

AN ASSESSMENT OF MATERNAL-INFANT ATTACHMENT
IN MOTHERS OF PREMATURE INFANTS

A THESIS

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CHAPTER I

INTRODUCTION

Approximately five out of every one hundred newborns or at least 150,000 infants in the United States are so ill or premature at birth that they require intensive care (Schwartz & Schwartz, 1977). These children are most vulnerable in relation to disease and death. Clinically described as low birth weight infants, this category comprises two groups of high risk infants both premature and the small for gestational age infant.

Recent literature documents the increasing survival rate of these infants and a comparatively high incidence of development disturbances. This group of children is especially vulnerable to their environments and despite the remarkable advances in medical technology to keep them alive, many will succumb from a lack of psychological and emotional stimulation.

Within the last ten years there has been an increasing amount of literature written and researched concerning the term infant and his or her effect on maternal-infant attachment. In understanding the

potential elements of the mother-infant dyad the premature infant must be considered as an all important entity.

Investigators have emphasized the importance of the effect of the premature birth on maternal behaviors. With the monumental problems such a child faces it is understandable how a dysfunctional maternal-infant relationship could develop. Several investigators claim that the lack of intimate contact between parents and their premature infants for several weeks after birth, may inhibit the formation of the beneficial maternal-infant bond and thus may contribute to the high degree of parenting disorders (Collingwood & Alberman, 1979).

With this in mind, the need for preventive measures has become paramount. It is essential to assess maladaptive behaviors in the mother-infant relationship and thereby establish positive interaction to enhance the attachment process. It is important that the attachment process be realized in order to foster its growth, and discern appropriate from inappropriate bonding behaviors. Although specific behaviors have not been completely identified by researchers, general behaviors have been reviewed.

A premature birth can interfere with the attachment process but a mother's ability to cope with an early birth can influence her ability to bond with that infant. The complexity of maternal-infant attachment has been recognized more recently in the relationship which involves the high-risk infant. A lack of maternal attachment has been shown to lead to serious consequences (Kaplan & Mason, 1960). Johnson (1979) has suggested that high-risk situations such as prematurity, child abuse and neglect are directly related to disorders of maternal-infant attachment. The development of attachment as it relates to the bonding process must be realized as an ongoing continuum with behavioral responses by both mother and infant dependent upon each other.

The attachment process begins with pregnancy and continues as the infant grows within the womb. During this period the mother fantasizes about her expected infant. These fantasies come to pass as reality emerges with the birth of a premature infant. As this process further develops, the maternal-infant relationship is tested time and again.

With this birth as with any preceding or future ones the mother brings her past experiences, her feelings

about the pregnancy itself, and her emotional, physical and economic capabilities to this new relationship. All of these factors influence and contribute to the attachment process. The ill or premature infant's behavior may influence the maternal-attachment process in a number of ways. The physical separation, and the reality of an "abnormal" birth can cause disruption in the establishment of this attachment. In viewing the high risk infant, characteristics peculiar to his or her condition may alter the attachment process.

The premature infant is one who is born with less than 37 weeks gestation. Generally weighing less than 2,500 grams, this infant is comparatively immature due to a lack of physical development. Among his or her problems, respiratory distress ranks as the number one cause of death (Schwartz & Schwartz, 1977): Factors which may contribute to prematurity however, may be maternal, fetal or environmental in origin (Harper & Yoon, 1974).

Among maternal factors are age, nutritional status, history of other premature births and absence of prenatal care. Fetal factors which may precipitate premature births include congenital anomalies, fetal disease and multiple births. Environmental factors include

stress, socioeconomic status and family support systems. Socioeconomic status, age, previous experiences and family relationships are considered fundamental influences in the bonding process. These potential problems will be identified and discussed in Chapter II as they relate to maternal behaviors and its effect on the developing relationships.

Purposes of the Study

The overall purpose of this study is to assess the quality of maternal attachment in mothers who have given birth to premature infants. The quality of maternal behaviors will be assessed according to perceptions of mothers and parent-infant interactions. The specific purposes of the study are:

1. To examine the perceptions of mothers of premature infants in order to ascertain what mothers believe is true of the behaviors of the "average" baby and what they perceive is true of their own baby as demonstrated by the Neonatal Perception Inventory (Broussard & Hartner, 1971).

2. To assess parent-infant interaction in order to discriminate between early adaptive and maladaptive behaviors as demonstrated by the Observation Guide

for Maternal Attachment Behaviors (Cropley, Lester & Pennington, 1976).

Hypotheses

The following hypotheses will be examined:

1. There is a positive significant relationship between mother's perception of the "average" infant's behavior as measured by the Neonatal Perception Inventory.
2. There is a positive significant relationship in the degree with which mothers attach to their infants as measured by the Observation Guide for Maternal Attachment Behaviors and their perception of their infant's abilities as measured by the Neonatal Perception Inventory.

