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**THE RELATIONSHIP OF MOTHERS' OWN REARING AND
METHOD OF DELIVERY TO MATERNAL BEHAVIOR
WITH FIRST-BORN INFANTS**

By

Joyce Ann French

A DISSERTATION

**Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of**

DOCTOR OF PHILOSOPHY

Department of Family and Child Ecology

1990

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ABSTRACT

THE RELATIONSHIP OF MOTHERS' OWN REARING AND METHOD OF DELIVERY TO
MATERNAL BEHAVIOR WITH FIRST-BORN INFANTS

by

Joyce Ann French

Previous research implies that socially deprived upbringing and cesarean delivery could have a deleterious effect on maternal behavior with the newborn. The purpose of this study was to examine the relationship between rearing, method of delivery, and maternal behavior with first-born infants. A prospective, descriptive, longitudinal, repeated measures design was used. Maternal behavior was measured prenatally with Cranley's Maternal/Fetal Attachment Scale and postnatally (at both 2 days and 4 months) with Barnard's Nursing Child Assessment Feeding Scale (NCAF). Recollection of rearing by mother and recollection of rearing by father were measured by the Acceptance/Rejection portion of Epstein's Mother/Father/Peer Scale. The sample consisted of 217 mothers, 161 of whom were selected prenatally and 57 who delivered by cesarean and were added postnatally. ANOVA and MANOVA procedures were performed to ascertain the effect of rearing, and/or method of delivery on maternal behavior at the three time periods.

No significant effect of rearing or delivery was found on maternal behavior at Time 1 (prenatally). Recollection of rearing by mother showed no effect statistically on maternal behavior at Time 2 or Time 3. Recollection of rearing by father showed a statistically significant ($P=.007$) effect on maternal behavior with those reporting rearing above the median having higher scores on the NCAF scale at

Time 2. This effect was not seen with Time 3 observations. The method of delivery showed statistically significant effects ($P=.031$ and $P=.04$) on NCAF scores at both Time 2 and Time 3; however, this was in an unexpected direction. The mothers who delivered by cesarean consistently reported significantly higher scores on the NCAF observations than did those mothers who delivered vaginally. A step-wise multiple regression analysis revealed the best predictors of maternal behavior postnatally to be marital status, socio-economic status, and education. When controlling for these factors, method of delivery continued to have an effect on the maternal behavior scores and accounted for 5 to 14% of the variance. The scores for cesarean-delivered mothers remained higher than the scores for the vaginally-delivered mothers. The results of this investigation were not consistent with what was expected. Further research is recommended.

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TO MY FAMILY

Gene, Pam, Darcy, and Jeff

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CHAPTER I

INTRODUCTION

Mrs. A. said she felt as if she had lost a baby rather than had one. She had an emergency cesarean at 2:45 a.m. following a 40 hour unproductive labor and is now the mother of a healthy baby girl. When she woke up she knew, cognitively, that she should greet her baby with joy, enthusiasm, and a hug; but emotionally, she felt empty. Mrs. A. behaved in a way that met her expectations of a "good" mother, feeling "strong curiosity but no connection." Although thankful that her husband had been able to spend time with their new baby, she felt jealous of their relationship and guilty for all her negative feelings. She was depressed over the birth and became increasingly so as the postpartum became more dismal. She did not feel like caring for her baby, did not enjoy it, and consequently did as little as possible with her baby.

This is an extreme but true example of how a number of women having unanticipated cesarean births expressed their feelings after delivery. This type of perception of the birth experience could delay or even prevent initial bonding experience and transactional relationships, setting the stage for a negative response to the baby. The infant's future well-being is dependent on the development of an attachment to at least one caring adult (Bronfenbrenner, 1979). A birthing experience that is perceived as disappointing and devastating to a woman's self-esteem and confidence is no way to enter motherhood.

Cesarean delivery is becoming increasingly more common, especially in primiparous women. An unanticipated cesarean delivery may be viewed as a welcome reprieve from a long, difficult labor; as a disappointing but acceptable alternative method of birth; or, as a blow to the self-esteem and capability of womanhood and as an infringement upon biological rights. Are there characteristics that make certain women more vulnerable than others to a negative response if their delivery is by cesarean and does this affect their maternal behavior? THIS DESCRIPTIVE STUDY INVESTIGATED POSSIBLE CONTRIBUTORS TO THIS VULNERABILITY BY EXAMINING MOTHERS' RECOLLECTIONS OF THEIR OWN REARING AND THE RELATIONSHIP OF THOSE RECOLLECTIONS AND THE METHOD OF DELIVERY TO MATERNAL BEHAVIOR WITH FIRST-BORN INFANTS.

BACKGROUND OF THE STUDY

The rate of cesarean delivery continues to escalate even as national governments (United States 1978 and 1984, Canada 1986, England 1986), consumers, medical professionals, and cost payors continue to abhor the trend, study the issue, and make recommendations to control the incidence. Expectant mothers today, across the nation, can expect a 1:4 or 1:5 chance of having a cesarean. If they are primigravidae, their chance may be even higher. More assessment of the fetus, more pregnancies at both extremes of the childbearing age range, a greater premium on each pregnancy, defensive medical practice, and more obstetric specialists are given as factors contributing to the continuously increasing trend. Improved physical health for both mother and baby is the desired outcome that justifies the choice of cesarean delivery. Improved psychological outcome for mother and baby has been addressed through attempts by hospital

personnel to "normalize" the surgical experience. These attempts include allowing fathers in the operating room, allowing both parents contact with the baby in the operating room and participation in the delivery, educating prenatally about cesarean birth, assisting with early breast feeding, and encouraging the mothers to remain awake by using regional anesthesia. As the rate increases there is increased acceptance and more societal support which improves peer and self-appraisal. This is cause for concern, however, for those desiring a more natural solution to problems.

A technological world in which the body is valued as a machine is abhorred by many and feared by others. The normative transition of birth has its usual stressors, to complicate the process may cause rather than solve problems. Self-esteem and satisfaction are important components of mental health; mental health affects interpersonal relationships and productivity, both essential attributes of parenting.

In 1965, Dr. Gilbert W. Meier investigated the differences in maternal behavior of feral-reared and laboratory-reared monkeys following the surgical delivery of their infants. The laboratory-reared monkeys were deprived of maternal love and affection. He found that none of the laboratory-reared monkeys responded appropriately to their offspring during a 3 day postpartum period. All their feral-reared counterparts responded appropriately by the second day. The parent/infant interaction following vaginal delivery of the laboratory-reared females was normal, although of lower intensity. Like Meier's monkeys, Mrs. A., whose extreme reaction to cesarean was described earlier, is one of a number of mothers who, after cesarean,

had difficulty responding appropriately to the newborn. Perhaps human maternal behavior with the newborn is also influenced by the mothers' own rearing and method of delivery.

PURPOSE OF THE STUDY

Discovering prenatally who is at risk for a negative emotional outcome of cesarean is an important component of the decision-making process that leads to choice of method of delivery and preparation for birth. The purpose of this study then, is to examine mothers' recollection of their own rearing and the relationship of those recollections and the method of delivery to maternal behavior with first-born infants. If, in fact, there are psycho-social factors that affect perinatal morbidity, these must be known. If this study shows a relationship between rearing, method of delivery and behavior with the infants, interventions could be designed to dilute the negative relationship and/or steps could be taken to assure that cesarean is chosen only as a final option. Early maternal behavior sets the stage for later maternal/child relationships. It is important for mothers and babies to begin a positive relationship as early as possible. Maternal response to birth is one of the variables contributing to initial maternal ability to parent. Information gained in this study could be useful to prospective parents, physicians, nurses, hospitals, and expectant parent educators in planning care with their clients. If, in fact, the mothers' rearing and method of delivery have no relationship to maternal behavior with the offspring, the knowledge would eliminate at least one question that is raised periodically by those interested in the issue. To accomplish the purpose of this

study several specific objectives have been developed to guide the research.

RESEARCH OBJECTIVES

The research objectives are as follows:

1. To assess each mother's perception of the quality of her own childhood rearing.
2. To determine the method of delivery for each mother studied.
3. To assess each mother's perception of her birthing experience.
4. To investigate the relationship between the quality of rearing and the method of delivery.
5. To assess prenatal and postnatal maternal behavior of the mother.
6. To investigate the relationship of quality of rearing and the method of delivery to the maternal behavior of the mother.

ECOLOGICAL FRAMEWORK

An ecological approach is essential to any comprehensive, holistic study of the complexity of birth. In the search for answers as to why individuals respond differently to what seem to be similar situations, one must look at how a person and the environment have interacted and impacted each other over the continuum of time.

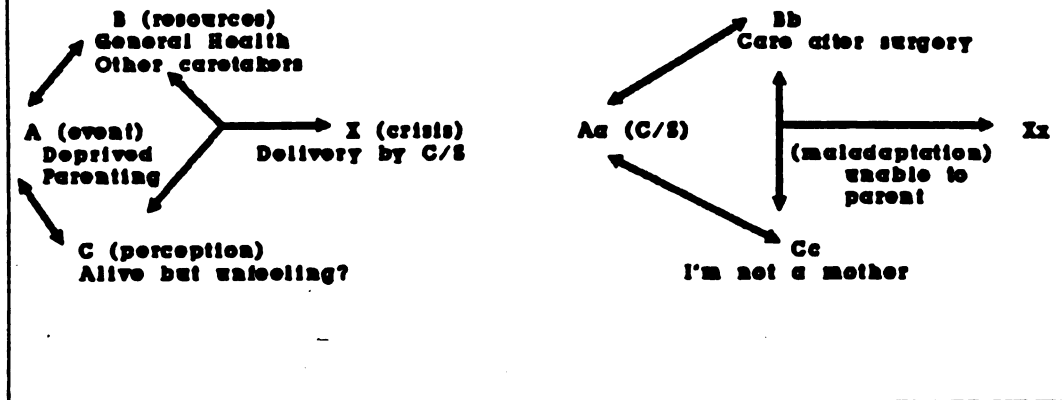
Bronfenbrenner's theory of the ecology of human development (1979), Belsky's theory of family transaction and circular influences (1981), and McCubbin's Double ABCX theory (1987) make up the theoretical framework for this study. These three theories provide the basis for looking for a relationship between the upbringing of a female human being, the method of delivering her own first child, and how she

behaves with that child. Each of these theories implies a relationship between the three variables. If the relationship could be empirically supported, effective therapeutic interventions could be implemented that could alter the process in a positive way.

Meier (1965) found that monkeys who were deprived of good mothering during their childhood and were delivered by cesarean did not mother their offspring. Among humans, dyadic relationships and second-order effects within a child's microsystem have been shown to impact the developing person (Belsky, 1981). Therefore if mothers were abused, neglected, or had less than optimal rearing, the expectation would be for them to perform less than maximally with their own infants when they become mothers. McCubbin's (1987) theory of the pile-up of stressor events occurring to an increasingly vulnerable person leads to the supposition that one more stressor could be the event that affects the way a person performs from that point on. A vulnerable person, confronted by the necessity of cesarean could, then, be affected in the way she performs as a mother.

In Figure 1 the McCubbin Double ABCX model (McCubbin & Figley, 1983) is adapted to project Meier's monkeys' responses to deprived rearing and delivery by cesarean.

Figure 1. Projected Responses of Rhesus Monkeys



This model, although not intended as a model of animal response to stress, shows how the cesarean becomes another stressor event for the monkey and could act as a deterrent to mothering. Humans have far more resources and more potential for a variety of perceptions of the stressors in their lives. The Double ABCX theory accounts for those very human characteristics and attributes.

As a developing person moves from one microsystem to another s/he carries with her the effects of the relationships in the original microsystem. As s/he builds relationships in the new microsystem, those new relationships affect behavior and continuing relationships. Each interaction with people, objects, and incidents in the environment has an impact, large or small, forgotten or remembered. Some are considered stressors in that they demand change; some are not, depending on constitutional strength, resources, and perceptions.

As stressors pile up, any one event can tip the balance into maladaptation. Buffers to stress are the resources, both internal and external. The choices one makes in life (e.g. marriage partner) are potential resources or stressors as are the temperament of additional members of the new microsystem (e.g. newborn). The origin of one's perception lies in one's personal experiences. Thus the three models proposed by McCubbin, Bronfenbrenner, and Belsky determined the variables included in this study of the effect of the independent variables (mothers' rearing and method of delivery) on the dependent variable (maternal behavior). The possible confounding or biasing variables are looked at as McCubbin's resources and perceptions, are derived from Bronfenbrenner's propositions of human development, and/or are found in Belsky's circular family relations.

Much research has been done on mothers' perception of cesarean birth, and some on their behavior with their newborn. Research has made connections between mothers' own rearing and their maternal care and feelings; but, no research has investigated the possible triadic link between rearing, method of delivery, and maternal behavior. In addition, most of the research on the impact of cesarean was done at the time of the original increase in incidence of cesarean which was from 1978 to 1986. As cesarean becomes more common, there is more acceptance. During the past few years efforts to normalize the experience seem to have exceeded efforts to understand its socio-emotional effects.

CONCEPTUAL AND OPERATIONAL DEFINITIONS

Maternal behavior toward the infant:

CONCEPTUAL: The mother's responsive style during prenatal and postnatal interactions with her fetus/infant.

OPERATIONAL: The mother's score on the Maternal/Fetal Attachment Scale (MFAT) (Cranley, 1981) and on the Nursing Child Assessment Feeding Scale (NCAF) (Barnard, 1987).

Quality of mothers' rearing:

CONCEPTUAL: The mother's recollection of the quality of her own up-bringing by her mother and by her father.

OPERATIONAL: The mother's score on the "Acceptance VS Rejection" portion of the Mother/Father/Peer Scale (MFP) (Epstein, 1988).

Mothers' perception of marital satisfaction:

CONCEPTUAL: The mother's contentment with her spouse and their relationship.

OPERATIONAL: The mother's score on the Dyadic Adjustment Scale (DAS) (Spanier, 1976).

Mothers' Social Support:

CONCEPTUAL: The number of people on whom the mother can count for friend-ship, information, aid, and shared caring.

OPERATIONAL: The mother's score on the Maternal Social Support Index (MSSI) (Pascoe, 1982).

Mothers' depressive symptomatology:

CONCEPTUAL: The mother's mood level at any one point in time.

OPERATIONAL: The mother's score on the Center for Epidemiologic Depression Scale (CESD) (Radloff, 1977).

Mothers' perception of labor/delivery experience:

CONCEPTUAL: The mother's retrospective view of her labor/delivery experience.

OPERATIONAL: The mother's responses to three questions: "How would you describe your labor experience: pleasant, mainly pleasant, mainly unpleasant, unpleasant?" "Describe the degree of pain: no pain, little pain, pain, but no worse than expected, pain worse than expected, severe pain." "Thinking of your labor experience, would you: happily repeat the experience, repeat the experience, not repeat the experience?" (Robson, 1970). These questions were part of Questionnaire #2.

Indication for cesarean section:

CONCEPTUAL: The medical reason given for the surgical delivery.

OPERATIONAL: Information was categorized as follows: "failure to progress," "breech presentation," "fetal distress," "bleeding disorders," "maternal disease," and "post-date." This information is reported in Questionnaire #2 by the subject.

Infant temperament:

CONCEPTUAL: The infant's style of behavior as perceived by the mother.

OPERATIONAL: The four-month-old infant's behavior profile as calculated from the mother's responses to the 97 item Infant Temperament Questionnaire (ITQ) (Carey, 1978).

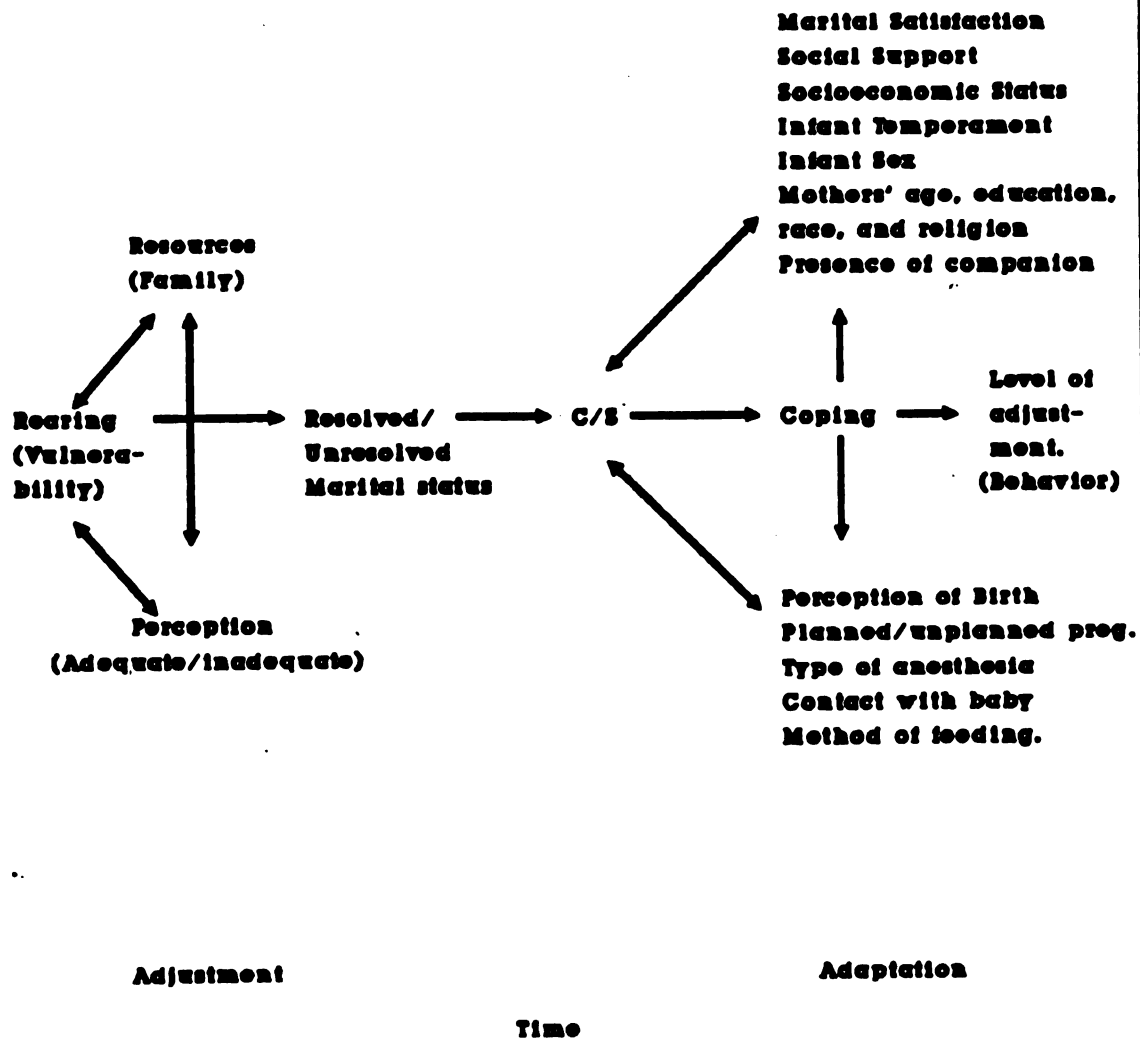
Time of initial contact:

CONCEPTUAL: Time, in relationship to delivery, that the mother recalls having had a meaningful interaction with the baby for the first time.

