartum Self Evaluation Questionnaire. On the same line, working model of infant may be measured by questionnaire aimed at salient aspect of mental representation. For example, degree of vividness of infant's image as an interactive partner, and dimension of friendliness-hostile assessment may be useful.

Dimensions included in Working Model of Child Interview in this population may be further explored. Careful qualitative analysis of the interview apart from a priori dimension scales developed by Zeanah (1989) will bring more data on this regard.

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Appendix A: Instruments

1. Demographic Data

Demographic Information Sheet

Please tell me about yourself. This information is only used for describing the total group, and not for identifying each person. If you feel uncomfortable answering any of the questions, please leave them blank.

Your age _____

Your race _____

How many years of schooling did you have? _____

Are you married? _____

Annual household income _____

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103-125, Appendix A-2

Please consult with the original author, Dr. Charles Zeanah, regarding this interview.

127-132, Appendix A-3

Please consult with the original author, Dr. Barry Brazelton, regarding the training and the usage of this examination.

133-134, Appendix A-4

Please consult with the original author, Dr. Regina Lederman, regarding this questionnaire.

136-137, Appendix A-5

139, Appendix A-6

Please consult Nursing Child Assessment Satellite Training, School of Nursing, University of Washington, regarding the training and the usage of these instruments.

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3. Brazelton Neonatal Behavioral Assessment Scale

5. Nursing Child Assessment Feeding Scale

6. Nursing Child Assessment Sleep/Activity Record

Appendix B: Consent Forms

1. Invitation to Participate in Research

May I visit your home and interview you about the feelings and experiences of becoming a new mother? Sometimes it feels good to talk about what you are going through to somebody who is really interested in your experience. My name is Sachiko Oshio, I am a nurse who works here, and also a graduate student at the University of Washington, studying the process of mother-infant relationship development.

If you are interested in participating in my research, please leave your name, address, and home phone number, so that I will be able to explain my research in more detail, and answer any questions you might have. If you choose to, you can contact me by calling at home (365-0150).

Name: _____

Address: _____

Phone: _____

2. Informed Consent Form

University of Washington
Consent Form
Child of Mine (Dissertation Research)

Investigator: Sachiko Oshio, R.N., Ph.C.,
University of Washington
School of Nursing
Phone 206-365-0150
Committee Chairperson: Dr. Kathryn Barnard
University of Washington
School of Nursing

Investigator's Statement

Purpose

The purpose of this research is to learn more about the relationships among the infant's general adaptation ability in the early newborn period, the different images the mother has about her infant, the infant's sleep/wake pattern and how the mother feels about herself two weeks after the infant is born.

Procedures

If you agree to participate:

Before birth of the baby:

- 1) I will ask you to answer a short questionnaire about your background (age, education, marital status etc.). This will take 5 to 10 min.

In the hospital:

- 2) I will review you and your baby's medical record in order to decide if I should include you and your baby in my study. If your baby is born prematurely, or had any serious complications, I will not include you and your baby in my study. Also, I will note any complications during labor and delivery.
- 3) I will perform a newborn behavior examination in the hospital when the baby is a few days old (how the baby follows a red ball with his/her eyes, how the baby tries to calm himself/herself, etc.). Since the presence of observer influences the scoring, I prefer to do this examination in the nursery undisturbed. However, if you wish to observe the examination, you may do so through the nursery window. This will take about 20 min.

At your home:

- 4) I will visit your home around 12 to 16 days after the birth of the baby, and ask simple questions about your feelings and experiences with your new baby (what was your first impression of the baby, etc.). I will record the interview using a tape recorder. This will probably take between 30 to 60 min.
- 5) At the same time, I will videotape a feeding session when the baby eats. Depending on the length of the feeding, this may take 5 min to 30 min.
- 6) Also, I will ask you to fill out a questionnaire about your feelings about being a mother (agree or disagree to statements like 'I know what my baby likes and dislikes', etc.). This will take between 10 to 15 min.
(Total of home visit time will be 1 to 2 hours.)
- 7) I will give you a recording sheet so that you can keep track of the baby's sleep/awake pattern for seven days.
- 8) I will give you a self addressed, stamped envelope to send the sleep/awake record back to me when you are done.

Benefit

Mothers may benefit from participating in this study by clarifying feelings and thoughts about their new infants and by learning their infants' unique ways of adapting to the environment. The result of this study will aid the development of nursing protocol for assisting mothers who have difficulty relating to their infants.

When all of the above procedures are completed, you will receive a \$ 10 bookstore coupon.

Risks, Stress, or Discomfort

Some mothers may find keeping record of baby's sleep/awake pattern inconvenient. Some mothers may feel self-conscious about being videotaped while feeding the baby, or audiotaped during the interview.

The baby will most likely cry during the neonatal examination, although no pain is inflicted on the baby.

Confidentiality

Your identity will be kept completely confidential. Nobody, except for myself, my assistant who will transcribe the interview, and my supervising professor at the University, will have access to the tape or transcript. The tape and transcript will not be used for any other purpose, and will be destroyed after the completion of my study. You have the right to review the audio and video tapes before the transcript is made and, if you choose, to erase any part of it. No name appears on the video and audio tapes or in the transcripts of the tapes.

Withdrawal from Study

You may refuse to participate in or withdraw from this study at any time. You may do so by communicating to me by phone, by letter, or in person. You will not be penalized and you will not lose benefits to which you are otherwise entitled.

Sachiko Oshio, R.N., Ph.C.

University of Washington
School of Nursing

Subject's Statement

The study described above has been explained to me. I voluntarily consent to participate in this activity. I have had an opportunity to ask questions. I understand that future questions I may have about the research or about my right as a subject will be answered by Sachiko Oshio.

Date: _____

Signature: _____

Copies to : Subject
Investigator's file

BIOGRAPHICAL NOTE

Sachiko Oshio

Born January 23, 1953 in Inasa, Shizuoka, Japan

High School Diploma, Iida High School, Iida, Nagano, Japan,
1971

Bachelor of Science, St. Luke's College of Nursing, Tokyo,
Japan, 1977

Master of Science, Boston University, Boston, Massachusetts,
1981