Definitions

For the purpose of this study the following definitions are used:

1. Adaptive maternal behaviors--those behaviors which are indicative of maternal-infant attachment and meet both the infant's and the mother's needs.
2. Attachment--a strong healthy relationship between the mother and the child which is a combination of

positive feelings, dependence, trust, and a desire to be close (Bowlby, 1969).

3. Entrainment--the reception of some response or signal, such as body or eye movement from the infant to the mother (Jensen, Benson & Bobak, 1981).

4. High-risk infant--a clinical category of infants consisting of the premature and the small for gestational age infant.

5. Maladaptive maternal behaviors--those behaviors which indicate a lack of maternal-infant attachment and result in unmet infant and/or mother's needs.

6. Mother-infant dyad--mother and infant interacting as a pair.

7. Mother--a female parent who has given birth to a child.

8. Premature infant--the neonate born at 37 weeks' gestation or earlier.

9. Sepsis--generalized infection in the bloodstream.

CHAPTER II

REVIEW OF LITERATURE

The literature was examined to determine how maternal attachment has been perceived theoretically in relation to: (a) the crisis of a premature birth, (b) the contributing factors affecting maternal behavior, and (c) maternal deprivation.

Maternal Attachment

Robson and Moss (1968) define maternal attachment as "the extent to which a mother feels that her infant occupies an essential position in her life." This attachment process has been the subject of many studies and has been postulated to affect the individual's personality throughout life.

Bowlby (1969) has stressed the importance of observing the earliest interactions between mother and infant as predictive of the kind of attachment a mother may form with that infant. Klaus and Kennell (1976) have described the kinds of initial contacts which mothers make with their newborn infants and the distortions in this behavior when the mother is depressed

by abnormalities in the baby such as prematurity and illness during the neonatal period.

Changes in the attaching behaviors are stressed as indicators of recovery or nonrecovery of maternal capacity to attach to the baby by mothers who have been depressed and unable to function optimally by having produced an infant at risk (Brazelton, 1979). The premature or small-for-gestation infants may have weak or underdeveloped behavior patterns which affect the parent-child relationship. Klein and Stein (1971) suggests that this lack of responsiveness on the part of the infant may be one cause of the increased incidence of the battered child syndrome among low birth weight infants.

Cairns (1972) has suggested that maternal stimulation of the infant, maternal-infant interaction and infant orientation behavior all play a significant part in the formulation of attachments. Gerwitz (1972) has theorized that attachment indices are selected. He further postulates criteria needed for the establishment of attachment, including orientation and visual tracking, touching, clinging, crying, smiling, vocalizing and separation anxiety.

Bowlby (1969) has described four phases of attachment: (a) orientation and signals to draw the desired object toward the attaching person, (b) increased differential responsiveness to the desired person or object by auditory and visual stimuli and increased focus on the desired person or object, (c) maintenance of proximity to the desired person or object, and (d) formation of a goal-corrected partnership.

Clark and Affonso (1976) discussed the need for reciprocal interaction between mother and infant as a means of fostering attachment. This correlates with Klaus and Kennell (1976) who described the relationship as an interaction model into which each party contributes. The mother contributes touch, eye-to-eye contact, high pitched voice, entrainment, time giving, lymphocytes and bacterial flora, odor and heat. The infant contributes eye-to-eye contact, crying, stimulation of oxytocin and prolactin production, odor and entrainment. This study also uncovered the fact that mothers who were more attached to their infants early in the post-partum period behaved in significantly more affectionate ways toward their children for as long as five years later (Klaus and Kennell, 1976).

Crisis of a Premature Birth

The birth of a high-risk infant or of a child to parents with physical or emotional difficulties can threaten the development of maternal attachment, increasing the potential for problems and lead to future risk situations such as child abuse or failure to thrive (Klein & Stein, 1971). The premature birth may pose itself as a crisis situation depending upon the individual family's reaction to the birth. Johnson (1979) has noted that parents already confident of their parenting abilities from previous children are less susceptible to feelings of inadequacy rather than "first time" parents.

The major problem facing mothers of premature infants is fear of the unknown (Johnson, 1979). Because the premature birth occurs prior to the expected delivery date the mother is unable to accomplish the tasks associated with a full term pregnancy. In a study conducted by Kaplan and Mason (1960) major psychological tasks are identified as characteristic of mothers of premature babies.

1. Preparation for a possible loss of the baby whose life is in jeopardy.

2. The mother hopes the baby will survive while facing and acknowledging feelings of failure due to not delivering a full term baby.

3. Resumption of the process of relating to the baby which previously has been interrupted.

4. Understanding how a premature baby differs from a normal baby in terms of its special needs and growth patterns.

An adequate accomplishment of these tasks and the crisis situation is essential for a future healthy mother-child relationship.

Contributing Factors Affecting Maternal Behavior

Cropley (1976) has described factors which contribute to differences in maternal attachment behaviors. Among them are length of marriage, childbirth classes, situational supports, significant losses, previous fetal loss, early separation from the mother, parity, planned pregnancy, anesthesia, and delivery.