OPERATIONAL: The mother's response to the question, "When did you first see, touch, and/or hold your baby for more than what you recall as a fleeting moment?" This question is part of Questionnaire #2.

The Double ABCX model (McCubbin & Figley, 1983) provided the framework for the choice of variables considered in this study. This model is described in Figure 2.

Figure 2. Study Variables Applied to Double ABCX Model



LIMITATIONS

The quality of mothers' own rearing can only be assessed retrospectively through the mothers' recollections and perceptions. A standardized, acceptably reliable instrument was used (Epstein, 1988). In addition, the other primary independent variable, method of delivery, could not be controlled or predetermined. The sample of 161 women, selected prenatally, was large enough to support the assumption that 15 to 25% of the cases would result in cesarean. Actually, 15.5% of the mothers sampled delivered by cesarean section. To assure adequate numbers for analysis, an additional sample of 57 women delivered by cesarean was selected and observed beginning with the first postpartum time period. This omission of prenatal data is a compromising but acceptable strategy when predicted numbers in a given category are known to be small. The known problem of biases resulting from the naturalistic selection of respondents in each of the comparison groups is acknowledged. The assessment of maternal behavior was limited to three isolated tests. The first, during pregnancy, through the self-report questionnaire assessing maternal/fetal attachment behavior, was followed by two postpartum observations of feeding episodes. The Nursing Child Assessment Feeding Scale, appropriate for newborns and infants, has been used in many research projects and has been shown to have acceptable predictive validity (Hammond, 1983). The investigator for this research was trained in the use of the instrument at the University of Washington and demonstrated reliability in the required observations. Reliability was reaffirmed by a joint visit with another observer at the midpoint of data collection in this study. The sample of healthy,

pregnant women came from three private obstetric medical practice offices, one hospital clinic, and a prenatal clinic run by the Salvation Army. All mothers delivered at an acute care, private, not-for-profit community hospital. The hospital has 500 beds and approximately 5,000 deliveries per year. The selection of healthy, primiparous women from one community limits the generalizability of the results of the study. Since the data collected on each mother occurred over a four to six-month period, as assumed, there was some subject attrition. "Multiple treatment interference" (Campbell and Stanley, 1963, p.6) was minimized by multifactorial analysis of the known biasing and confounding variables.

ASSUMPTIONS

1. Primiparous women in a midwestern community have characteristics in common with healthy, primiparous women across the country.
2. Medical and hospital obstetric practices in the midwestern community reflect standards that are similar nationwide.
3. Mothers' adult recollections of their quality of rearing reflect the actual quality of parenting delivered to them by their mothers and by their fathers.
4. Those women who choose not to participate in the study are not significantly different from those who do.
5. Positive, responsive, maternal behavior (bonding) is essential for attachment to occur.
6. Attachment is the infant's developmental task during the first year of life.

7. Participation in this study during the prenatal period will have no effect on the outcome measures postnatally.

CHAPTER 11

REVIEW OF LITERATURE

RHESUS MONKEY RESEARCH

This study was designed to discover if quality of rearing and method of delivery in human females influences maternal behavior. Such influences were discovered for Rhesus monkeys in a 1965 study by Dr. Gilbert W. Meier at the University of Wisconsin (Meier, 1965). Meier observed the behavior of 13 female monkeys. Seven were feral-reared and as adults were captured and introduced into the laboratory colony. Six were born and reared in the laboratory in individual wire cages with only life maintenance attention; limited auditory and visual stimulation was provided by other monkeys. Meier found that neither maternal experience nor age was related to maternal behavior with offspring. All of the 13 monkeys were delivered surgically under local anesthetic and returned to their home cage to recover. All exhibited some depressed behavior in the immediate post-operative period. The newborns were taken from the operating room to the nursery, placed in cloth boxes and had their vital signs assessed. Within a short time each one was taken in its box to its mother. The infant was first presented for maternal visual inspection, then the investigator removed the infant from the box and placed it on the floor of the mother's cage, where it remained for two hours. The investigator observed. If the mother picked up the infant and clutched it to her breast, her behavior was judged appropriate. If

the mother did not touch the infant, the investigator would, near the end of the two hour period, position the infant so to achieve tactile contact with the mother and then continue to observe for reaction. This observation scheme was repeated on each of three consecutive days. The six laboratory-reared monkeys responded with indifference or even active avoidance to contact with their infants. The feral-reared monkeys responded acceptably to their infants on the first or second day. Other studies (Harlow, 1971) consistently have shown that laboratory-reared, socially-deprived monkeys display less intense maternal behavior with their young than do their non-deprived counterparts. They eventually behave appropriately especially when encouragement is provided. Meier concluded, therefore, that had these laboratory-reared monkeys delivered vaginally they would have been capable of adequate maternal behaviors. Harry F. Harlow (1971) studied Rhesus monkeys extensively at the University of Wisconsin to learn and describe the process of the development of the affectional system. In his book "Learning to Love" (1971) he suggests that his research has correlaries with that done on human mother/infant pairs. Harlow says there are at least five basic kinds of interactive, interpersonal love which he defines as affectional feelings for others. The first affectional system is maternal love, the love of the mother for the child; the second is infant love, the love of the infant for the mother; the third is peer, or age-mate love; the fourth is heterosexual love; and, the fifth is paternal love of the adult male for his family or members of his social group. According to Harlow, each love system prepares the individual for the one that follows and the failure of any system deprives him of the proper

foundation for increasingly complex relations. This established Harlow's contention of the absolute necessity for monkeys' of the existence of initial maternal love. Although monkey data does not translate directly to an explanation of human experience; it does give a clearer picture of the basic love system of all primates and provides a factual framework for the collection of relatively rich human data.

Harlow described three stages of maternal love: care and comfort, ambivalence, and relative separation. During the stage of care and comfort which, in monkeys, lasts approximately five months, the primary function is to provide the infant with intimate bodily contact, nutrition, and protection. These are the mechanisms which elicit reciprocal love from the neonate. Generally the appearance of the infant monkey releases maternal love behaviors, as does body contact and nursing. Harlow observed that any infant could cause this maternal behavior release during the first week. Robson and Moss (1970) found a similar developmental process in human mothers. They found that mothers exhibited impersonal feelings of affection until they could view their infant as a person; this occurred when the baby responded with smiles, coos, and signs of recognition. At that time the affectional tie was sufficiently strong that the imagined loss of the infant became an intolerable prospect. Pascoe and French (1989) found, however, in a study of 100 healthy, human, primigravidae women that the maternal love was directed to their specific baby during the first 72 hours and the threat of loss became an intolerable prospect at that time.

The second stage of ambivalence begins when the infant has developed competent locomotor skills. Maternal behavior involves protection, retrieving, and restraining. The ambivalence results as the mother/infant pair begin to separate. Margaret Mahler (Fitzgerald, 1982) describes a similar evolution in humans, calling the first stage, symbiosis, and the second stage, hatching. Harlow's third stage of relative separation, he says, is characterized by stress, fear, and frustration but eventually results in the independence needed to progress through life.

Harlow found long-term effects of maternal love deprivation in primates, with trust in others being rooted in transactional maternal relationships. Male primates were shown to be more vulnerable to problems involving romantic sex when they were deprived of early love (Harlow, 1971). He refers to social crippling and affectionless lives being the result of early and continued deprivation. Affiliation begins at birth in primates in the arms of the mother and becomes strengthened through gradual learned associations with others. This statement is consistent with the writings of Winnicott (1987) regarding human affiliative behavior. Although man is an extremely complex animal and intrinsically more variable than monkeys, this research on monkeys, particularly those reared in wire cages and deprived of maternal love, serves as a basis for the study of humans who suffer deficit maternal love. Much human social behavior makes sense when studied in terms of man's biological heritage. A healthy appreciation for the comparative perspective found through primate research may assist, at least in part, in gaining an understanding of human nature.

THE INFLUENCE OF REARING ON MATERNAL BEHAVIOR

There is little doubt that a person's childhood rearing continues to influence behavior over a lifetime. (Rutter, 1985; Quinten & Rutter, 1984; Bowlby, 1979; Tizard & Hodges, 1978; Garbarino, 1980; Crockenberg, 1981; Crnic, 1983; Hunter, 1979; Helfer, 1976; Klaus, 1982; Klein, 1971; Cochran, 1979; Ricks, 1985) Comprehensive research into this linkage began with Rene Spitz' study on institutionalized children (Bronfenbrenner & Mahoney, 1975). This was followed by Harold M. Skeel's reports in the late 40's and his subsequent research 20 years later (Bronfenbrenner & Mahoney, 1975). The definitive empirical evidence, however, may be found in the tendency for the cycle of abusive and neglectful parenting to be transmitted across generations. Hunter (1979) found that in a study of 255 abuse cases, at least one of the parents had themselves been abused. In a study by Klein (1971) 10 of 12 abusive mothers had suffered maternal and environmental deprivation in their own childhood. Rutter (1985), in his London study of groups of children from varied environments, showed that those who experienced severe adversities in their own childhood were most likely to exhibit marked problems in parenting. He found support for his findings in those of Kruk and Wolkind (1982) who found that people's experiences of rearing when they were young were important determinants of their own qualities as parents.

This search for antecedence of ineffective or harmful parenting is crucial, according to Rutter. He suggests that if a multiplicity of antecedent variables is found, it would be possible to predict deficits in maternal behavior prior to birth and to develop interventions to prevent recurrences. The continuity of development

implies meaningful links over the course of time. Each link is capable of being remediated or exacerbated by an environmental event that could change the direction of behavior. Therefore, the effects of early neglect, discord, and deprivation are not necessarily enduring and likewise, good early experience does not necessarily prevent damage from later developmental stress. The factors that determine persistence of behavior patterns are only partially known. In the case of parenting, Quinton and Rutter (1984) found that a stable, harmonious marriage to a non-deviant spouse served to nullify the ill-effects of even seriously adverse experience in childhood. However, deprived people were more likely to choose a deviant spouse. A compensatory balance of pleasant and unpleasant experiences or the catalytic effect of social support have been shown to make a difference in the chain of events. Rutter (1985), like McCubbin (1987), found that adversities in childhood, especially when they pile-up, tend to make the individual less resistant in the presence of stressors in later life.

According to Rutter (1985) developmental theories that postulate a structure of personality which is established during the developmental process does not fit the empirical findings. Equally, however, behaviorist theories that conceptualize effects entirely in terms of present observed behaviors without the need to invoke developmental considerations are also inconsistent with the evidence. Rutter reports consistent data which show patterns of upbringing that involve serious discord, discontinuities in parenting, and parental deviance carry a high risk that children will show socio-emotional problems in adulthood. He suggests that ability to predict the level

of risk is dependent on three variables: first, being the family of origin; second, being the child; and the third variable, environmental event or multiplicity of events that interact with the first and/or the second to protect from or predispose toward further disorder. In summary, it is clear that, although there is a relationship between childhood upbringing and adult behavior, the methods by which that relationship can be enhanced or interrupted are still essentially unknown. In this project a cesarean birth was viewed as Rutter's third variable. Klaus and Kennel's (1982) diagram of the major influences on parent-infant attachment shows parental background as a key variable. They have evidence that a sensitive period may actually exist during the early postpartum period when maternal transaction is especially important. They refer to this intense transactional reality as "bonding." Bateson (1983) and Rutter (1985) agree that the concept of sensitive periods has some validity. Rutter (1985) defines this as a period during which environmental influences have a particularly marked effect and cites the newborn period as the time for initial formation of selective attachments. Bowlby (1979) suggests that these first bonds must develop during the first two years if normal social relationships are to be possible at later stages. Tizard and Hodges (1978) and Bronfenbrenner (1979) indicate that fully normal social development may be dependent on a solid, primary, dyadic relationship early in life.

An interesting finding was reported at a recent conference by Mary Main of the University of California, Berkley (1987). She reported a 76% match was found between the mother's recollections of the quality of the relationship with her own mother and the

performance of her child on the Ainsworth Strange Situation Test which measures parent/infant attachment (Main, 1987; Ricks, 1985).

THE INFLUENCE OF METHOD OF DELIVERY ON MATERNAL BEHAVIOR

Separation of mother and infant may be prolonged and the acquaintance process may be delayed by cesarean birth. (Cranley, 1983; Lipson, 1980). If the mother is anesthetized or heavily medicated, she may not participate in the birth and also not see her child or even realize she has given birth until several hours later. If she feels removed from the situation, she indeed may feel like an onlooker and consequently have difficulty claiming the baby as her own. Lack of enthusiasm is a natural accompaniment to lack of ownership or maternal linkage to the infant. The detachment from the labor and birth carries over to the postpartum period, according to Lipson (1980). Mercer (1983) found, in her comparison of women who had cesareans with those who had vaginal births, that the cesarean mothers were more hesitant to name their babies. This could be related to the anxiety that the baby was not really their own (Oakley, 1983).

Oakley (1983) says that the cesarean may signify to the woman an inner weakness in her ability to function as a woman and she may translate this weakness into a feeling of inability to mother. This could increase in complexity if the mother's cultural value tells her that motherhood should be a state of bliss but she finds it is confusing, negative, painful, and empty. The negative feelings that may result from an unanticipated cesarean birth can be directed toward the baby and affect parenting behavior. In fact, Oakley (1983), in her report of the English study of 16 cesarean mothers, says that the

cesarean mothers described motherhood in more negative terms at one year post delivery than did vaginally-delivered mothers. She reports, too, that the cesarean mothers were more likely to delay their response to their year-old child's crying and that they reported a later age at which they felt their child responded to them as a person. Donovan (1986) found that a large number of cesarean mothers reported feeling hostile to their babies for weeks after birth and some related that each time they looked at their infant, they were reminded of what their baby had put them through (Donovan, 1986). The English study reported by Oakley (1983) found similar angry reactions from mothers toward their babies, with doubts about their capacity to care for their babies.

When birth achievements fail to match expectations, concern for the health of mother and/or child becomes paramount, and severe stress results from pain, disappointment, and forced separation; the climate is right for the development of hostile feelings which can affect the quality of parenting (Rubin, 1984; Cox, 1982; Klaus & Kennell, 1982). Lamb (1982) supports this statement with his observation that even brief depression can have long-term consequences. Peterson (1979) states that the birth experience acts as a powerful catalyst for nurturing behavior. This, if true in humans, could be viewed as showing parallels with the conclusions of Meier (1965) from his study of monkeys.

A disproportionately high number of abused children are born by cesarean section (Cox, 1982). The occurrence of initial separation of the woman from her infant, complicated by the physical effects of surgery and anesthesia, has been implicated in long-term negative

effects on child development (Cranley and Hedahl, 1983). A disappointing birth experience can include disturbed patterns of parent/child interactions and ineffective communication within the entire family system (Leach & Sproule, 1984). Goth-Owens and Stollak (1982) as well as Boger and Smith (1986) support this thesis of long-term impact in their statements that severe stresses in personal, marital, or family life may disrupt the mother and infant relationship. Ainsworth, Stern, and Siegle (Klaus & Robertson, 1982) report more positive developmental characteristics in children up to five years of age where early contact and good parent/infant bonding has occurred. Trowell (1983) found the most profound effects in her three-year longitudinal study of 16 mothers who delivered by cesarean. She found significant differences in their attitudes and behaviors from those who had delivered vaginally. Trowell became interested in cesarean when she discovered that 15% of the patients in the psychiatric hospital in which she worked had delivered by cesarean. On further investigation she discovered that a nearby unit for autistic children reported that the children they failed to help consisted predominantly of children delivered by cesarean section. In her study she found the cesarean mothers had less eye-to-eye contact with their infants, initiated play less often, and exhibited a delayed response to their infant's crying. The evidence of the influence of method of birth on maternal behavior is not unequivocal but it does indicate the need for more research.