Of the contributing factors separation has been found to be most significant in affecting the attachment process. The vital maternal-infant attachment begins to develop immediately post-partum. Klaus and Kennell (1979) emphasized the importance of close maternal-infant

contact from the time of birth. Many of the medical, physical, sociological and psychological factors which can disrupt attachment have been identified by Johnson (1979).

Included factors are narcotics and some forms of anesthesia which may interfere with a mother's response to her infant. Physical problems resulting from the pregnancy or delivery may also affect the mother-infant relationship. Lack of previous experiences with infants, learned maternal behaviors, a negative self concept, lack of a positive support system and grieving over a significant loss may all adversely contribute to the development of maternal attachment.

Maternal Deprivation

Attachment requires a reciprocal interaction (Clark & Affonso, 1976). It is therefore consistent to observe attachment difficulties in infants whose behavior is less than desirable. The child's contribution to parent-child interaction is also an important factor in the attachment process.

Rutter (1974) has reassessed the role of maternal deprivation and its effects. He takes one step further than Bowlby (1969) and distinguishes between the failure

to make bonds of affection and deprivation after such bonds are made.

Deprivation refers to the loss of maternal care but not necessarily of the mother figure. Separation, on the other hand, refers to the physical loss of the mother figure but not necessarily of mothering (Rutter, 1974). Bowlby (1969) has suggested that the loss of the person is crucial and not just the loss of maternal care. The concept of maternal deprivation has been focused primarily on disturbed care in early life. The importance of attachment early in life with minimal separation or other disruptive forces will hopefully strengthen the bonds for future healthy relationships.

Summary

Over the past several years considerable attention has been focused on the maternal-infant dyad.

The quality of interaction between mother and infant is important to lifelong personality development. The literature reflects the significance of attachment behaviors among mothers and its relative ability to shape the lives of their young. The attachment that is continued or disrupted at birth forms the basis for subsequent attachments throughout life. The literature also reveals that the mother of a premature infant

faces numerous difficulties due to the untimely birth of her child. In addition, fear for this infant's life may interfere with the attachment process and thus create a strained relationship between them. In conclusion, this group of mothers can be a high-risk population for a maladaptive and dysfunctional relationship as a result of inadequate or absent support systems.

CHAPTER III

PROCEDURE

The fifteen mothers aged sixteen to twenty-two were obtained from primiparas admitted to a Dallas area hospital in premature labor during April and August, 1981. Their infants weighed between 1500 grams and 2500 grams and were less than thirty-seven weeks by gestational age.

Permission was requested from the hospital to conduct the study. After permission was granted, mothers were selected from the criteria required to participate. A letter accompanied the consent form in order to explain the nature and purpose of the study. A personal data form was answered anonymously by the mother.

Criteria

Criteria for the study included that the mothers be between the ages of sixteen and twenty-two. Their labor was uncomplicated by the mother, and required less than 100 milligrams of barbituates or 50 milligrams of sedatives prior to delivery. The infants included in the study weighed between 1500 grams and 2500 grams, were delivered vaginally and were free of ventilatory support

and serious medical complications at 72 hours of age. Disqualifying conditions included severe respiratory distress, sepsis, acid-base imbalance, convulsions, congenital anomalies and physical deformities.

Setting

Data was collected by the investigator from the maternity unit and special care nursery of a public, teaching hospital in the Dallas area. The study was conducted during a portion of the spring and summer semesters of 1981.

Methodology

On the second post partum day the mothers were requested to respond to the Neonatal Perception Inventory I to assess their perceptions of the average baby's behavior and her own baby's behavior. The Neonatal Perception Inventory II was completed by the mothers when the infants were one month of age to ascertain any difference in behavior during that month.

During the hospitalized post partum period the mother-infant pair was observed by the investigator during a visiting period. The mother's behaviors were scored according to the Observation Guide for Maternal Attachment Behaviors.

Instruments

The Broussard and Hartner (1971) Neonatal Perception Inventory is a questionnaire designed to provide information about what a mother believes is true of the "average baby" and what she perceives in her own baby. It consists of six questions concerning infant behavior. Crying, feeding, spitting up or vomiting, sleeping, bowel activity and daily pattern behaviors are rated in the average and the individual babies concerned. A scale rating system for each question with values from one to five are used in the inventory. The total score for the individual infant is subtracted from the score for the average infant. The discrepancy constitutes the Neonatal Perception Inventory score. Infants rated by their mothers as better than average (+ score) are considered at low-risk. Those infants not rated better than average (- or 0 score) are at high-risk for subsequent development of emotional difficulty. This inventory was designed to indicate potential maladaptive mother-infant relationships and to provide an opportunity for intervention before deviant mothering occurs.