FETAL ATTACHMENT BEHAVIOR

Mecca S. Cranley (1981) reports that the attachment process begins long before birth and cites three previous studies that demonstrated this to be true. Cranley did her maternal-fetal attachment study at the University of Wisconsin. She studied 30 expectant mother volunteers by interviewing them between 35 and 40 weeks gestation and again on the third postpartum day. She defined maternal-fetal attachment as "the extent to which women engage in behaviors which represent an affiliation and interaction with their unborn child" (Cranley, 1981, p. 65) and operationalized the definition by designing the Maternal-Fetal Attachment (FAS) scale (Cranley, 1981). She found that women did, as previously reported, demonstrate attachment to the fetus during gestation. (See Appendix D for the scale)

Several of Cranley's areas of inquiry are pertinent to this research. She examined three categories of independent variables for their relationship to fetal attachment. She found no differences due to antecedent or demographic variables, nor to personality factors of self-esteem and anxiety trait. She did find differences due to what she called "situational variables," social support and perception of stress during pregnancy. Pertinent to this study is the finding that several of the women reported their social support as being supplied by their mother. Stress during pregnancy showed a negative relationship to fetal attachment. An increased perception of stress related to a decrease in roletaking, interaction with the fetus, and differentiation of self. Cranley found no significant correlations between fetal attachment and scores on the Neonatal Perception

Inventory. However, mothers who were more attached to their fetuses did show more positive attitudes toward crying, spitting-up, and bowel movements of their newborn.

Five of Cranley's subjects delivered by cesarean. The mean fetal attachment score for these women was significantly lower than the scores for women who delivered vaginally. Cranley suggested that this finding should be further investigated. In a rebuttal to Cranley's paper, Niles Newton says, "The high cesarean section rate in the sample and a tendency for these mothers to score lower on maternal-fetal attachment are intriguing. Maybe a larger, more normal sample would confirm the finding that normal labor and positive attitudes toward the fetus go together" (Cranley, 1981, p.77).

MATERNAL ATTACHMENT BEHAVIORS DURING EARLY INFANCY

Securely attached children have mothers who, early-on, were responsive to the infant's cues, held their babies more tenderly, paced their interactions appropriately, used face-to-face contact, and showed sensitivity in initiating and terminating feedings according to Vaughn, Egeland, and Sroufe (1980). Belsky (1984) stated that cognitively motivated, socially and emotionally adjusted children have parents who were attentive, warm, stimulating, responsive, and nonrestricting during their infancy. He further defines parenting competence as including three important factors: recognition of the malleability of children, an appreciation for individual differences, and knowledge of child-rearing techniques. Klaus and Kennell (1982) view eye-to-eye contact, en face positioning, holding, touching, vocalizing, and smiling as maternal bonding behaviors. These are the interactions originating in the mother that affect the infant. These

interactions are measurable signs in human mothers that are similar to those described by Harlow in his first affectional system, maternal love.

Barnard (1987) looks at sensitivity to infant cues, responsiveness to infant distress, attentiveness to infant, and verbalization as categories of attachment behaviors and measures in her feeding and teaching scales. (See Appendix K for this scale) Bowlby (1982) terms maternal attachment behavior "caregiving behavior." Retrieval, reducing the distance between mother and her infant, is the caregiving behavior and is seen in both animals and humans. This goal, according to Bowlby, drives maternal actions. An instinctual need to maintain proximity motivates touching, talking, feeding, and protecting. These behaviors then reinforce the infant's attachment behaviors and reciprocity occurs. Winnicott (1987) taught that mothers needed privacy and freedom to develop their "good enough" mothering feelings and behavior.

FACTORS INFLUENCING MATERNAL ATTACHMENT BEHAVIOR

Genevieve and Margolies (1987), in a survey of 1100 mothers between the ages of 18 and 80, asked what factors determined how women felt about motherhood. They found that mothers who felt less accepted by their own mothers were more able to provide love for their children. This was an unexpected finding that only further research will be able to explain. The second finding was that women who had a supportive spouse or were reasonably content with single status were loving toward their children.

Winnicott, (1987) the English pediatric psychiatrist, believed that mothers quite naturally provide a facilitating environment for

their newborn. He indicated that mentally healthy women who have experienced ordinary good mothering themselves begin to experience these protective, loving feelings during pregnancy and have strong desires to hold and care for their newborns. He suggests that inappropriate professional attention and teaching can interfere with the process. A study done at the University of British Columbia (Williams, Joy, 1987) revealed that feelings of attachment are related to women's psychological well-being. Feelings of confidence and competence correlated with both attachment feelings and behavior in mothers of one-month olds and two-year olds. This study supported Belsky's hypothesis that the mother's own developmental history is an important determinant of her personality, which in turn is a factor that contributes to her childrearing behavior. Zeanah and Anders (1987) suggest that caregivers' feelings and behaviors are influenced by their perceptions of past relationships, current relationships, current life stresses, and actual experience with their infant. This fits with the model described by Klaus and Kennell (1982) showing the major influences to be the parents, the infant, the care practices, and the parents' background. Effective or ineffective caregiving is dependent on these broad variables. Klaus and Kennell suggest that these determinants are not fixed and that all can be changed. They list other influencing factors as attitudes and practices of the physicians and nurses in the hospital, the mother's support in labor, the amount of contact with the baby, and the nature of the infant.

Claudia Panuthos (1984) states that surgical deliveries have "profound psychological effects on all women." (Panuthos, 1984, p. 142) Expression of anger and hurt are common. A grieving period,

which in addition to the usual grief due to loss of pregnancy and fantasy baby, includes the loss of the vaginal delivery experience, control, and possibly contact with baby, may be extended long into the postpartum period. If grieving is extreme, depression may occur which affects the mother's behavior with her infant. The degree of pain and recovery process from surgery may be barriers to infant care and contact, therefore potential inhibitors of at least the initial bonding process. Panuthos (1984) quotes Marieskind's (1979) statistical report showing that cesareans are more common in college educated women, women with the most prenatal education, those who have lost babies or have had infertility problems, and those having their first babies. Panuthos believes these findings point to the possibility that cesarean women place greater inner demand on themselves to be informed, well-prepared, in control, and perfect. These women tend to be hard on themselves when their goals are not achieved. One has to wonder how these women rate in the confidence and competence that Williams (1987) found correlated with attachment behavior.

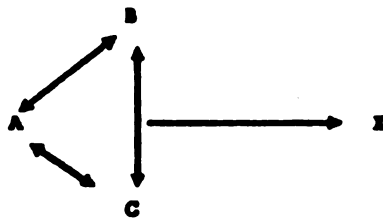
The factors that influence maternal attachment are numerous and not clearly defined. Like most other human behaviors, they are multifactorial in origin and expression.

MCCUBBIN'S DOUBLE ABCX THEORY

The original ABCX Theory was developed by Reubin Hill (1948) in an attempt to explain why different families respond differently to what appear to be similar stressful situations. In this model, A is the stressor event; B is the family's resources for meeting the demands caused by the stressor event; C is the family's own definition

of the stressor event; and, X is the resultant change or crisis. The A, B, and C factors interact with each other and may produce a crisis; defined by Hill as disruption, disorganization, or incapacity of the family that results from the demands that the stressor event places on the family. This model is shown in Figure 3.

Figure 3. Hill's Model of Factor Interaction



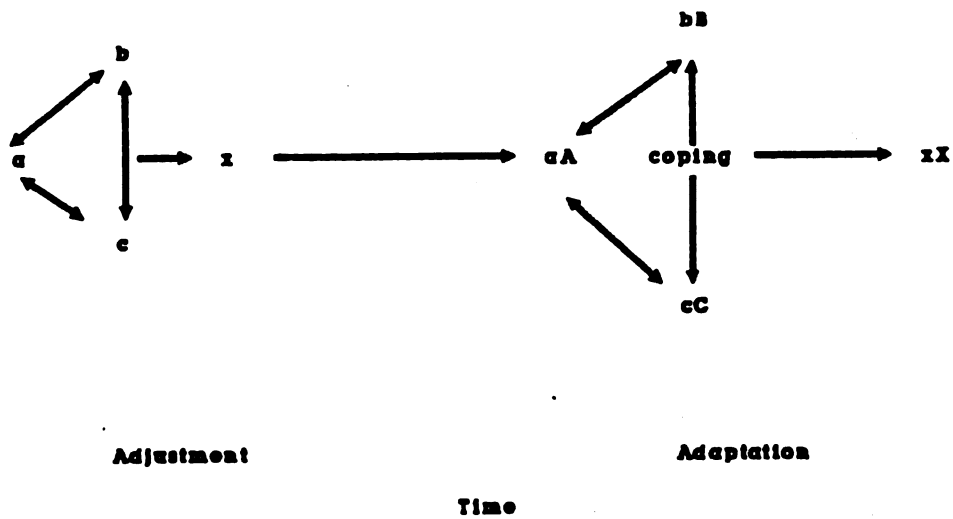
Hill's model was initially used to study 216 families which had a husband/father held captive or unaccounted for in the Vietnam War. In the course of that longitudinal study four additional factors were found which appeared to influence reaction to the stressor event. They were the pile-up of previous stressors and strains, the family's efforts to acquire new resources, modifications in the definition of the event by the family resulting in a different meaning of the

situation, and the family's coping strategies used to make changes in an attempt to achieve positive adaptation. (McCubbin, Sussman, & Patterson, 1983) These revelations led to revision of the theory and the development of the Double ABCX Model by Hill's colleagues at the University of Minnesota (McCubbin, Sussman, & Patterson, 1983).

The Double ABCX Model takes into account the fact that families and individuals within families deal with stressor events or demands continually throughout their lives. Normative transitions are part of everyone's growth and development. Change is inevitable as one passes from one stage to the next. Any event that interrupts the status quo places demands (hardships) on families. These demands require change. If the required change is minor, it may occur with little disruption; if the stressor event is major or if it is perceived as undesirable, harmful, or negative, it has the potential of being extremely disruptive to the person or family. Stressor events may actually be initiated by family members as an opportunity for change and growth. It is characteristic of living systems to evolve toward greater complexity and this occurs through taking advantage of opportunities for change. (McCubbin, Sussman, 1983) Stressor events, strains, and hardships are interpreted, responses are formulated, the family adjusts, and they move on, hopefully in a positive direction. If the stresses come too fast or are too extreme, they may be precipitous to the family member having difficulty adjusting to the crisis, finding him/herself short on coping skills and resources to handle the changes, and finally not being able to make the adaptations necessary for growth. This model describes the process components used in response to stressor events as occur in normal, everyday living.

These stressor events may lead to adjustment and adaptation that are pathological and dysfunctional or they may lead to adjustment and adaptation that improve the family's functioning capability. The Double ABCX model, outlined in Figure 4, describes adaptation as the outcome of post-crisis adjustment, therefore implying a two-stage response, one temporary and one more lasting on the time continuum (McCubbin, Sussman, & Patterson, 1983, p.12).

Figure 4. The Double ABCX Model



Note: aA-Accumulation of stressors plus the current stressor event. bB-Old and new resources. cC-Original and revised definition of events. xX-Disruptiveness and regenerative power that results.

The pile-up concept makes intuitive sense in describing why some families make better adjustments to stressor events than others and why they seem to make appropriate long-term adaptations to life events. This theory is useful in explaining the way in which background variables can play an important part in determining how a person might react to another stressor event and why the response can vary from maladaptation to adaptation.

BRONFONBRENNER'S THEORY OF THE ECOLOGY OF HUMAN DEVELOPMENT

Urie Bronfenbrenner (1979) presents a conceptualization of the environment as a nested structure consisting of the macrosystem, exosystem, mesosystem, and the microsystem. The macrosystem is the most distant, outermost area consisting of the societal institutions, cultural and subcultural ideologies. It is the framework within which all other components exist. It influences actions, relations and roles of people indirectly by virtue of its rules, regulations, policies, and customs. The innermost structure is the microsystem which consists of the setting for the developing person. The developing person has face-to-face contact with all the people within that setting. Bronfenbrenner's conceptualization of the setting is a place where relationships, roles, and activities are carried out by and with the developing person. A person has many microsystems (e.g. home, school, church, and work.); the links that exist between these microsystems make up the mesosystem. The exosystem is a setting that indirectly effects the developing person but is a setting in which the developing person does not participate, for instance, the child's mother's workplace. Each of these systems exerts influence on and is influenced by the developing person.

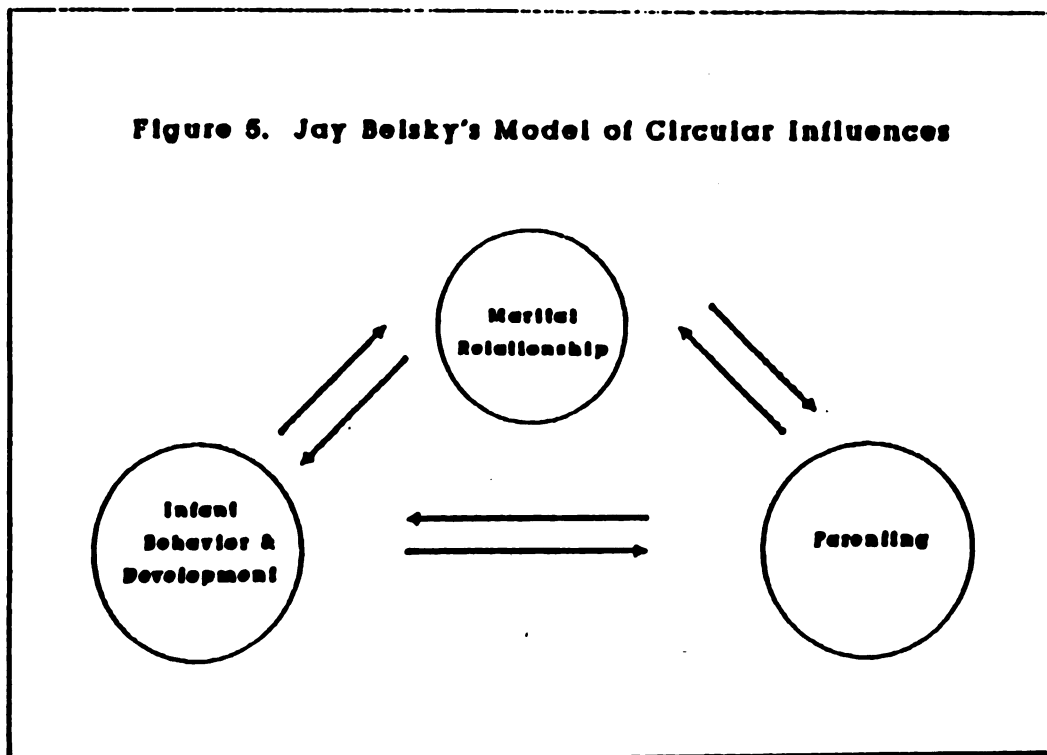
According to Bronfenbrenner the primary dyadic relationship is the essential building block for all other relationships. How the primary dyad interact in their activities, view their roles with each other, and feel about their relationship is either growth producing or stifling. The ecology of human development consists of the transactions that occur between the developing person, other people, the settings, and all aspects of the environment. The theory is a dynamic theory in that it views people, places, and objects as changing. Activities, roles, and relationships may be quite different, depending on the point in time and the situation. Development is conceptualized as having lasting meaning. The developing person has increasing control over the environment which means an increasing ability to adapt, to negotiate, and to manage factors both within and outside of the self. Bronfenbrenner's work is based on Lewinian Theory, which defines environment phenomenologically as the person's perceptions of his/her surroundings. Like the ethologists, Bronfenbrenner believes a primary positive relationship with one person provides the base for future relationships. He suggests that caring is learned by contact and responsibility. He further suggests that social development can only take place within a social environment. Neighborhoods, communities, and intergenerational families provide the milieu necessary for a developing person to practice communication, activities, roles, and relationships. The opportunity to evaluate those interactions within the context of a warm, supportive dyadic relationship in a setting that models positive, productive human behavior leads to competence in dealing with one's later environment.

Melson (McCubbin, Figley, 1983) melds the McCubbin theory with Bronfenbrenner's by describing a framework for understanding how environmental events are stressful to families using the concepts of "demand" and "fit." Each of the environmental settings makes demands (expectations) on the family members and conversely, the family members have expectations of their environment. The greater the number and variety of microsystems involved, the greater the demands and the more the diversity of expectations. Stress is defined by Melson in terms of the interaction between people and their settings. Identification of the stressors depends on the family's perceptions. Individual differences contribute to within-family stress; a misfit between expectations and environmental reality contributes to external family stress. The process of adaptation is the method used to achieve a "good fit" with the environment. Since nearly constant change in both family and environmental demands is a fact of life, the family, in its dynamic, reciprocal relationship to its environment, is constantly adjusting, coping, and adapting (McCubbin & Figley, 1983).

This study is concerned with how well the mother adapts to the stressor event of unanticipated cesarean, particularly if she has experienced a pile-up of stress within her primary microsystem, her home of origin. The unanticipated cesarean occurs within another microsystem, the hospital, which exists within a medical subculture, a component of the person's macrosystem.

BELSKY'S THEORY OF CIRCULAR INFLUENCE

The circular scheme of the three-person family proposed by Belsky (1981) depicts family relationships and functions as an interconnected system. The marriage relationship affects parenting, parenting affects the behavior and development of the infant, and the infant impacts the marital relationship. Belsky's diagram of this process is shown in Figure 5 (Belsky, 1981, p.6).



The infant's temperament and ability to emit cues and elicit responses from caretakers has been well-documented (Stern, 1977). According to Belsky (1981), the impact of parenting on the marital relationship and the marital relationship on the behavior and development of the infant have not, to date, been adequately studied. This interdisciplinary approach to the study of the linkages, impact, and influence that each component has on the other conceptualizes the family in an ecological framework. In 1984 Belsky took his model a step further and included the forces emanating from within each individual as contributors to the marital relationship, parenting, and behavior and development of the infant. These forces from within, in part, represent the environmental interactions that have occurred to the individual in development, thus, the connection with Bronfenbrenner and McCubbin's theories.

SUMMARY

Bronfenbrenner describes the interrelatedness of the person, their setting, their personal history, and their activities. Belsky puts the developing person within the context of a family and offers a framework for analyzing family relationship and function. McCubbin explains why different people react to similar events in very different ways, depending on their past experiences, resources, perceptions, and skills. This review of the three theories supports the conceptual framework of this study. The literature reviewed in this research included what previous investigators have suggested about the relationships between rearing, delivery, and maternal behavior. To date however, there have been no actual studies done on the relationships proposed in this paper. The interactive effect of

human mothers' own rearing and method of delivery on how they behave with their newborns is new, investigative territory. Current literature includes some contradictions but implies that there may be some connections. This literature review predicates the questions, predictions, and hypotheses that have been proposed for this study.

CHAPTER III

METHODOLOGY AND HYPOTHESIZED RELATIONSHIPS

RESEARCH QUESTIONS

The objectives of this descriptive research were met by addressing the following questions.

1. What is the quality of each mother's own rearing?
2. How was each mother delivered, vaginally or abdominally?
3. What is each mother's perception of her birthing experience?
4. How do mothers behave toward their infants during pregnancy and during two feeding episodes, one when baby is less than 72 hours old and in the hospital, and one when baby is 4 months old and at home?
5. Is the score on the fetal attachment scale lower among mothers who report lower quality rearing?
6. Is maternal behavior during the two feeding episodes of lesser quality among mothers who report lower quality rearing when they experience a cesarean rather than a vaginal birth?
7. What relationship do the following factors have with each of the primary variables of quality of rearing, method of delivery, and maternal behavior?
 - . mother's age
 - . mother's marital status
 - . mother's race
 - . mothers' perception of marital satisfaction
 - . mother's religious preference
 - . mother's social support
 - . mother's education
 - . mother's socioeconomic status
 - . mother's depressive symptomatology

- . mother's pregnancy, planned or unplanned
- . mother's perception of labor/delivery experience
- . indication for cesarean section
- . presence or absence of companion at birth
- . type of anesthesia
- . baby's sex
- . baby's temperament
- . method of feeding
- . initial contact time

RESEARCH PREDICTIONS

The following relationships were predicted:

1. Those mothers who report positive childhood rearing will score significantly higher on maternal behavior than those who report negative childhood rearing.
2. Those mothers having a vaginal delivery will score higher on maternal behavior than those mothers having a cesarean delivery.
3. The difference in maternal behavior between mothers who deliver vaginally or by cesarean will depend on the mother's childhood rearing.
4. The difference in maternal behavior between the three observation periods will be greater in mothers who are poorly-reared and deliver vaginally than in those who are poorly-reared and deliver by cesarean.

RESEARCH HYPOTHESES

Based on the research questions and predicted results the following hypotheses were tested in this research study.

- Ho 1: There is no significant difference in maternal behavior between well-reared mothers and poorly-reared mothers.
- Ha 1: Well-reared mothers score significantly higher on maternal behavior than do poorly-reared mothers.

Supported by: Rutter (1985), Quinton & Rutter (1984), Bowlby (1979), Tizard & Hodges (1978), Garbarino (1980), Helfer (1976), Klaus (1982).

Ho 2: There is no significant difference in maternal behavior between mothers who give birth by cesarean and those who give birth vaginally.

Ha 2: Mothers who deliver vaginally score significantly higher on maternal behavior than do mothers who deliver by cesarean.

Supported by: Cranley (1983), Lipson (1980), Oakley (1983), Donovan (1986), Rubin (1984), Mercer (1983), Trowell (1983).

Ho 3: There is no significant difference in maternal behavior between poorly-reared mothers who give birth by cesarean and those who give birth vaginally.

Ha 3: Poorly-reared mothers who deliver vaginally score significantly higher on maternal behavior than do poorly-reared mothers who deliver by cesarean.

Ho 4: There is no significant difference between maternal behavior at Time 2 and maternal behavior at Time 3 among poorly-reared mothers who deliver by cesarean and those who deliver vaginally.

Ha 4: The maternal behavior score for poorly-reared mothers who deliver vaginally shows a significant increase from Time 2 to Time 3 which is higher than the increase among poorly-reared mothers who deliver by cesarean.

Supported by: Cranley (1983).

DESIGN OF THE STUDY

A prospective descriptive, longitudinal, repeated measures design was used to achieve the objectives of this study. The unit of analysis was the individual, healthy, primigravida woman. Because the study was conducted in a natural setting, random assignment to equivalent groups was impossible. Comparison of groups was accomplished through analysis of variance. The variables believed to have some relationship with each of the independent and dependent variables were: mother's age, marital status, race, perception of marital satisfaction, religious preference, social support, education, socio-economic status, depressive symptomatology, pregnancy plan,

perception of labor/delivery experience, and time of initial mother-infant contact. Correlations between these variables and the primary variables were done. In addition, the indication for cesarean; presence or absence of companion at birth; type of anesthesia; baby's sex, temperament, and method of eating were also tested for correlation with rearing, delivery, and maternal behavior. The main effects of quality of rearing on maternal behavior with newborns and the method of delivery on maternal behavior with newborns was assessed. The interactive effect of quality of rearing and delivery was also assessed. Following the observations, each mother was assigned to one of four groups: poorly-reared vaginal delivery, well-reared vaginal delivery, poorly-reared cesarean delivery, or well-reared cesarean delivery. A third observation when the infant was four months of age provided a measure of consistency of maternal behavior. The layout of the fixed effects, split-plot, factorial with covariance design is provided in Figure 6.

ANALYTICAL CHANCE/PROBABILITY DECISION

A chance probability level of less than or equal to .05 was required to reject the four null hypotheses and to accept the research hypotheses.

Figure 6. Split-plot Multifactorial Layout

		Time		
		1	2	3
Poorly-Reared	S-1 Cesarean			
	S-30			
	S-1 Vaginal			
	S-30			
Well-Reared	S-1 Cesarean			
	S-30			
	S-1 Vaginal			
	S-30			

RESEARCH PROCEDURE

The consenting participants were studied prenatally and postnatally. The settings of the observations, the community, hospital, physicians, and clinics, were selected by the researcher. Permission for the study was granted by the Michigan State University Human Subjects Review Committee, the hospital's Institutional Review Committee, and verbally by the private physicians and the Salvation Army Clinic Director. The mothers' consent was obtained by the investigator at the time of the initial contact. The physicians and the receptionists in the clinics provided, in confidence to the investigator, the names of the healthy, primiparous women who were due to deliver during the period, July, 1988 through January, 1989. The researcher was granted access to office/clinic schedule books to search for the date of each mother's appointment. The researcher appeared at the office/clinic at the time the mother was expected for her regular appointment and approached the mother about participation in the study as she was waiting to see the physician. After hearing a description of the study and giving verbal and signed consent (see Appendix A), the expectant mother was given the packet of questionnaires (#1, MFP, MFA, CESD, MSSSI, DAS), including instructions for completion, and was requested to return the packet to the investigator at the conclusion of the office visit or to return them to the office at her next appointment. If the questionnaire was not returned, the investigator followed up by telephone. The cesarean mothers who entered the study after delivery gave consent at the initial contact and were given the packet of questionnaires after their initial 24 hours post delivery. Their packet included Questionnaires 1

and 2 plus the CES-D. Time 2 observation was completed by the researcher in the hospital. The method of delivery, mother's perception of labor/delivery, the indication for cesarean (if done), presence or absence of companion at birth, type of anesthesia; baby's sex, method of eating, and time of initial contact were questions on Questionnaire #2. After re-introductory comments were made and confirmatory, continuing consent was obtained from the mothers who had agreed prenatally, the mother was given Questionnaire #2 and the CES-D to complete. These were returned to the investigator while the mother was still in the hospital. The researcher arranged with the mother a mutually satisfactory time to do the feeding assessment. Time 3 observation was done by the researcher in the mother's home. The time of the home visit was prearranged through telephone contact and confirmed by letter. Along with the confirming letter, (approximately one week before the scheduled visit) Questionnaire #3 was mailed to the mothers. The mothers were asked to complete the questionnaire during the week and have it ready for the researcher at the time of the four-month visit. The questionnaire included the DAS, CES-D, MSSSI, and ITQ. All records were labeled by the assigned Identification Numbers and were filed in folders. Each folder included a Face Sheet which contained the participant's name, address, and other specific identifying information. This confidential information was stored in a locked cabinet in the researcher's home office.

SAMPLE SELECTION

The subjects of this study came from three private obstetric medical practice offices, one hospital clinic, and a Salvation Army prenatal clinic. All subjects delivered at a private, not-for-profit

hospital in a Michigan community of approximately 400,000 population. Selection of pregnant subjects occurred during the period of July through December, 1988. To be selected for study the expectant mother needed to:

1. Be experiencing her first pregnancy with gestation lasting longer than 3 calendar months.
2. Have no complicating medical condition and be considered healthy.
3. Live within a thirty mile radius of the hospital.
4. Be able to read, write, and speak English.
5. Give written consent to participate. (See Appendix A for this consent)

Post-delivery continuation in the study required a term baby not requiring special intensive care. One hundred, sixty-one expectant mothers were selected and tested during the prenatal period. One hundred, sixteen (72%) were studied at all three observation points: prenatal, at birth, and when the infant was four-months old. Fifty-eight subjects, chosen post-delivery were added to the sample; 57 delivered by cesarean and one delivered vaginally. These subjects who were reported to have delivered by cesarean were chosen at the researcher's convenience from the hospital's postpartum, cesarean-delivered population during the 109 day period of July 7, through October 23, 1988. The one vaginal birth was discovered after consent was obtained. The criteria for selection was the same as that used for the base sample. Explanation and consent occurred in the hospital after the initial 24 hours post delivery. This additional sample was to assure an adequate number of mothers who delivered by cesarean and

particularly to assure an adequate number of mothers on whom the interactive effect of rearing and method of delivery could be tested.

The recruitment of the sample is described in Table 1. Column 4 shows that 232 women agreed to participate in the study from a pool of approximately 370+ (column 1). As described earlier, an attempt was made to contact every accessible primiparous patient due to deliver between August 1, 1988 and January 1, 1989 in the Hospital Clinic and in Medical Practices A and B. For the most part, this was achieved. However, in the hospital clinic this became an impossible task due to the researcher's time constraints. To attempt a non-selective selection of subjects, the researcher invited all those eligible women present in the clinic on the days she was there to participate in the study. The Salvation Army Clinic was selected after a refusal was received from a previously selected hospital clinic. The researcher attended the Salvation Army Clinic on 8 occasions: August 10, 17, and 24; September 7, 14, 21, and 28; and October 5, 1988. All eligible women were invited to participate via a generalized, verbal, group invitation. Therefore, the number of missed contacts in column 2 is unknown and the number of refusals in column 3 is zero. Medical Practice C was added to increase the number of women getting their medical care from private doctors. The lead physician was contacted in September, permission was granted in October, and the names of eligible women due to deliver in November and December were provided to the researcher by the office manager. Although there were five physicians in the office, names of patients from only three of the physicians were provided. The known potential patient population from which the sample was drawn was 370+. The researcher was aware she

TABLE 1

Sample Recruitment

Source	Accessible Population ■	Missed Contact ■	Refused ■	Agreed ■	Withdrawn Prenatally ■	Insufficient Data ■
Hospital Clinic	99+	14+	14	71	1	0
Salvation Army Clinic	30+	?	0	30	2	2
OB/GYN Practice A	55	9	12	34	0	0
OB/GYN Practice B	31	7	2	22	3	0
OB/GYN Practice C	20	3	4	13	1	0
Hospital Postpartum C/S	135	53	20	62	-	4
TOTAL	370+	86+	52	232	7	6

Source	Subjects Time 1 ■	Withdrawn Pre/Del. ■	Subjects Time 2 ■	Withdrawn Post/Del. ■	Unfound at 4 Mos. ■	Subjects Time 3 ■
Hospital Clinic	70	1	69	3	25	41
Salvation Army Clinic	26	1	25	3	8	14
OB/GYN Practice A	34	0	34	3	0	31
OB/GYN Practice B	19	0	19	0	0	19
OB/GYN Practice C	12	0	12	1	0	11
Hospital Postpartum C/S	-	-	50	4	3	51
TOTAL	161	2	217	14	36	167

missed at least 86 of those potentials. Fifty-two women refused to participate; some because they were moving out of town, some because they did not want to answer the questions, some for unexpressed reasons, but the primary reason given was they did not want a stranger visiting their home during the postpartum period. Although 170 women agreed prenatally to participate in the study, only 161 actually contributed data at Time 1. Seven changed their minds and withdrew prenatally. Two failed to produce sufficient data to be included in the study. Two women withdrew between Time 1 and Time 2 but allowed their data to be included. One woman's baby died in-utero and the other one did not give a reason. The number of subjects at Time 2 was 217. Fifty people were lost between delivery and four months postpartum. This was an attrition rate of 23%.

SAMPLE DESCRIPTION

The mean age of the 219 women sampled was 22.6 years with a S.D. of 5.04. The range spanned 24 years with the youngest mother at 14 years and the oldest at 38 years. Most of the women were between 16 and 25 years of age. Forty-six percent of the women were single, 54% were married and living with their spouse. Thirteen percent of the single women lived with a male partner. Eighty-one percent of the sample were white, 15% were black, and 4% were of another race. Twenty-three percent were Catholic, 52% were Protestant, .05% were Jewish, and 24.95% had no preference. The community in which the research was done is known for its Dutch heritage, however, only 34% of the protestants indicated membership in the Reformed or Christian Reformed Church. Thirty-eight percent of the women reported their pregnancy was planned, 34% said it was not planned but they were doing

nothing to prevent a pregnancy, and 28% said it was definitely not planned. Approximately 60% attended prenatal classes. Sixty-one percent of those who attended did so with their partner. The clinic clients received education during their visits, so although many did not report enrollment in formal classes, they did have some prenatal education. Twenty-five percent of the women had not graduated from high school, 34% graduated from high school, and 41% had at least one year of college. Twenty percent of the male partners had not graduated from high school, 38% had, and 17% had at least one year of college. The Hollingshead measure of socio-economic status showed 28% in the lowest category, 21% in the second lowest, 17% at the middle level, 27% at the next to highest, and 6% at the highest or professional level. Fourteen percent of the sample women reported that one of their parents were deceased. Five of the mothers reported their mother had died before they were 19 and seven reported their fathers had died prior to their reaching 19. Forty-four percent of the sample women had parents who were single, separated, or divorced. Seventeen percent of the sample were raised by a single mother who had never married. Ninety-five percent of the parental divorces occurred prior to the sample women's 19th birthday. Fifty-nine percent of the women in the sample were raised by their biological mother and father. Twenty-four percent were raised by their mother, 1% was raised by the father, 10% were raised in a step-family, and 6% were raised by relatives, friends, or by adoptive parents. Two percent were "only" children, 31% were the youngest child, 30% were within the middle, and 36% were the oldest in their family. The mean number of siblings was three.

Vaginal deliveries accounted for 135 of those sampled. Eighty-two delivered by cesarean section. The cesareans were done for "failure to progress" (52%), "fetal distress" (24%), "breech" (21%), "bleeding" (1%), "post dates" (1%), and "maternal disease" (1%). The women gave birth to 115 boys and 102 girls. Eighty percent of the mothers had contact with their baby within the first hour of birth, 6.5% had contact between one and three hours, 10% did not see or hold their baby until between 3 and 12 hours, and 3.5% did not see or hold their baby for at least 12 hours. During the immediate postpartum period 51% were breast feeding; by four months the percentage had dropped to 19. Ninety-six percent of the mothers had a personal coach with them during labor and 95% had a coach with them during delivery. Ninety-nine percent found their coach helpful and supportive. Fifty-one percent reported their length of labor as eight hours or less, 16% experienced nine to 12 hours of labor, and 33% were in labor for over 12 hours. Analgesia and anesthesia were minimal. Twenty-three percent reportedly had none. Twenty-eight percent had a local or pudendal for the delivery and 4% had epidurals. Seventy-eight of the 82 women who had cesareans delivered under spinal; only three had general anesthesia.

By four months postpartum 60% had returned to work outside their homes, 55% of those had returned by the time their baby was 8 weeks old. Fifty-one percent of those who had returned to work were employed full-time; 49%, parttime. According to the mothers' responses on the Infant Temperament Questionnaire, (ITQ) 22% of the infants were "easy," 24% were difficult, 10% were "slow to warm," and 44% had average temperaments.