The inventory has shown both construct and criterion validity. It was first administered to 318 primipare, delivering full-term infants, without recognizable

congenital abnormalities. Infants were categorized into high or low-risk groups on the basis of the one month score. One hundred and twenty of these children were evaluated at age 4½ by two child psychiatrists without knowledge of their risk ratings. A statistically significant association was evident between prediction and outcome ($p < .001$). The inventory has been utilized in this study to evaluate any differences in mother's perceptions of the average infant compared to her premature infant.

The Cropley et al. (1976) Observation Guide for Maternal Attachment Behaviors is a composite of thirty-seven behaviors that were determined as indicators of maternal attachment. Each behavior is assigned a numeric value ranging from negative one to plus five. Each value is determined by its significance in demonstrating maternal behavior.

The tool is divided into four sections. Section I provides information regarding identifying behaviors of the mother as she observes and inquires about her infant. Section II provides information regarding locating behaviors in which the mother includes the infant within her social system. Section III provides information regarding modalities of interaction. In

this area the mother's method of interaction is assessed according to visual, verbal, and/or tactile behaviors. Section IV provides information regarding caretaking behaviors the mother engages in to support her infant.

Each question is scored according to a given numeric value. All questions are totaled for a section score and recorded according to total score or highest score yielded.

This guide is therapeutically designed to be used as a screening mechanism for mothers who are showing few if any attachment behaviors. The tool was used by Cropley et al. (1976) to observe eleven mothers of healthy full term infants. During this study inter-observer technique was used on four of the mothers to establish reliability. Construct validity for this tool was based on the item derivation from relevant literature and research on maternal attachment. It has been utilized in this study to assess parent-infant interaction in order to discriminate between early adaptive and maladaptive behaviors.

Analysis of Data

A percentage and frequency count was used to analyze various background characteristics of the subjects. The

Spearman Correlation Coefficient (Siegel, 1956) was used to examine the hypotheses:

There is a positive significant relationship between mothers' perceptions of the "average" infant's behavior and her perception of her premature infant's behavior as measured by the Neonatal Perception Inventory.

There is a positive significant relationship in the degree with which mothers attach to their premature infants as measured by the Observation Guide for Maternal Attachment Behaviors and their perceptions of their premature infant's abilities as measured by the Neonatal Perception Inventory.

CHAPTER IV

RESULTS

The purpose of this study was conducted to assess the mother's perception of her premature infant in comparison with the average infant and to observe maternal attachment behaviors identified during a visitation period. The Neonatal Perception Inventory was used to assess maternal perceptions on the second post partum day and again when the infant was one month of age. The Observation Guide for Maternal Attachment Behaviors was used to identify observed maternal behaviors. Demographic data were collected to describe the sample. An analysis of the data, an interpretation of the statistical analysis, and a summary of the findings are included in this chapter.

Description

Table 1 presents a detailed description of the mother-infant pairs represented in the study. The sample consisted of fifteen mothers. The age of the mothers ranged from sixteen to twenty-two years with the greatest proportion falling in the seventeen year old

TABLE 1
CHARACTERISTICS OF THE SUBJECTS

Variable	Classification	Number	Percent
Age	16	3	20.0
	17	5	33.3
	18	3	20.0
	19	1	6.6
	20	2	13.3
	22	1	6.6
Marital Status	Single	13	86.6
	Married	2	13.3
Socioeconomic Status	Unemployed	10	66.6
	Less than \$7,999 per year	4	26.6
	\$8,000 to \$11,999	1	6.6
Highest level Education	High school	13	86.6
	Grammar school	2	13.3
Race	Black	10	66.6
	White	3	20.0
	Hispanic	2	13.3
Previous Abortion	No	14	93.3
	Yes	1	6.6

TABLE 1 (Continued)

Variable	Classification	Number	Percent
Previous			
Fetal Loss	No	15	100.0
Attended	No	12	80.0
Prenatal Class	Yes	3	20.0
Separated from			
Own Mother	No	15	100.0
Planned	No	10	66.6
Pregnancy	Yes	5	33.3
Infant: Sex	Female	5	33.3
	Male	10	66.6
Weight/grams	1500-1750	1	6.6
	1751-2000	4	26.6
	2001-2250	6	40.0
	2251-2500	4	26.6

category. Approximately 66% of the sample was black. The sample was predominantly single (86%), unemployed (66%), and had achieved high school as the highest level of education (86%). The greatest proportion indicated they had never had an abortion (93%) nor had attended a prenatal class (88%). One hundred per cent had not been separated from their own mothers for more than one month prior to their fifth birthday or had experienced a previous fetal loss. For 66% of the population, this birth was not a planned pregnancy. The greater proportion of the infants were male (66%) and weighed between 2001 grams and 2250 grams (40%).

Treatment of Hypotheses

The hypotheses formulated for this study were the following: (1) There is a positive significant relationship between mothers' perception of the average infant's behaviors and her perception of her own infant's behavior as measured by the Neonatal Perception Inventory. (2) There is a positive significant relationship in the degree with which mothers attach to their infants as measured by the Observation Guide for Maternal Attachment Behaviors and their perception of their infant's abilities as measured by the Neonatal Perception Inventory.