PROCEDURES AND MEASUREMENTS

The dependent variable, maternal behavior was measured at three different times: first, during the last trimester of pregnancy; second, within 72 hours of birth; and third, when the baby was four months old. The prenatal measure was done using Cranley's Maternal/Fetal Attachment Scale (MFAT). (See Appendix D.) This is a 24 item scale divided into five subscales: roletaking, differentiation of self, interaction with the fetus, attributing characteristics to the fetus, and giving of self. Each statement was responded to on a five point scale from "Definitely No to Definitely Yes," with five being the most positive response. Scores from the five subscales were summed and the total was divided by 24 (number of questions) and a mean score was reported. Normative means and standard deviations for each of the subscales were established in tests with 326 women. The reliability coefficient for the total score with 181 women with gestations greater than 20 weeks was 0.87, whereas in 145 women at a gestation of 20 weeks or less the reliability coefficient was 0.83. The research for this study used only the mean of the total score (MFAT). Kathryn Barnard's Infant Feeding Scale (NCAF), (1978) was used to measure behavior postpartally. (See Appendix K) The researcher's reliability was certified by the faculty of the University of Washington Nursing Child Assessment training in May, 1988. This measure involved observing an entire feeding episode and recording discrete maternal behaviors in the categories of sensitivity to cues, response to distress, social-emotional growth fostering, and cognitive growth fostering; and infant behaviors in the categories of clarity of cues and responsiveness to parent. A subscore was obtained

for each category with a subtotal for the parent portion and a subtotal for the child portion. A total score was also obtained. Only the parent subtotal and the total scores were used for this study (NCFBPT and NCAFBT).

The independent variable of rearing was measured by the Mother-Father-Peer Scale (MFP) developed by Seymour Epstein (1988) at the University of Massachusetts in 1983. (See Appendix E) The quality of rearing for this study was operationally defined as the score achieved on the "Acceptance VS Rejection" portion of the scale. Responses on a five point scale of agree to disagree to these ten statements (ten for mother and ten for father) indicated the degree to which the subject's mother and father "communicated love, acceptance, and appreciation of the child, as opposed to viewing the child as undesirable, a burden, a nuisance, and a source of unhappiness or disappointment" (Epstein, 1983). The Acceptance total was derived by reversing the numbers on the five negative items and then summing the ten ratings. Means and standard deviations were established by Epstein in tests of 176 women. The mean score for mothers reporting maternal acceptance behavior was 40.40 (S.D. 9.39), with a reliability coefficient of .91. The mean score for paternal acceptance behavior was 39.64 (S.D. 9.27) with a reliability coefficient of .91 also. Validity of the MFP was assessed by administering the questionnaire along with other personality inventories to female college students and correlating the results. Epstein correlated scores of the MFP with those of his own Ego Strength Scale, Baron's Ego Strength Scale, Eysenck's Neuroticism/Extroversion Scale, the Guilford-Zimmerman Temperament Survey, O'Brien and Epstein's Self-Esteem Inventory, and the Primary

Emotions and Traits Inventory (Epstein, 1988). The "mother accepting" scores showed mild correlations with the other inventories. The female age, marital status, race, religion, education, whether or not the pregnancy was planned, perception of labor, companion at birth, baby's sex, method of feeding, and time of initial contact was measured by the mothers' written, forced choice responses on the self-report questionnaires. The type of anesthesia, indication for cesarean, and method of delivery was obtained from the mothers' responses on Questionnaire #2.

Perception of marital satisfaction was measured using the "Dyadic Adjustment Scale" (DAS) which was developed by G. B. Spanier. This is based on the Locke-Wallace self-report measure (Spanier, 1976). The mean of 114.8, standard deviation of 17.8 are the published norms established in tests of 218 married people. The mean of 94 divorced persons was 70.7 (S.D. 23.8). This is a valid and acceptably reliable scale which tests dyadic consensus, satisfaction, cohesion, and affectional expression. It is accepted for use when only one member of a dyad responds. (See Appendix H)

Social support was measured by the Maternal Social Support Index (MSSI) developed in 1981 by John Pascoe, Frank Loda, Valerie Jeffries, and Joanne Earp in Toledo, Ohio. The self-report questionnaire has been used to relate maternal social support to the care and stimulation of small children in the home. Construct validity was established by comparable testing of a group of protective-service referred mothers and another group of non-protective-service referred mothers. The mean for the protective-service mothers was 7.4 and

for the non-protective-service mothers the mean was 10.5. These means were significantly different at alpha .001.

Socio-economic status was determined using the Four Factor Index of Social Status developed by August B. Hollingshead at Yale University in 1975. This index combines sex, marital status, occupation, and years of schooling to estimate the status position individuals and members of nuclear families occupy in American society. This index is a revision of one developed by the same author in 1958. It is recognized as a reliable and valid instrument. It is a frequently used measure.

Depressive symptomatology was measured using the Center for Epidemiologic Studies Depression Scale (CES-D). This instrument was designed to measure current levels of symptomatology, the information needed for this study. A strength of this tool is its value in studying the relationship between depressive symptoms and other variables (Radloff, 1977). The instrument has been widely tested on people with different racial backgrounds, ages, and on both men and women. The scale is reported to have high internal consistency, acceptable test-retest stability, excellent concurrent validity, and substantial evidence of construct validity. (See Appendix G)

Babies' temperament was calculated from the mothers' responses to the 97 item Infant Temperament Questionnaire (ITQ) developed as a screening device to be used in clinical practice by Carey and McDevitt (1978). The instrument was originally developed in 1970 and revised in 1978 to improve its psychometric characteristics. The internal consistency for the total instrument was 0.83 and the test-retest

reliability was 0.86. This restandardization was done on a sample of 203 infants, age 4 to 8 months. (Carey & McDevitt, 1978, p. 737).

DATA ANALYSIS

Frequencies and descriptive statistics were calculated for each variable with the SL-Micro Computer program for the IBM-PC. Multiple analysis of variance, using SPSS-X, and SPSS-PC, were performed to determine the differences between the two groups in each plot (poorly-reared vaginal and poorly-reared cesarean vs well-reared vaginal and well-reared cesarean). A repeated measures procedure was used to determine differences in maternal behavior between Time 2 and Time 3. Since the Time 1 measure of maternal behavior was on a totally different scale than Time 2 and 3 the repeated measure procedure could not be used. Therefore the three scores were compared using Pearson Product Moment Correlations. Homogeneity of the groups was assessed by the Bartlett-Box procedure. When homogeneity was not present, an orthonormalized transformation procedure was automatically performed by the computer prior to further analysis. Step-wise multiple regression analyses were employed to investigate the predictive significance of each of the independent variables on the dependent variable. Pearson Product Moment Correlations and Spearman Correlations were used to clarify relationships between factors previously assumed to be related to the primary variables of rearing, method of birth, and maternal behavior with the newborn. Findings were considered significant if the statistical tests showed a chance probability that was less than or equal to .05. Correlations were considered significant when the coefficient was greater than zero by a

chance probability that was less than or equal to .05. A chance probability of .05 was used to reject the null hypotheses.

TIME LINE

1987		Literature reviewed
1988	March	Proposal written
	April	Proposal approved by the Advisory Committee
	May	Proposal submitted to MSU, and Butterworth Hospital
	June	Permission granted by Physicians, Butterworth Hospital, and MSU.
	July	Data collection begun
		T-1 T-2 T-3
		July Aug. Dec.
		Aug. Sept. Jan.
		Sept. Oct. Feb.
		Oct. Nov. March
		Nov. Dec. April
		Dec. Jan. May
1989		Jan. Feb. June
	June December	Data collection completed Analyses completed
1990	February	Research reported

CHAPTER IV

RESULTS

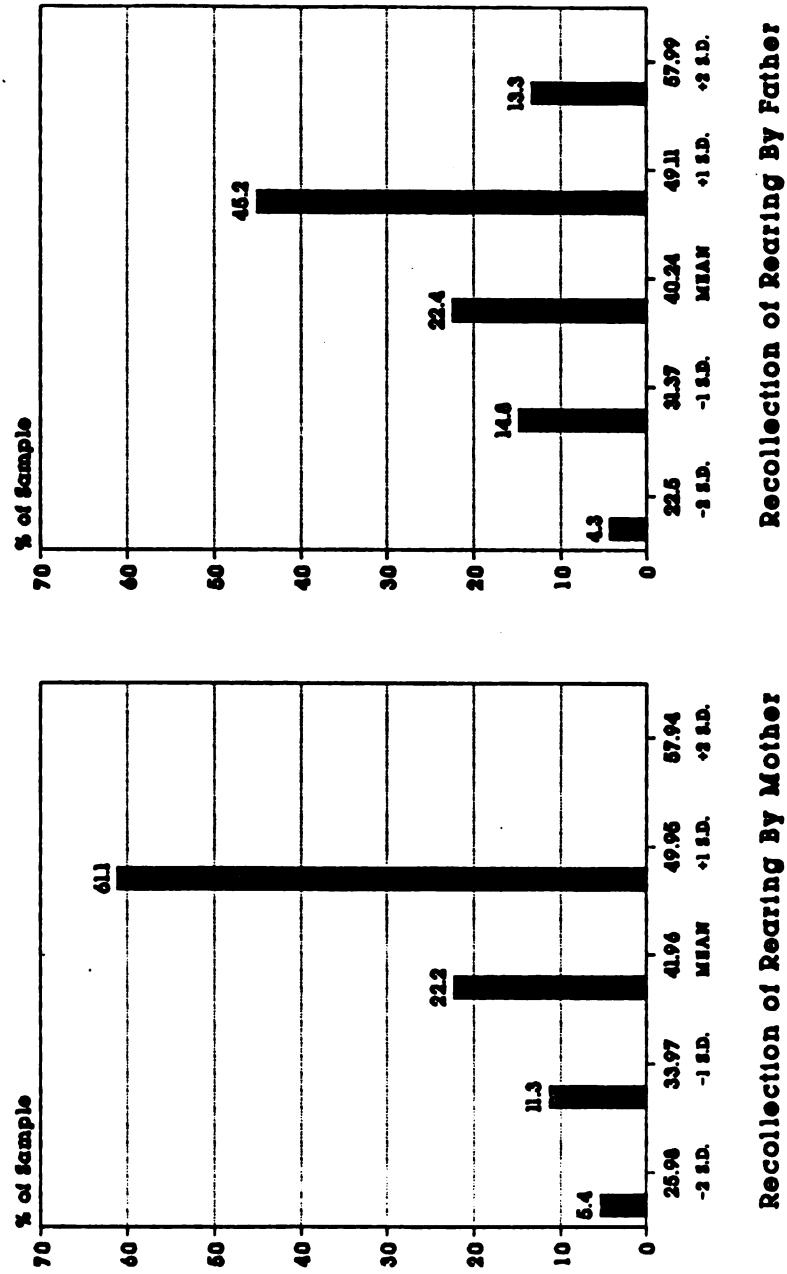
RESEARCH FINDINGS

Due to the descriptive nature of this study the results of the data analyses will be presented in terms of responses to the research questions and predictions posed in Chapter III, as well as in terms of the specific research hypotheses.

Question 1. What is the quality of each mother's own rearing?

Figure 7 shows that 203 women completed the "mother" portion of the MFP. The mean score of the subjects' recollection of the quality of rearing by their mother was 41.96, S.D., 7.99, and median 44.69. Scores of less than two standard deviations (S.D.) below the mean accounted for five and four-tenths percent of the sample while 11.3% scored within the second S.D. below the mean and 22.2% were within one S.D. below the mean. Above mean scores included 61.1% within one S.D. and none were greater than one S.D. above the mean. The median score was used as the dividing line between the arbitrarily assigned groups of poorly-reared and well-reared subjects. Multifactorial analyses of the groups are reported later in this chapter. Figure 7 also shows that 188 subjects completed the "father" portion of the MFP scale. The subjects' mean score of their recollections of the quality of rearing by their fathers was 40.24; S.D., 8.87; and median, 42.61. Scores less than two S.D.'s below the mean accounted for 4.3% of the sample; 14.8% of the sample had scores within the second S.D. below the mean of the study; and, 22.4% had scores within one S.D. below the

Figure 7. Percentage Distribution of Mother/Father Acceptance/Rejection Scores



mean. Above the mean scores included 45.2% within one S.D. and 13.3% scored within the second S.D. above the mean. The median of 42.61 was used in the multifactorial analyses that follow. The subjects' recollections of rearing by mothers and recollections of rearing by fathers were mildly correlated (.36, $P=.00$).

Question 2: How was each mother delivered, vaginally or abdominally:

There were 217 subject responses to the question regarding method of delivery of which 135 delivered vaginally and 82 delivered by unanticipated cesarean section.

Question 3: What was each mother's perception of her birth experience?

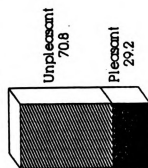
Perception of the birth experience was operationally defined by the subjects' responses to the following three questions: "How would you describe your labor experience?" "How would you describe the degree of pain?" and "Thinking of your labor experience, would you happily repeat, repeat, not repeat?" Figure 8 contains the descriptive responses. Labor was described as pleasant by 29.2% of the sample while 70.8% said it was unpleasant. Thirty-four and seven-tenths percent said they would not repeat the labor experience, 47.4% said they would repeat it, and 17.8% said they would happily repeat the labor experience. Thirty-nine and six-tenths percent reported pain as expected or less while 60.4% described the pain as greater than expected or severe. In addition to the above three variables, 29 (35%) of the subjects who delivered by cesarean were asked by the researcher how they felt about having to deliver by cesarean and these comments were categorized as negative, neutral, and positive as shown in Figure 9. Analyses of these 29 subjects' perception of the

cesarean experience as it related to other variables were done using the Chi Square test. No significant relationships were found between the character of the perception and other variables.

Question 4: How do mothers behave toward their infants during pregnancy and during two feeding episodes, one when baby is less than 72 hours old and in the hospital, and one when baby is 4 months old and at home?

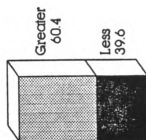
Table 2 lists the mean scores of the 156 expectant mothers on the MFA scale. The mean of 4.486 for the "Roletaking" subscale among this sample is higher than the standardized mean of 4.10 reported by Cranley (1987. On "Differentiation of self" Cranley's sample of 181 had a mean of 4.23, whereas this sample mean was 4.41. "Interaction with fetus" resulted in a mean of 3.49 for this sample compared to 2.98 in the Cranley sample. On the subscale "Attributing to fetus" this sample scored higher with a mean of 3.756 than the Cranley mean of 3.13. In "Giving of self" the samples were comparable, this sample's mean of 3.976 and Cranley's mean of 3.98. The total mean scores were also comparable with this sample mean being 3.963 and Cranley's mean, 3.97. The mean score for the Total MFA scale (MFAT) was the only score used for multifactorial analyses.

Figure 8. Percentage Distribution of Perception of Labor/Delivery Experience



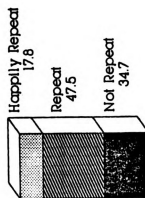
N=202

Descriptive Response of Labor



N=210

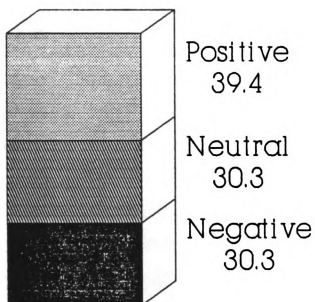
**Degree of Pain
Actual Compared to Expected**



N=210

Prediction of Future Labor Experience

Figure 9. Percentage Distribution of Retrospective Feelings About Cesarean Experience



N=29

TABLE 2

Mean Scores (S.D.) from Maternal/Fetal Attachment Scale (MFA)

Gestation >20 Wk	Cranley's Data (N=181) Mean Score	This Sample (N=156) (Mean Score (S.D.))
TOTAL SCORE	3.97	3.96 (.451)
Roletaking	4.10	4.49 (.57)
Differentiation of Self	4.23	4.41 (.05)
Interaction with Fetus	2.98	3.49 (.65)
Attributing to Fetus	3.13	3.76 (.682)
Giving of Self	3.98	3.97 (.504)

Observations during a feeding episode within the immediate postpartum period numbered 203 subjects and their babies. The Nursing Child Assessment Feeding Scale (NCAF) served as the measurement of maternal behavior. The Parent Subscale score and the Total score were used for all the analyses. Figure 10 shows the distribution of scores resulting from the observations at Time 2. The mean parent score for the entire sample was 39.4 (S.D. 3.94). Of the sample 31% scored within one standard deviation below the mean, 10% within the second S.D. below, and 3% were in excess of two S.D.'s below the mean. Scoring more than one S.D. above the mean was 11.5% and 44% were within the first S.D. above the mean. Scores greater than two S.D.'s above the mean were recorded for 5% of the sample. Figure 10 also shows the distribution of the NCAF Total Scale. Thirty-one and

five-tenths percent of the sample scored within one S.D. below the mean of 55.21. Thirteen and eight-tenths percent scored within the second S.D. below and 2% scored more than two S.D.'s below. Forty-one and nine-tenths percent of the sample scored within one S.D. above the mean, 7.8% scored within the second S.D. above and 3% scored beyond two S.D.'s above the mean.

Figure 11 shows the descriptive results of the NCAF observations at four months. One hundred, fifty-five mother/baby pairs were observed. The mean score on the Parent Subscale was 40.92 and on the Total Scale, it was 59.44. Parent Subscale scores for 29% were within one S.D. below the mean, 20% were within the second S.D. below, and 2.6% were more than two S.D.'s below the mean. A total of 48.4% of the subjects scored above the mean, 34.9% within one S.D. and 13.5% greater than one S.D. above. NCAF Total Scale scores were within one S.D. either side of the mean for 64.5%; 17.4% were more than one S.D. below and 18.1% were more than one S.D. above.