A contingency table was used to illustrate both hypotheses. Because these hypotheses are directional a one-tailed p-value was utilized for descriptive purposes. Hypothesis I is illustrated in Table 2. Table 2 describes the perceptions of mothers according to the six behaviors identified. A positive significant relationship ($p < .05$) does not exist between mothers' perceptions of the average infant and her perceptions of her own premature infant. Hypothesis II is illustrated in Table 3. Table 3 describes the mothers' perceptions of her infant and the degree with which she attaches to that infant. A positive significant relationship ($p < .05$) does not exist between mothers' perceptions and the degree to which they attach to their infants.

Additional Findings

Table 4 presents a tally of mothers' perceptions of their infants at two days old and at one month old in regard to their level of risk and subsequent development of potential maladaptive mother-infant relationships. Of the fifteen mothers, fourteen mothers categorized their infants' behavior as less than average at two days old. At the one month period, thirteen of the mothers perceived their infants' behaviors

TABLE 2
 PERCEPTIONS OF MOTHERS
 N = 15

Neonatal Perception Inventory Behaviors	Average Infant		Own Premature Infant	
	rho	Significance	rho	Significance
crying	.308	.133	.633	.004
feeding	-.488	.967	-.184	.744
spitting up or vomiting	.506	.027	.112	.346
sleeping	.039	.445	.047	.434
bowel movements	.528	.022	.227	.791
routine pattern	.617	.007	.337	.112

There is not a positive significant relationship between average infant and own infant. $p = < .05$

TABLE 3
 PERCEPTIONS OF MOTHERS AND DEGREE OF ATTACHMENT TO OWN INFANT
 N = 15

Neonatal Perception Inventory of Behaviors	2nd Postpartum Day		Infant One Month Old	
	rho	Significance	rho	Significance
crying	.074	.347	-.090	.620
feeding	.382	.080	.369	.088
spitting up or vomiting	.223	.212	.127	.326
sleeping	.158	.287	.106	.354
bowel movements	-.104	.644	.182	.259
routine pattern	-.056	.574	-.109	.650

There is not a positive significant relationship between perception of own infant at 2 days or one month and maternal attachment observed. ($p = < .05$)

TABLE 4
 PERCEPTION SCORE OF MOTHERS AT TWO DAYS OLD AND
 ONE MONTH OLD IN RELATION TO MOTHERS AGE
 N = 15

Ages	Two Day	One Month
16	-2	-1
16	0	-11
16	-5	-9
17	-2	+3
17	-3	-4
17	-1	-9
17	-2	-7
17	-1	0
18	-10	-13
18	+2	-6
18	-5	-2
19	0	-2
20	-2	-6
20	-2	-4
22	-2	+3

(- or 0 score) = high risk

(+ score) = low risk

negatively in relationship to the average infant's behavior. The maternal perceptions of these mothers suggests this group can be identified at high risk for subsequent emotional disorder.

Table 5 presents the scores for the Observation Guide for Maternal Attachment Behaviors. Of a possible maximum score of 37, the fifteen mothers scored less than 26 with a range of 3 to 25. The mean score was 13.4. The maternal attachment scores of these mothers suggests that a premature infant may be a factor that interferes with a mother's attachment to that infant.

TABLE 5
MATERNAL ATTACHMENT SCORE
ACCORDING TO AGE
N = 15

Age	MA Score
16	13
16	16
16	3
17	14
17	18
17	11
17	11
17	11
18	25
18	17
18	7
19	14
20	11
20	11
22	19

Maximum possible Score = 37.

CHAPTER V

SUMMARY

The purpose of this study was to ascertain perceptions of mothers of premature infants and to assess parent-infant interaction in order to discriminate between early adaptive and maladaptive behaviors. These perceptions and interactions were then related to various background characteristics of the subjects.

The sample consisted of fifteen mothers who had given birth to premature infants. The subjects were predominantly seventeen years of age, attending high school, and had given birth to male infants. Data were obtained during the months of April and August, 1981.

A personal data form was included to secure background data. The Neonatal Perception Inventory was given on the infants' second day of birth and again at one month of age. The Observation Guide for Maternal Attachment Behaviors was answered during a visiting period.

A percentage and frequency count was used to analyze the personal data of the subjects. The Spearman

Correlation Coefficient was used to determine if the perceptions of the mothers as measured by the Neonatal Perception Inventory were correlated with the average infants' behavior and her own premature infant's behavior.

The Spearman Correlation Coefficient was also used to determine if the perceptions of the mothers, as measured by the Neonatal Perception Inventory, were correlated with the degree to which mothers attach to their infants, as measured by the Observation Guide for Maternal Attachment Behaviors.