Question 5: Is the score on the fetal attachment scale lower among mothers who report lower quality rearing?

Table 3 shows the results of the analysis of variance on the total sample separated by the median score into poorly- and well-reared groups of expectant mothers. The mean scores on the total MFA are lower, but not significantly lower, for the subjects in the "poorly-reared by mother" group and the "poorly-reared by father" group.

Question 6: Is maternal behavior during the two feeding episodes of lesser quality among mothers who report lower quality rearing when they experience a cesarean rather than a vaginal birth?

According to the results of the multiple analysis of variance (MANOVA) printed in Table 4, maternal behavior during the immediate

Figure 10. Percentage Distributage of Nursing Child Assessment Feeding (NCAF) Scores, Time 2

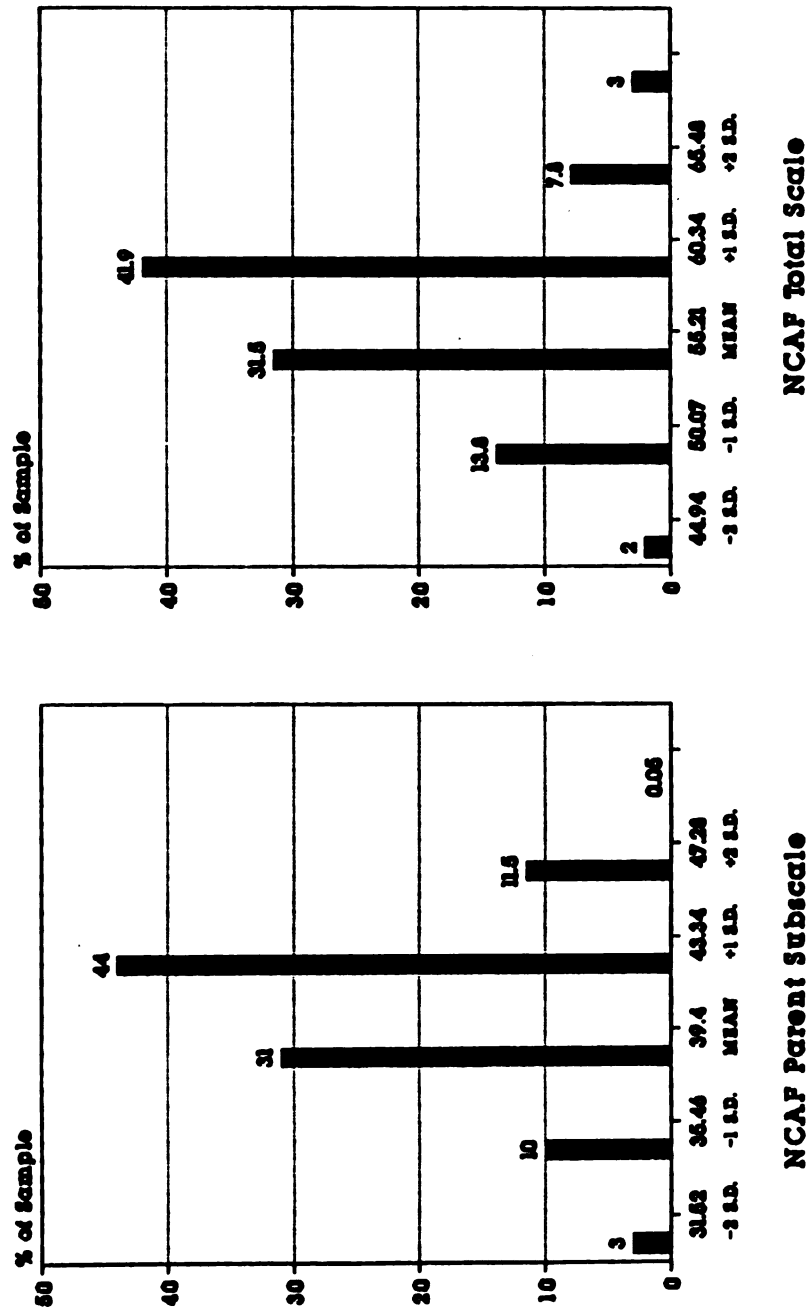


Figure 11. Percentage Distribution of NCAP Scores, Time 3

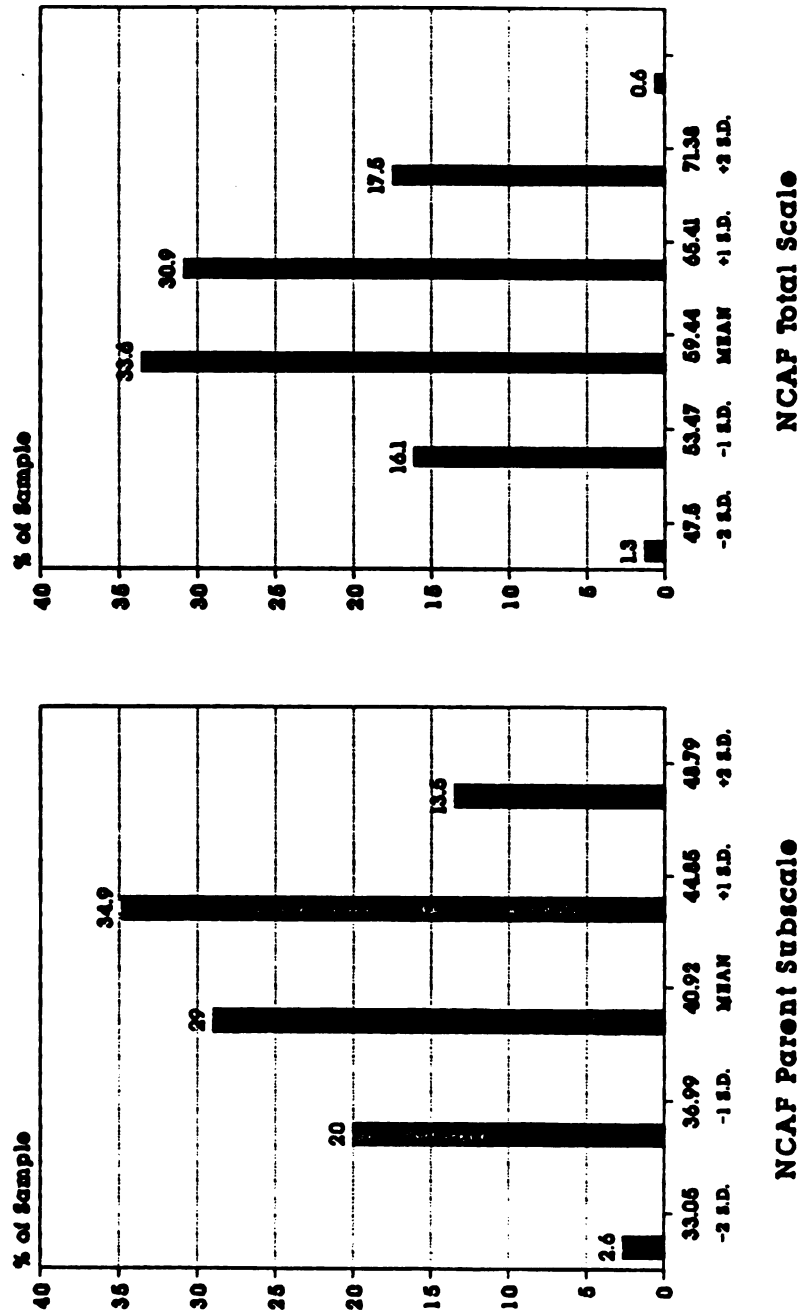


TABLE 3

Results of Analysis of Variance of Maternal/Petal Attachment by Poorly-Reared and Well-Reared Pregnant Subjects.

	N.	Mean	S.D.	S.S.	D.F.	F.	P.
<u>Recollection of Rearing by Mother</u>							
Poorly-Reared	78	3.93	.43				
Well-Reared	76	4.01	.47				
Within Groups				30.57	152		
Between Groups				.28	1	1.38	.24
<u>Recollection of Rearing by Father</u>							
Poorly-Reared	74	3.95	.43				
Well-Reared	68	4.01	.47				
Within Groups				28.48	140		
Between Groups				.12	1	.58	.45

Significance

* $P < \text{or} = \text{to } .05$

** $P < \text{or} = \text{to } .01$

*** $P < \text{or} = \text{to } .001$

TABLE 4

Results of Multivariate Analysis of Maternal Behavior (MCAP Parent Subscale Scores) at Time 2 by Differences in Rearing and Method of Delivery.

		N.	Mean	S.D.	S.S.	D.F.	F.	P.
Recollection of Rearing by Mothers								
Poorly-Reared	Vaginal	63	38.78	4.47				
	Cesarean	26	40.19	2.65				
Well-Reared	Vaginal	59	39.30	3.63				
	Cesarean	40	40.65	4.09				
Main Effects	Rearing				10.08	1	.65	.42
	Delivery				79.08	1	5.14	.025*
Interactive Effect					.05	1	.00	.954

Recollection of Rearing by Father								
Poorly-Reared	Vaginal	62	38.64	4.28				
	Cesarean	22	40.00	3.22				
Well-Reared	Vaginal	51	40.04	3.50				
	Cesarean	39	41.26	3.34				
Main Effects	Rearing				65.76	1	4.71	.031*
	Delivery				61.92	1	4.44	.037*
Interactive Effect					.10	1	.01	.91

Significance

* $P < \text{or} = \text{to } .05$

** $P < \text{or} = \text{to } .01$

*** $P < \text{or} = \text{to } .001$

postpartum period in the hospital among subjects who reported lower quality rearing by both mother and father was of higher quality on the NCAF Parent Scale when they experienced a cesarean rather than a vaginal birth. Both of these differences were statistically significant ($P=.025$ and $P=.037$). There was also a significant difference between the "poorly-reared and the well-reared by father" subjects. The poorly-reared scored significantly lower than the well-reared. This difference was not present between groups when rearing was defined as "rearing by mother." Table 5 shows the NCAF Total Scale score during the immediate postpartum period to be significantly higher between the subjects who delivered by cesarean and those who delivered vaginally ($P=.032$ and $P=.044$). There was no significant difference between poorly-reared and well-reared in either group. There also was no interaction between rearing and delivery on maternal behavior.

There was no significant difference between the vaginal and cesarean groups in NCAF Parent scores among poorly-reared by mother and father subjects at the four-month postpartum time. The results are displayed in Table 6. Table 7 displays the results of the NCAF Total scores at Time 3. There was no difference between poorly-reared and well-reared subjects in either group. There was, however, a significant main effect for type of delivery. The cesarean-delivered mothers had higher scores than did the mothers who delivered vaginally. There was no interaction effect, meaning that the differences in maternal behavior do not depend on some combination of types of delivery and quality of rearing.

TABLE 5

Results of Analysis of Variance of Maternal Behavior (MCAP Total Scale Scores)
at Time 2 by Differences in Rearing and Method of Delivery.

		N.	Mean	S.D.	S.S.	D.F.	F.	P.
<u>Recollection of Rearing by Mother</u>								
Poorly-	Vaginal	63	54.51	5.83				
Reared	Cesarean	26	56.15	3.56				
Well-	Vaginal	59	54.95	4.79				
Reared	Cesarean	40	56.73	5.47				
Main	Rearing				10.90	1	.407	.524
Effects	Delivery				124.86	1	4.66	.032*
Interactive Effect					.175	1	.007	.936

<u>Recollection of Rearing by Father</u>								
Poorly-	Vaginal	62	54.63	5.23				
Reared	Cesarean	22	56.59	3.97				
Well-	Vaginal	51	55.57	5.28				
Reared	Cesarean	39	57.00	5.04				
Main	Rearing				24.42	1	.952	.331
Effects	Delivery				105.145	1	4.10	.044*
Interactive Effect					2.63	1	.103	.75

Significance

- * $P < \text{or} = \text{to } .05$
- ** $P < \text{or} = \text{to } .01$
- *** $P < \text{or} = \text{to } .001$

TABLE 6

Results of Analysis of Variance of Maternal Behavior (MCAR Parent Subscale Scores)
at Time 1 by Differences in Rearing and Method of Delivery.

		N.	Mean	S.D.	S.S.	D.F.	F.	P.
<u>Recollection of Rearing by Mother</u>								
Poorly- Reared	Vaginal	41	39.88	4.28				
	Cesarean	22	42.32	3.50				
Well- Reared	Vaginal	52	40.13	6.88				
	Cesarean	37	40.30	7.41				
Main Effects	Rearing				13.18	1	.363	.548
	Delivery				41.148	1	1.132	.289
Interactive Effect					44.674	1	1.229	.269

<u>Recollection of Rearing by Father</u>								
Poorly- Reared	Vaginal	40	39.25	7.26				
	Cesarean	22	42.50	3.83				
Well- Reared	Vaginal	42	40.67	3.74				
	Cesarean	35	40.20	7.68				
Main Effects	Rearing				.012	1	.000	.985
	Delivery				47.096	1	1.283	.259
Interactive Effect					116.405	1	3.172	.077

Significance

* P < or = to .05

** P < or = to .01

*** P < or = to .001

TABLE 7

Results of Analysis of Variance of Maternal Behavior (MCAP Total Scale Scores)
at Time 3 by Differences in Rearing and Method of Delivery.

		N.	Mean	S.D.	S.S.	D.F.	F.	P.
<u>Recollection of Rearing by Mother</u>								
Poorly- Reared	Vaginal	41	58.10	6.12				
	Cesarean	22	62.05	5.78				
Well- Reared	Vaginal	52	59.15	6.24				
	Cesarean	37	59.86	5.39				
Main	Rearing				.938	1	.027	.871
Effects	Delivery				143.837	1	4.069	.045*
Interactive Effect					90.242	1	2.553	.112

<u>Recollection of Rearing by Father</u>								
Poorly- Reared	Vaginal	48	58.29	6.63				
	Cesarean	22	62.14	5.13				
Well Reared	Vaginal	42	58.90	5.61				
	Cesarean	35	59.97	5.73				
Main	Rearing				.191	1	.191	.663
Effects	Delivery				5.113	1	5.113	.025*
Interactive Effects					1.851	1	1.851	.176

Significance

* P< or = to .05

** P< or = to .01

*** P< or = to .001

Question 7: What relationship do the following factors have with each of the primary variables of quality of rearing, method of delivery, and maternal behavior?

A matrix of the Pearson or Spearman Correlation Coefficients is presented in Tables 8 and 9. To do these procedures the nominal variables were categorized into two groups, one designated as 0 and the other as 1. The nominal variables so categorized were: Delivery: cesarean=0, vaginal=1; Marital Status: single=0, married=1; Race: non-white=0, white=1; Infant feeding: bottle=0, breast=1.

Mother's age was mildly correlated in a negative direction (-.2648) with delivery, meaning that the older the mother, the more likely cesarean delivery. There was also a modest correlation (.3414) with the NCAF parent score and a modest correlation with the NCAF total score (.2898) at Time 2. These correlations were statistically significant at the alpha level of .00.

Mother's marital status was mildly correlated with subject's recollection of quality of rearing by both mother and father (.2966 and .2001). The subject's marital status was mildly correlated (.2286, $P=.002$) with the MFAT. There was mild correlation in a negative direction between marital status and method of delivery (-.2105) which means that married mothers are more likely to deliver by cesarean. Marital status was moderately correlated (.4383) with the Time 2 NCAF parent subscore and NCAF total score (.3932). At Time 3, the only significant correlation was with the NCAF total score and it was modest (.2709).

TABLE 8

Pearson Product Moment Correlations Between Demographic and Status Variables and Primary Variables.

	Recollection of Rearing by Mother	Recollection of Rearing by Father	Delivery
Age	.1536 (200) p=.01**	.0932 (185) p=.10	-.2648 (212) p=.00***
Marital Status	.2966 (203) p=.00***	.2001 (188) p=.00***	-.2105 (215) p=.00***
Race	.2229 (202) p=.00***	.0693 (187) p=.17	-.1438 (214) p=.02*
Marital Satis. During Pregnancy	.3406 (131) p=.00***	.1556 (122) p=.04*	-.0588 (131) p=.25
Marital Satis. at 4 Months PP	.4462 (143) p=.00***	.4033 (138) p=.00***	-.0141 (143) p=.43
Social Support During Pregnancy	.2955 (150) p=.00***	.1479 (137) p=.04*	-.0388 (151) p=.32
Social Support at 4 Months PP	.3088 (159) p=.00***	.2036 (153) p=.00***	-.0629 (160) p=.21
Education	.2905 (202) p=.00***	.2210 (187) p=.00***	-.1804 (214) p=.00***
Social Status	-.2638 (200) p=.00***	-.2518 (186) p=.00***	.2343 (212) p=.00***
Depression During Pregnancy	-.2307 (145) p=.00***	-.1437 (134) p=.05*	-.0137 (145) p=.43
Depression Immediate PP	-.1259 (193) p=.04*	-.2246 (178) p=.00***	.0127 (208) p=.43

TABLE 8 (cont'd.)

Depression at 4 Months PP	-.3465 (158) p=.00***	-.3257 (152) p=.00***	.0794 (158) p=.16
Preg. Planned	-.1323 (201) p=.06	-.0428 (187) p=.56	.1744 (213) p=.01**
Babies Temperament	-.1511 (141) p=.04*	-.1970 (135) p=.01**	.0946 (144) p=.13
Method of Feeding Time 2	.0246 (201) p=.36	.1360 (186) p=.03*	-.0740 (217) p=.14
Initial Contact	.0492 (200) p=.24	.0560 (185) p=.22	-.2774 (216) p=.00***

Significance

* $P < \text{or} = \text{to } .05$ ** $P < \text{or} = \text{to } .01$ *** $P < \text{or} = \text{to } .001$

TABLE 9

Pearson Product Moment Correlations Between Independent and Dependent Variables.

	Time 1	Time 2		Time 3	
	NFAT	NCAF Parent	NCAF Total	NCAF Parent	NCAF Total
Recollection of Rearings/Mother	.0906 (154) p=.22	.1023 (188) p=.16	.1027 (188) p=.16	-.0253 (152) p=.76	.0101 (152) p=.98
Recollection of Rearings/Father	.0269 (142) p=.75	.0858 (174) p=.26	.0241 (174) p=.75	-.0159 (147) p=.85	.0215 (147) p=.88
Delivery	.0552 (154) p=.50	-.1417 (203) p=.04*	-.1516 (203) p=.03*	-.0793 (155) p=.33	-.1654 (155) p=.04*
Age	.1260 (153) p=.06	.3414 (198) p=.00***	.2898 (198) p=.00***	.1346 (152) p=.05*	.1900 (152) p=.01**
Marital Status	.2206 (156) p=.00***	.4383 (201) p=.00***	.3932 (201) p=.00***	.1402 (155) p=.08	.2700 (155) p=.00***
Race	.1883 (155) p=.01**	.3204 (200) p=.00***	.3255 (200) p=.00***	.0019 (155) p=.31	.2107 (155) p=.01**
Marital Satis. During Preg.	.1950 (132) p=.01**	.1653 (122) p=.03*	.1786 (122) p=.025*	.1350 (88) p=.10	.1331 (88) p=.11
Marital Satis. At 4 Mos. PP	.2124 (96) p=.02*	.1651 (135) p=.03*	.1216 (135) p=.08	.1310 (133) p=.07	.1189 (133) p=.09
Social Support During Preg.	.1835 (150) p=.01**	.0906 (142) p=.14	.0934 (142) p=.13	.0492 (103) p=.31	.0879 (103) p=.19
Social Support at 4 Mos. PP	.2946 (112) p=.00***	.1929 (152) p=.01**	.1022 (152) p=.01**	.0320 (150) p=.35	.1275 (150) p=.06
Education	.0948 (155) p=.12	.3513 (200) p=.00***	.3063 (200) p=.00***	.0342 (154) p=.67	.0978 (154) p=.23

TABLE 9 (cont'd.)

Social status	-.1896 (154) p=.01**	-.4093 (198) p=.00***	-.3688 (198) p=.00***	-.1255 (154) p=.12	-.1333 (154) p=.18
Depression During Preg.	-.1471 (145) p=.04*	-.0638 (136) p=.23	-.0519 (136) p=.27	-.0158 (101) p=.44	.0138 (101) p=.45
Depression Immed. PP	-.0358 (147) p=.33	.0442 (198) p=.27	.0374 (198) p=.38	-.0264 (148) p=.37	.0902 (148) p=.14
Depression at 4 Mos. PP	-.1312 (111) p=.08	-.1829 (151) p=.01**	-.1549 (151) p=.03*	.0518 (149) p=.27	-.0234 (149) p=.38
Preg. Planned	-.1286 (154) p=.14	-.2578 (199) p=.00***	-.1817 (199) p=.01**	-.1262 (155) p=.12	-.1628 (155) p=.04*
Babies Temper.	-.1385 (107) p=.09	-.0925 (136) p=.14	-.0958 (136) p=.13	-.1899 (134) p=.01**	-.2441 (134) p=.00***
Method of Feed. Time 2	.1488 (154) p=.03*	.1594 (203) p=.01**	.2175 (203) p=.00***	.1124 (155) p=.08	.2609 (155) p=.00***
Initial Contact	-.0958 (153) p=.12	.0451 (202) p=.28	.0554 (202) p=.22	-.0713 (155) p=.19	-.0426 (155) p=.38

Significance

*p < or = to .05

**p < or = to .01

***p < or = to .001

Mother's race was mildly correlated with quality of rearing by mother (.2229), indicating that white subjects recalled higher quality rearing by their mothers than did non-white subjects. Race was also mildly correlated with the NCAF parent score and the NCAF Total score (.3204, $P=.00$ and .3255, $P=.00$) at Time 2, as well as with the total score at Time 3, (.2107, $P=.01$).

Mother's perception of marital satisfaction during pregnancy was moderately correlated (.3406) with the quality of rearing by mother. Marital satisfaction at Time 3 was moderately correlated with the quality of rearing by both mother and father (.4462 and .4033, $P=.00$). It also was mildly correlated (.2124, $P=.02$) with the MFAT score.

Mother's religious preference, tested by Chi Square analysis showed no relationship to quality of rearing, method of delivery, or maternal behavior.

Mother's social support during pregnancy was mildly correlated with quality of rearing by mother (.2955, $P=.00$). Social support at four months was mildly correlated with quality of rearing by mother and by father (.3088 and .2836, $P=.00$). It was also mildly correlated (.2946, $P=.00$) with the MFAT score.

Mother's education showed mild correlations with the quality of rearing by mother (.2905, $P=.00$), quality of rearing by father (.2210, $P=.00$), NCAF parent subscale (.3513, $P=.00$) and NCAF total score at Time 2 (.3063, $P=.00$). Mothers' education showed some correlation in a negative direction (-.1804, $P=.00$) with delivery.

Mother's socio-economic status was mildly correlated in a negative direction with quality of rearing by both mother and father

($-.2638$ and $-.2518$, $P=.00$). The Hollingshead Scale codes the highest level of socio-economic status (SES) as 1 and the lowest level as 5. Therefore, the negative correlation demonstrates that higher level status subjects will score higher on rearing. SES was mildly correlated in a positive direction with delivery ($.2343$, $P=.00$) which means the higher the level of SES, the more likely the subject to deliver by cesarean. SES was moderately correlated in a negative direction ($-.4093$, $P=.00$) with the Time 2 NCAF parent subscale score and mildly correlated in a negative direction ($-.3688$, $P=.00$) with the NCAF total score. This is a direct relationship between high SES and high maternal behavior scores.

Mother's depressive symptomatology during pregnancy mildly correlated negatively with quality of rearing by mother ($-.2307$, $P=.00$), meaning the lower the quality of rearing, the greater the depression. There were no significant relationships between depression during pregnancy and rearing by father, delivery, or maternal behavior. Depression during the immediate postpartum period showed mild correlation in a negative direction with quality of rearing by father ($-.2246$, $P=.00$). Depression at four months postpartum was mildly correlated in a negative direction with quality of rearing by mother and by father ($-.3465$ and $-.3257$, $P=.00$). There were significant but slight negative correlations with the NCAF Parent and Total Scores measured at Time 2 ($-.1829$, $P=.01$ and $-.1549$, $P=.03$).

Mother's pregnancy, planned or unplanned showed no relationship with the independent variables of rearing and delivery nor with the dependent variable of maternal behavior with the fetus. It was mildly correlated with maternal behavior with the newborn.

Mother's perception of labor/delivery experience was assessed through responses to three separate questions: a description of labor, a prediction of feelings about future labors, and a report of level of pain. The multivariate analysis on the sample of 186 showed a relationship between method of delivery and description of labor as pleasant or unpleasant ($F=4.333$, $\alpha=.04$). On the sample of 172, the relationship between method of delivery and description of labor was even more significant ($F=6.76$, $P=.01$). This is shown in Table 10. There were no relationships with rearing or maternal behavior. The perception of the experience did not depend on the combined effect of rearing and delivery.

Indication for cesarean section was not related to rearing, delivery, or maternal behavior as tested by Chi Square analysis.

Presence or absence of companion at birth showed no relationship to rearing, delivery, or maternal behavior according to Chi Square Chi Square analysis.

Type of anesthesia showed no relationship to rearing, delivery, or maternal behavior as tested by Chi Square analysis.

Baby's sex was not correlated with rearing, delivery, or maternal behavior. However, multivariate analysis showed an interaction effect between baby's sex and method of delivery on maternal behavior at Time 2 ($F=4.92$, $P=.028$). The NCAF parent subscore was higher for mothers of male babies who delivered by cesarean than it was for mothers who delivered male babies vaginally. The male/vaginal score was lower than either the female/vaginal or the female/cesarean. There was only a .202 point difference between the female/vaginal and the female/cesarean with the female/vaginal being the higher score.

TABLE 10

Results of Multivariate Analysis of Mothers' Perception of Labor/Delivery Experience by Differences in Rearing and Method of Delivery.

Recollection of Rearing										
By Mother					By Father					
Error					Error					
N.	S.S.	S.S.	F.	P.	N.	S.S.	S.S.	F.	P.	
INTERACTION EFFECT										
Rearing & Del.	186	D.F. (1,182)			172	D.F. (1,168)				
Description		.41812	166.783	.448	.50		2.269	153.843	2.478	.12
Prediction		.04951	82.681	.189	.74		.601	72.075	.803	.95
Degree of Pain		.15569	141.411	.208	.65		1.066	131.145	1.368	.24
MAIN EFFECT										
Delivery										
Description		3.970	166.783	4.334	.04*		6.195	153.843	6.765	.01*
Prediction		1.188	82.681	2.597	.11		1.368	72.075	3.048	.08
Degree of Pain		.001	141.411	.001	.97		.068	131.145	.007	.77
MAIN EFFECT										
Rearing										
Description		.148	166.783	.169	.69		2.195	153.843	2.388	.12
Prediction		1.441	82.681	3.172	.08		1.482	72.075	3.454	.066
Degree of Pain		.070	141.411	.090	.76		1.225	131.145	1.570	.21

Significance

* P< or = to .05

** P< or = to .01

*** P< or = to .001

This interaction effect between sex of baby and method of delivery on maternal behavior scores means that the scores depend on both sex and delivery and the effect of either cannot be interpreted singly. Table 11 displays these results. This result was not found at Time 3. Table 12 shows results of the Repeated Measures test. The "between subject" effects showed no differences in maternal behavior by sex of baby, by method of delivery, nor a combination of the two. The test showed a significant difference between Time 2 and Time 3 in the interactive effect of sex, delivery, and individual subject on the maternal behavior ($F=4.44$, $P=.037$).

Baby's temperament correlated mildly in a negative direction with the NCAF Total score at Time 3 ($-.2441$, $P=.00$) meaning that the more difficult the baby the lower the total score on NCAF. There were also significant but slight negative correlations with rearing and the NCAF Parent scores at Time 3 ($-.1511$, $P=.04$; $-.1970$, $P=.01$; and $-.1899$, $P=.01$).

Method of feeding was mildly correlated with the NCAF total score at Time 2 ($.2175$, $P=.00$) and at Time 3 ($.2609$, $P=.00$). The method of feeding at Time 3 did not show any relationship to rearing, method of delivery, or maternal behavior. Since bottle feeding was coded as 0 and breast as 1, the positive correlation indicates a direct relationship between breast feeding and positive maternal behavior scores.

Initial contact time was mildly correlated in a negative direction with delivery ($-.2774$, $P=.00$). The mothers who delivered vaginally had contact with their babies sooner after delivery than did the cesarean mothers. There were no other significant correlations.

TABLE 11

Results of Multivariate Analysis of Maternal Behavior (MCAP Parent Subscale Scores)
at Time 2 and Time 3 by Sex of Baby and Method of Delivery.

		N.	Mean	S.D.	S.S.	D.F.	F.	P.
<u>Time 2</u>								
Male	Vaginal	69	38.725	4.144				
	Cesarean	41	41.024	3.946				
Female	Vaginal	58	39.259	3.909				
	Cesarean	35	39.057	3.896				
Main Effect	Babies' Sex				24.25	1	1.62	.205
	Delivery				51.98	1	3.46	.064
Interactive Effect					73.87	1	4.92	.028*
<u>Time 3</u>								
Male	Vaginal	48	41.062	4.299				
	Cesarean	32	40.906	7.892				
Female	Vaginal	47	39.843	6.931				
	Cesarean	28	41.179	3.642				
Main Effect	Babies' Sex				28.00	1	.79	.370
	Delivery				35.00	1	1.01	.316
Interactive Effect					48.17	1	1.36	.246

Significance

* $P < \text{or} = \text{to } .05$

** $P < \text{or} = \text{to } .01$

*** $P < \text{or} = \text{to } .001$

TABLE 12

Results of Repeated Measures Analysis of Differences Between Time 2 and Time 3 of Maternal Behavior (NCAE Parent Subscale Scores) by Sex of Baby, Method of Delivery, and Interaction of Sex and Delivery.

		N.	Mean	S.D.	S.S.	D.F.	F.	P.
<u>Time 2</u>								
Male	Vaginal	47	39.638	4.002				
	Cesarean	31	42.129	3.106				
Female	Vaginal	44	39.818	3.866				
	Cesarean	26	39.769	2.857				
<u>Time 3</u>								
Male	Vaginal	47	41.170	4.200				
	Cesarean	31	40.871	3.820				
Female	Vaginal	44	39.136	7.156				
	Cesarean	26	41.000	3.666				
<u>Between Subject Effect</u>								
Within Cells				4871.90	144			
	Babies' Sex			72.72	1	2.57	.11	
	Delivery			69.95	1	2.47	.12	
Interactive Effect				.62	1	.02	.88	
<u>Within Subject Effect</u>								
Within Cells				3122.90	144			
	Number			2.95	1	.14	.71	
	Sex by Number			.33	1	.02	.90	
	Del. by Number			3.36	1	.15	.69	
	Sex/Del/Number			96.38	1	4.44	.037*	

Significance

- * $P < \text{or} = \text{to } .05$
- ** $P < \text{or} = \text{to } .01$
- *** $P < \text{or} = \text{to } .001$

RESEARCH PREDICTIONS

Prior to doing this study, the researcher made four predictions about the relationships between mother's own rearing, method of delivery, and behavior with the fetus and newborn. These predictions were based on reports cited in the literature review. The merit of these predictions was examined in this study. The results are as follows.

Prediction 1: Those mothers who report higher quality childhood rearing will score significantly higher on maternal behavior than those who report lower quality rearing.

At Time 1, prenatally, there was no significant difference between the subjects who were poorly-reared and those who were well-reared by either mother or father on the MFAT scale. The results of the analysis of variance procedure were reported in Table 3.

At Time 2, there was no significant difference between the subjects who reported being poorly-reared or well-reared by their mothers on the NCAF Parent Subscale nor on the NCAF Total score. See Table 13 for a description of the results.

At Time 2, with rearing as a categorical variable subjected to analysis of variance, the "poorly-reared by father" subjects scored significantly lower than the "well-reared by father" subjects on the NCAF Parent Subscale ($F, 7.536, P=.007$). These results are also displayed in Table 13. There was no difference between the "poorly-reared and well-reared by father" subjects on the NCAF Total score.

At Time 3, there was no significant difference between the "poorly-reared and well-reared by mother or by father" on the NCAF Parent Subscale nor on the NCAF Total score. Table 14 shows these results.

TABLE 13

Results of Analysis of Variance of Maternal Behavior (NCAE Scores)
at Time 2 by Recollection of Quality of Rearing by Mother and by Father.

	N.	Mean	S.D.	S.S.	D.F.	F.	P.
--	----	------	------	------	------	----	----

NCAE Parent SubscaleRecollection of Rearing by Mother

Poorly-Reared	89	39.19	4.86				
Well-Reared	99	39.85	3.86				
Explained				20.259	1	1.294	.26
Residual				2912.488	186		

Recollection of Rearing by Father

Poorly-Reared	84	39.08	4.85				
Well-Reared	99	40.57	3.47				
Explained				106.641	1	7.536	.007**
Residual				2434.100	172		

NCAE Total ScaleRecollection of Rearing by Mother

Poorly-Reared	89	54.99					
Well-Reared	99	55.67					
Explained				21.638	1	.793	.374
Residual				5858.989	186		

Recollection of Rearing by Father

Poorly-Reared	84	55.14					
Well-Reared	99	56.19					
Explained				47.54	1	1.830	.18
Residual				4468.075	172		

Significance

*p < or = to .05

**p < or = to .01

***p < or = to .001

TABLE 14

Results of Analysis of Variance of Maternal Behavior (NCAF Scores)
at Time 3 by Recollection of Quality of Rearing by Mother and by Father.

	N.	Mean	S.D.	S.S.	D.F.	F.	P.
<u>NCAF Parent Subscale</u>							
<u>Recollection of Rearing by Mother</u>							
Poorly-Reared	63	40.73	4.16				
Well-Reared	89	40.20	7.86				
Explained				10.28	1	.282	.60
Residual				5466.772	150		

<u>Recollection of Rearing by Father</u>							
Poorly-Reared	70	40.27	6.48				
Well-Reared	77	40.45	5.83				
Explained				1.229	1	.033	.86
Residual				5410.934	146		

NCAF Total Scale

<u>Recollection of Rearing by Mother</u>							
Poorly-Reared	63	50.48					
Well-Reared	89	50.45					
Explained				.026	1	.001	.98
Residual				5485.737	150		

<u>Recollection of Rearing by Father</u>							
Poorly-Reared	70	50.56					
Well-Reared	77	50.39					
Explained				.447	1	.012	.91
Residual				5269.812	146		

Significance

- * $P < .05$
 ** $P < .01$
 *** $P < .001$

TABLE 15

Results of Analysis of Variance of NCAF Scores at Time 2 by those Mothers who Dropped Out of the Study Prior to the 4th Month and those who Continued.