1. The Spearman Correlation Coefficient indicates that mothers' perceptions of the average infant were not positively correlated with the perceptions of her own premature infant.

2. The Spearman Correlation Coefficient indicates that a positive significant relationship does not exist between the mother's perceptions of her own infant and the degree to which she attaches to that infant.

Discussion

The results of this study reveal that these young mothers of premature infants showed no significant relationship between their perceptions of the average infant and their own infants. Nor did the results

show a significant relationship between their perceptions of their infants and observed maternal behaviors.

The conclusions drawn from Johnson (1979) may indicate the significance of the findings of this study. For first time patients, possible fear of the loss of the baby and failure to deliver a full term infant may contribute in the way in which mothers perceive their premature infants. Young mothers may also not understand how a premature infant differs from a normal baby in terms of growth and special needs.

Another reason for the nonsignificant positive result were the existing maternal factors which contribute to maternal attachment behaviors (Cropley, 1976). The majority of subjects were single without the support of spouses. Because all were primiparas they lacked learned maternal behaviors acquired from previous births. Klaus and Kennell (1979) have emphasized the importance of close maternal-infant contact from the time of birth. Separation from their infants to a special care nursery can disrupt attachment.

Limitations and Recommendations

The present study was limited to:

1. Mothers who gave birth to premature infants in one Dallas area hospital.

2. Mothers giving birth for the first time.
3. A two month period, April and August, 1981.
4. Mothers aged 16 to 22 years.
5. Infants weighing between 1500 grams and 2500 grams.

Based upon the limitations and findings of this study, the following recommendations are made:

1. More research into the perception of mothers giving birth to premature infants concerning their infant's behavior should be conducted using larger samples.

2. Research is needed to analyze perceptions and attachment behaviors in other age groupings of mothers.

3. A comparison between mothers' perceptions and fathers' perceptions should be made with regard to their premature infant's abilities.

4. Since this was the first time the Neonatal Perception Inventory was used with mothers of premature infants, it should be used again to determine its reliability with this category of infants.

5. The Observation Guide for Maternal Attachment Behaviors should be used again with mothers of premature

infants, and/or infants with physical abnormalities to determine its reliability with the special infant.

APPENDIX A
PERSONAL DATA

PERSONAL DATA

Mothers

1. Age _____
2. Marital Status
Single _____
Married _____
Length of Marriage _____
3. Socioeconomic Status
less than \$7,999/yr. _____
\$8,000/yr. - \$11,999/yr. _____
\$12,000/yr. - \$15,999/yr. _____
\$16,000/yr. - \$19,999/yr. _____
\$20,000/yr. or more _____
4. Highest Level of Education
Post baccalaureate _____
College _____
High School _____
Grammar School _____
5. Race
Black _____
White _____
Hispanic _____
Other _____
6. Previous abortion or miscarriage? Yes _____
7. Previous fetal loss? Yes _____ No _____
8. Attended childbirth classes? Yes _____ No _____
9. Separated from own mother one month or longer before fifth birthday? Yes _____ No _____
10. Was this a planned pregnancy? Yes _____ No _____

Infants

1. Sex

Male _____

Female _____

2. Birthweight

1500 gm - 1999 gm _____

2000 gm - 2500 gm _____

APPENDIX B
NEONATAL PERCEPTION INVENTORY

How much difficulty do you think your baby will have sleeping?

a great deal a good bit moderate amount very little none

How much difficulty do you expect your baby to have with bowel movements?

a great deal a good bit moderate amount very little none

How much trouble do you think your baby will have settling down to a predictable pattern of eating and sleeping?

a great deal a good bit moderate amount very little none

NEONATAL PERCEPTION INVENTORY II

Average Baby

Although this is your first baby, you probably have some ideas of what most little babies are like. Please check the blank you think best describes the AVERAGE baby.

How much crying do you think the average baby does?

 a great deal a good bit moderate amount very little none

How much trouble do you think the average baby has in feeding?

 a great deal a good bit moderate amount very little none

How much spitting up or vomiting do you think the average baby does?

 a great deal a good bit moderate amount very little none

How much difficulty do you think the average baby has in sleeping?

 a great deal a good bit moderate amount very little none

How much difficulty does the average baby have with bowel movements?

 a great deal a good bit moderate amount very little none

How much trouble do you think the average baby has in settling down to a predictable pattern of eating and sleeping?

a great deal a good bit moderate amount very little none

Your Baby

You have had a chance to live with your baby for about a month now. Please check the blank you think best describes YOUR baby.

How much crying has your baby done?

a great deal a good bit moderate amount very little none

How much trouble has your baby had feeding?

a great deal a good bit moderate amount very little none

How much spitting up or vomiting has your baby done?

a great deal a good bit moderate amount very little none

How much difficulty has your baby had in sleeping?

a great deal a good bit moderate amount very little none

How much difficulty has your baby had with bowel movements?

a great deal a good bit moderate amount very little none

How much trouble has your baby had in settling down to a predictable pattern of eating and sleeping?

a great deal a good bit moderate amount very little none

APPENDIX C
OBSERVATION GUIDE FOR MATERNAL ATTACHMENT

MATERNAL ATTACHMENT TOOL

Name _____ Delivery Date _____ Today's Date _____

Circle points
for observed
behavior

I. Identifying behaviors: The mother's observing or inquiring about her infant to gain knowledge of infant's appearance, wholeness, and state of function

A. Appearance and function

1. Makes reference to sex of the infant, e.g., "He's going to be a football player," or gets infant a sex-linked toy. +1
2. Makes reference to size of the infant, e.g., "She's so little." +1
3. Inspects or reviews baby's body features (hair, fingers, face, feet, and other parts of body). +1
4. Asks questions or makes statements pertaining to wholeness of the infant, e.g., "Is he alright?" or "Well, he has all ten toes." +1

5. Verbally questions or comments on body functions of baby, e.g., "Look she's wet," or "Look at him move!" +1
- (Total circled points.)
-
- B. Appraisal of infant's condition
6. Asks no questions about baby's condition. 0
7. Makes unrealistic statements (optimistic or pessimistic) regarding baby's condition, e.g., saying skin looks better when it looks worse. -1
8. Asks brief questions about baby's condition, e.g., "How's he eating?" or "How much weight has he gained?" +1
9. Asks realistic questions or makes realistic comments about infant's condition with specific reference to such things as skin, scalp, eyes, face, circumcision, and cord in the normal newborn or IV,

monitor, bilirubin lights, and physical symptoms (e.g., jaundice or color) in the high-risk infant.

+2

10. Verbal statements by mother that denote her awareness of changes in the baby's condition, e.g., "She is breathing more slowly today," or "His skin doesn't look as dry today."

+3

(Total circled points.)

II. Locating behaviors: Cognitively determining the baby's position within the sphere of her significant social system

A. Verbally associates infant with an animal or animal characteristics.

0

B. Associates infant with inanimate object.

0

C. Associates infant's characteristics with human characteristics, e.g., "He looks like an old man," or "She looks more like a real baby now."

+1

- D. Associates infant's characteristics with other family members, e.g., "She has her daddy's big feet," or "She looks just like her sister." +2
- (Do not total: record highest circled score.)
-

III. Modalities of interaction: The method through which the mother begins to relate to her baby, using visual, verbal, and tactile behaviors

A. Verbal contact

1. Mother talks or sings to baby. +1
2. Mother uses infant's given name when talking to baby. +1

B. Visual contact

3. Establishes position en face. +1
4. Talks about baby's opening eyes; verbally encourages this. +1
5. Stimulates infant to open eyes by shading them from the light, changing position, and other maneuvers. +1

C. Tactile-kinaesthetic contact

6. Touches extremities or head. +1

- | | |
|--|-------|
| 7. Extends touch to trunk of baby's body. | +2 |
| 8. Fingertip touch. | +1 |
| 9. Finger touch (stroking). | +1 |
| 10. Palm contact. | +2 |
| 11. Draws infant to trunk of her body (body contact). | +1 |
| 12. Snuggles baby to shoulder with cheek-to-cheek contact. | +2 |
| 13. Spontaneous movements initiated by mother to increase her contact with baby, e.g., patting, kissing, cuddling, rocking, playing, and soothing. | +1 |
| (Total circled points.) | <hr/> |

IV. Caretaking behaviors: Activities of mother aimed at supporting and protecting infant to foster child's optimal growth and development

A. Participation in care

- | | |
|---|----|
| 1. No participation in baby's care. | 0 |
| 2. Holds infant but performs no care tasks. | +1 |

- | | |
|--|---|
| 3. Recognizes infant's needs but leaves solution up to nurse, e.g., "Oh, the baby's wet." | +2 |
| 4. Communicates baby's need to nurse and asks if she can do the task, e.g., "She's wet; can I change her?" | +3 |
| 5. Performs isolated aspects of care such as changing diapers and feeding baby but needs encouragement from staff. | +4 |
| 6. Recognizes baby's needs and performs appropriate interventions, e.g., bathing, changing, and giving medication. | +5 |
| <p>(<u>Do not total</u>: record <u>highest</u> circled score.)</p> | <hr style="width: 10%; margin-left: auto; margin-right: 0;"/> |

B. Planning home care

- | | |
|--|----|
| 7. Makes no reference to baby's discharge or to care that infant will require at home. | 0 |
| 8. Refers to baby's eventual discharge or to care that infant will require at home. | +1 |

9. Asks questions in preparation for infant's discharge, e.g., "What kind of soap should I use?" or "When is the best time to give the bath at home?" +2
10. Makes reference to preparing for discharge actively, e.g. "We've just finished her room," or "I bought everything but the bottles today." +3
- (Do not total: record highest circled score.) _____

Total maternal attachment
score _____

APPENDIX D
CONSENT FORMS



P. O. Box 23975, Denton, Texas 76204 (817) 387-2921

COLLEGE OF NUTRITION, TEXTILES, AND HUMAN DEVELOPMENT
DEPARTMENT OF CHILD DEVELOPMENT AND FAMILY LIVING

Dear Mothers,

I am Sharon Hamilton, a registered nurse and a Child Development graduate student at Texas Woman's University.

In partial fulfillment for the Masters degree, I am conducting a research study to assess the maternal attachment behaviors of mothers with premature infants. I would appreciate your participation in this study. Participation involves filling out an inventory form describing what you feel the "average" baby's behavior is like and what you feel your baby's behavior is like, post-delivery and again when your baby is one month old. In addition, I will observe you and your infant during a visiting period.

If you agree to participate in the study please read and sign the attached consent form, which will be kept on file by the investigator. You have the right to refuse to participate in this study and the right to withdraw from the study at any time. No physical discomfort is anticipated from filling out the inventory forms.

Names will not be used on the inventory forms and caution will be utilized to protect the privacy of information received. Participation or non-participation will in no way influence the medical care you or your infant receives while in the hospital.

Thank you,

A handwritten signature in cursive script that reads "Sharon Hamilton".

Sharon Hamilton

TEXAS WOMAN'S UNIVERSITY
 Box 23717 TWU Station
 Denton, Texas 76204

HUMAN SUBJECTS REVIEW COMMITTEE

Name of Investigator: Sharon E. Hamilton Center: Denton
 Address: 1810 Inwood Rd. #725 Date: February 4, 1981
Dallas, TX 75235

Dear Sharon E. Hamilton,

Your study entitled An Assessment of Maternal-Infant Attachment
in Mothers of Premature Infants

has been reviewed by a committee of the Human Subjects Review Committee and it appears to meet our requirements in regard to protection of the individual's rights.

Please be reminded that both the University and the Department of Health, Education, and Welfare regulations typically require that signatures indicating informed consent be obtained from all human subjects in your studies. These are to be filed with the Human Subjects Review Committee. Any exception to this requirement is noted below. Furthermore, according to DHEW regulations, another review by the Committee is required if your project changes.

Any special provisions pertaining to your study are noted below:

 Add to informed consent form: No medical service or compensation is provided to subjects by the University as a result of injury from participation in research.

 Add to informed consent form: I UNDERSTAND THAT THE RETURN OF MY QUESTIONNAIRE CONSTITUTES MY INFORMED CONSENT TO ACT AS A SUBJECT IN THIS RESEARCH.

 The filing of signatures of subjects with the Human Subjects Review Committee is not required.

 Other:

 X No special provisions apply.

cc: Graduate School
 Project Director
 Director of School or
 Chairman of Department

Sincerely,

Marilyn Hinson

Chairman, Human Subjects
 Review Committee

at Denton

APPENDIX E
INFORMED CONSENT

Consent Form
 TEXAS WOMAN'S UNIVERSITY
 HUMAN RESEARCH REVIEW COMMITTEE

(Form A -- Written presentation to subject)

Consent to Act as a Subject for Research and Investigation:

The following information is to be read to or read by the subject. One copy of this form, signed and witnessed, must be given to each subject. A second copy must be retained by the investigator for filing with the Chairman of the Human Subjects Review Committee. A third copy may be made for the investigator's files.

1. I hereby authorize Sharon Hamilton
 (Name of person (s) who will perform
 procedure (s) or investigation (s))

to perform the following procedure (s) or investigation (s):
 (Describe in detail)

To administer the Neonatal Perception Inventory to each mother on the second post-partum day and again when her infant is one month old.

To allow the investigator to observe each mother with her infant during a visiting period.

2. The procedure or investigation listed in Paragraph 1 has been explained to me by Sharon Hamilton
 (Name)

3. (a) I understand that the procedures or investigations described in Paragraph 1 involve the following possible risks or discomforts:
 (Describe in detail)

No physical discomfort is expected from filling out the Neonatal Perception Inventories, however potential risks include embarrassment and accidental improper release of data.

(Form A - Continuation)

3. (b) I understand that the procedures and investigations described in Paragraph 1 have the following potential benefits to myself and/or others: The subject may find the investigator as a source of assistance as she interacts with her infant. Other mothers with premature infants may subsequently benefit from the knowledge obtained in this study.
3. (c) I understand that - No medical service or compensation is provided to subjects by the university as a result of injury from participation in research.
4. An offer to answer all of my questions regarding the study has been made. If alternative procedures are more advantageous to me, they have been explained. I understand that I may terminate my participation in the study at any time.

Subject's Signature

Date

(If the subject is a minor, or otherwise unable to sign, complete the following):

Subject is a minor (age ____), or is unable to sign because:

Signatures (one required)

Father

Date

Mother

Date

Guardian

Date

Witness (one required)

Date

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