	N.	Mean	S.D.	S.S.	D.F.	F.	P.
<u>NCAF Parent Subscale</u>							
Drop-Out Group	65	37.81	3.73				
Continuing Group	138	40.14	3.82				
Between Groups				239.794	1	16.66	.0001***
Within Groups				2892.886	201		

<u>NCAF Total Scale</u>							
Drop-Out Group		52.86	4.93				
Continuing Group		56.31	4.86				
Between Groups				525.955	1	22.02	.0000***
Within Groups				4801.355			

TABLE 17

Results of Analysis of Variance of Maternal Behavior Prenatally (NEAT Scores) By Method of Delivery

	N.	Mean	S.D.	S.S.	D.F.	F.	P.
Vaginally	129	3.97	.47				
Cesarean	25	3.91	.32				
Between Groups				.0942	1	.46	.50
Within Groups				30.8199	152		

Significance

* P< or = to .05

** P< or = to .01

*** P< or = to .001

Assuming the 23% attrition rate was a factor in the differences between the Time 2 sample and the Time 3 sample, analysis of variance was done. The differences between the "drop-out" group and the "continuing" group on the NCAF Parent Subscale at Time 2 were significant ($F, 16.66, P=.00$). The "drop-out" group had a mean score of 37.81, whereas the "continuing" group had a mean score of 40.14. The differences between the groups on the NCAF Total scale were significant also ($F, 22.02, P=.00$). The scores were: "drop-out" group, 52.86; and "continuing" group, 56.31. These results are displayed in Table 15. Table 16 shows the percentages of poorly-reared and well-reared mothers in each of the two groups. The group who dropped out had a higher percentage of poorly-reared subjects. The difference was significant in the group where rearing was defined as "rearing by mother." There was no significant difference in method of delivery between the groups, "drop-out" and "continuing."

TABLE 16

Results of Chi Square Analysis of Differences in Percentages of Poorly-Reared and Well-Reared Subjects in Groups "Drop-Out" and "Continuing."

Recollection of Quality of			Recollection of Quality of		
Rearing by Mother			Rearing by Father		
	Drop-Out	Continuing		Drop-Out	Continuing
Poorly-Reared	41 (66%)	58 (41%)		31 (58.5%)	62 (46%)
Well-Reared	21 (34%)	83 (59%)		22 (41.5%)	73 (54%)
$\chi^2(1)=10.77, p=.001$			$\chi^2(1)=2.40, p=.12$		

Further analysis was done by dividing the total sample into four groups; poorly-reared by mother and by father, well-reared by mother and by father, poorly-reared by mother/well-reared by father, and well-reared by mother/poorly-reared by father. These groups were tested by multivariate procedures for differences in maternal behavior. No significant differences were found at any of the three time periods.

Therefore, Prediction #1 was not supported at any of the three time periods for subjects whose recollection of quality of rearing was measured as "rearing by mothers." Prediction #1 was supported at Time 2 for subjects whose recollection of quality of rearing was measured as "rearing by fathers."

Prediction 2: Those mothers having a vaginal delivery will score higher on maternal behavior than those mothers having a cesarean delivery.

Prenatally, there was no significant difference in the maternal behavior scores between the group who delivered vaginally and those who delivered by cesarean. See Table 17 for results.

Table 18 shows the results of the analysis of variance procedure used to test this prediction at Time 2. There was a significant difference ($F=4.12$, $P=.044$) in the scores on the NCAF parent subscale between subjects who delivered vaginally and those who delivered by cesarean. However, the subjects who delivered by cesarean scored higher than those who delivered vaginally. There was also a significant difference ($F, 4.725$, $P=.03$) in the scores on the NCAF total score between mothers who delivered vaginally and those who delivered by cesarean. These cesarean mothers also scored higher than the vaginal mothers.

TABLE 18

Results of Analysis of Variance of Maternal Behavior (NCAE Scores) at Time 2 by Method of Delivery.

	N.	Mean	S.D.	S.S.	D.F.	F.	P.
<u>NCAE Parent Subscale Scores</u>							
Vaginal	127	38.87	4.03				
Cesarean	76	40.12	3.69				
Explained				62.872	1	4.12	.044*
Residual				3069.808	201		

NCAE Total Scale

Vaginal	127	54.61					
Cesarean	76	56.21					
Explained				122.364	1	4.725	.031*
Residual				5204.947	201		

TABLE 19

Results of Analysis of Variance of Maternal Behavior (NCAE Scores) at Time 3 by Method of Delivery.

	N.	Mean	S.D.	S.S.	D.F.	F.	P.
<u>NCAE Parent Subscale Scores</u>							
Vaginal	95	40.06	5.81				
Cesarean	60	41.83	6.23				
Explained				34.613	1	.968	.33
Residual				5465.554	153		

NCAE Total Scale

Vaginal	95	58.66					
Cesarean	60	60.68					
Explained				150.079	1	4.30	.04*
Residual				5338.204	153		

Significance * $P < \text{or} = \text{to } .05$
 ** $P < \text{or} = \text{to } .01$
 *** $P < \text{or} = \text{to } .001$

TABLE 20

Results of Analysis of Variance of Maternal Behavior (NCAE Scores at Time 2 by Method of Delivery Among Low SES, Single, Teen Mothers.

	N.	Mean	S.D.	S.S.	D.F.	F.	P.
<u>NCAE Parent Subscale Scores</u>							
Vaginal	38	36.68	3.54				
Cesarean	11	37.36	3.88				
Explained				3.94	1	.38	.58
Residual				614.75	47		
<u>NCAE Total Scale Scores</u>							
Vaginal	38	51.81	4.43				
Cesarean	11	53.54	4.58				
Explained				25.21	1	1.28	.26
Residual				928.43	47		

TABLE 21

Results of Analysis of Variance of Maternal Behavior (NCAE Scores) at Time 3 by Method of Delivery Among Low SES, Single, Teen Mothers.

	N.	Mean	S.D.	S.S.	D.F.	F.	P.
<u>NCAE Parent Subscale Scores</u>							
Vaginal	23	38.43	3.66				
Cesarean	5	42.60	2.87				
Explained				71.255	1	6.92	.022*
Residual				312.852	26		
<u>NCAE Total Scale Scores</u>							
Vaginal	23	56.9	5.78				
Cesarean	5	61.6	4.83				
Explained				98.22	1	3.88	.09
Residual				781.83	26		

Significance * P < or = to .05
 ** P < or = to .01
 *** P < or = to .001

At Time 3, there was no significant difference on the NCAF parent subscale between mothers who delivered vaginally and those who delivered by cesarean. There was, however, a significant difference ($F=4.30$, $P=.04$) in the scores on the NCAF total score between mothers who delivered vaginally and those who delivered by cesarean. However, the mothers who delivered by cesarean scored higher than those who delivered vaginally. These results are shown in Table 19. Tables 20 and 21 show the results of maternal behavior by method of delivery among the subsample of low SES, single, teen mothers. These mothers who delivered by cesarean also scored higher on maternal behavior than did those mothers who delivered vaginally. The differences were only significantly different however, at Time 3 on the NCAF Parent Subscale.

Therefore, Prediction #2 that was predicated on the expectation that cesarean delivery was problematic to mother/infant interaction was not supported by this research. The results of the analysis show an opposite effect from the one predicted.

Prediction 3: The difference in maternal behavior between mothers who deliver vaginally and those who deliver by cesarean will depend on the mother's recollections of their childhood rearing.

A multiple analysis of variance procedure was used to test for an interaction effect of rearing and delivery on maternal behavior. The results were presented in Tables 4, 5, 6, and 7. The analytical technique showed that maternal behavior with the newborn, during the immediate postpartum period in the hospital, and at four months postpartum did not depend on the combined effect of the subject's recollection of the quality of rearing and the method of delivery. In fact, using a stepwise, multiple regression technique of analysis, the best predictors of maternal behavior with the newborn during the immediate postpartum period in the hospital were, in this study, marital status, socio-economic status, and race. Table 22 shows the results of a stepwise multiple regression analysis predicting maternal behavior in the immediate postpartum period in the hospital from eight independent variables. Fathers' Acceptance/Rejection Scores (TFAR) and Mothers' Acceptance/Rejection Scores (TMAR) were entered as Step 1 and 2. They accounted for 2% ($r^2=.019$) of the variance in maternal behavior, a statistically insignificant portion. Adding delivery (DEL) at Step 3 resulted in an accumulated 5% ($r^2=.048$) of the variance which resulted in an F score of 2.73 with a statistical significance of .046. This statistical prediction was true only when mother's age, marital status, race, education, and socio-economic status were removed from the equation. When race, mother's age (MAGE), and marital status (MAR) were entered as Step 4, 5, and 6 the resulting cumulative accounting of variance was 24% ($r^2=.239$).

However, rearing and delivery were no longer significant predictors. Mother's education and socio-economic status were added as Step 7 and 8, resulting in 27% ($r^2=.27$) of the variance in maternal behavior being accounted for by the eight independent variables. As the table shows, when all eight variables are entered in the stepwise regression, with the N of 165 subjects, race, marital status, and socio-economic status are the best predictors of maternal behavior during the immediate postpartum period in the hospital. Using the same procedure on the same sample of 165 subjects, but entering marital status as Step 1, socio-economic status as Step 2, and race as Step 3; those three variables alone account for 27% of the variance. See Table 23.

TABLE 22

Results of a Stepwise Multiple Regression Analysis Predicting Maternal Behavior During the Immediate Postpartum Period in the Hospital (Step 1. Rearing)

Variables	b	df	F	P.	r ²	Cum. % Var.
Quality of Rearing By Father	.0342					
Quality of Rearing by Mother	.0486	2/163	1.56	.21	.019	2%
Delivery	-1.4166	3/162	2.73	.046*	.048	5%
Race	2.2482					
Age	.0620					
Marital Status	2.4113	6/159	8.325	.00***	.239	24%
SES	- .7594					
Education	- .0037	8/157	7.36	.00***	.27	27%

All Variables in the Equation

		(T)	
Rearing by Father	.0072	.21	.83
Rearing by Mother	- .0034	-.09	.93
Delivery	- .3821	-.64	.52
Race	2.2597	2.54	.01
Age	- .0030	-.04	.97
Marital Status	1.6311	2.13	.03*
SES	- .7594	-2.25	.03*
Education	- .0037	-.01	.99

Significance: *P< or =.05, **P< or =.01, ***P< or =.001

TABLE 23

Results of a Stepwise Multiple Regression Analysis Predicting Maternal Behavior During the Immediate Postpartum Period in the Hospital (Step 1. Marital Status)

Variance	b	df	F	P.	r ²	Cum. % Var.
Marital Status	3.5871	1/164	39.93	.00***	.195	20%
SES	- .7921	2/163	25.72	.00***	.24	24%
Race	2.2616	3/162	20.00	.00***	.27	27%
(T. Sig.)						
Rearing by Mother				.98		
Rearing by Father				.76		
Delivery				.49		
Age				.96		
Education				.98		

Significance: *P< or = .05, **P< or = .01, ***P< or = .001.

To test this prediction further, additional analyses were done on the socio-economic status (SES) of the sample. First, as shown in Table 24, an analysis of variance was used to determine if the mean scores on maternal behavior varied according to the subject's level of SES per the Hollingshead calculation. As Table 24 shows, the differences between these groups was significant ($F=11.42$, $P=.00$). Second then, the entire sample was divided into two groups for further study: sixty-six subjects in "High SES" (professional, and minor business/professional categories), and 131 subjects in "Low SES" (skilled, semi-skilled and unskilled). The "Low SES" Group was

treated as a subsample and analysis of variance was performed to discover if quality of rearing and method of delivery had an effect on maternal behavior among the "Low SES" mothers.

TABLE 24

Mean Scores of Maternal Behavior by Categories of Socio-economic Status.

Hollingshead's Categories	Maternal Behavior (NCAF Parent Subscale, Time 2)
Professional (N=13)	40.54 (S.D. 2.81)
Minor Bus/Prof (N=53)	41.47 (S.D. 2.80)
Skilled (N=34)	40.18 (S.D. 3.79)
Semi-Skilled (N=42)	39.09 (S.D. 3.77)
Unskilled (N=55)	36.96 (S.D. 4.18)

N=197, F=11.42, p=.000***

Significance: *P< or = .05, **P< or = .01, ***P< or = .001.

Table 25 describes the results of analysis of variance of "low SES, teen mother's (age < 20)" behavior with the newborn while in the hospital by quality of rearing and method of delivery. Neither rearing nor delivery had an effect on the maternal behavior scores when "rearing by mother" was used. When rearing was defined as "rearing by father" there was a difference in maternal behavior between the poorly-reared and well-reared groups, however, there was no effect of delivery. The well-reared group scored significantly higher (F=5.55, P=.024). There was no interaction effect of rearing and delivery on maternal behavior. Table 26 is a report of the same

test, but using the NCAF Total scores. The significant difference in maternal behavior scores between "poorly-reared and well-reared by father" subjects continues to be evident ($F=5.46$, $P=.026$), as well as the lack of effect by delivery. Tables 27 and 28 display the results of the follow-up analysis at four months postpartum. At that point there were no significant effects of rearing or delivery on maternal behavior.

A stepwise multiple regression analysis was done on the subsample of "Low SES" mothers to discover if the predicting factors were different from the general sample. Using delivery, age, marital status, and race as the independent factors, marital status was the primary predictor of maternal behavior at Time 2. At Time 3, delivery was entered into the equation as Step 1 and was noted as a significant predictor of maternal behavior. The results of these tests are presented in Table 29.

TABLE 25

Results of Analysis of Variance of Maternal Behavior (NCAE Parent Subscale Scores)
Among a Subsample of Low SES, Teen Mothers at Time 2 by Quality of Rearing
and Method of Delivery.

		N.	Mean	S.S.	D.F.	F.	P.
<u>Recollection of Quality of Rearing by Mother</u>							
Poorly-	Vaginal	12	37.92				
Reared	Cesarean	2	42.50				
Well-	Vaginal	21	38.29				
Reared	Cesarean	5	40.40				
Main	Rearing			.004	1	.00	.99
Effect	Delivery			46.728	1	2.675	.11
Interactive Effect				7.336	1	.42	.52

<u>Recollection of Quality of Rearing by Father</u>							
Poorly-	Vaginal	15	36.73				
Reared	Cesarean	2	38.50				
Well-	Vaginal	16	39.63				
Reared	Cesarean	5	42.00				
Main	Rearing			81.790	1	5.55	.024*
Effect	Delivery			26.550	1	1.00	.10
Interactive Effect				.446	1	.03	.86

Significance

- * $P < \text{ or } = \text{ to } .05$
- ** $P < \text{ or } = \text{ to } .01$
- *** $P < \text{ or } = \text{ to } .001$

TABLE 26

Results of Analysis of Variance of Maternal Behavior (MCAF Total Scale Scores)
Among a Subsample of Low SES, Teen Mothers at Time 2 by Quality of Rearing
and Method of Delivery.

		N.	Mean	S.S.	D.F.	F.	P.
<u>Recollection of Quality of Rearing by Mother</u>							
Poorly-	Vaginal	12	54.42				
Reared	Cesarean	2	59.00				
Well-	Vaginal	21	53.81				
Reared	Cesarean	5	57.40				
Main	Rearing			5.206	1	.229	.635
Effect	Delivery			86.888	1	3.77	.06
Interactive Effect				1.186	1	.06	.82

<u>Recollection of Quality of Rearing by Father</u>							
Poorly-	Vaginal	15	52.33				
Reared	Cesarean	2	57.00				
Well-	Vaginal	16	56.13				
Reared	Cesarean	5	58.20				
Main	Rearing			105.260	1	5.46	.026*
Effect	Delivery			46.733	1	2.42	.13
Interactive Effect				0.101	1	.42	.52

Significance

* $P < \alpha = .05$

** $P < \alpha = .01$

*** $P < \alpha = .001$

TABLE 27

Results of Analysis of Variance of Maternal Behavior (MCAP Parent Subscale Scores)
Among a Subsample of Low SES, Teen Mothers at Time 3 by Quality of Rearing
and Method of Delivery.

		N.	Mean	S.S.	D.F.	F.	P.
<u>Recollection of Quality of Rearing by Mother</u>							
Poorly-	Vaginal	12	39.17				
Reared	Cesarean	2	42.50				
Well-	Vaginal	21	39.90				
Reared	Cesarean	5	41.60				
Main	Rearing			2.000	1	.131	.72
Effect	Delivery			27.424	1	1.72	.20
Interactive Effect				3.23	1	.20	.66

<u>Recollection of Quality of Rearing by Father</u>							
Poorly-	Vaginal	15	39.13				
Reared	Cesarean	2	41.50				
Well-	Vaginal	16	39.50				
Reared	Cesarean	5	42.00				
Main	Rearing			1.377	1	.001	.765
Effect	Delivery			33.672	1	2.22	.15
Interactive Effect				.021	1	.001	.97

Significance

- * P< or = to .05
- ** P< or = to .01
- *** P< or = to .001

TABLE 20

Results of Analysis of Variance of Maternal Behavior (MCAF Total Scale Scores)
Among a Subsample of Low SES. Teen Mothers at Time 3 by Quality of Rearing
and Method of Delivery.

		N.	Mean	S.S.	D.F.	F.	P.
<u>Recollection of Quality of Rearing by Mother</u>							
Poorly-	Vaginal	12	57.42				
Reared	Cesarean	2	65.50				
Well-	Vaginal	21	58.48				
Reared	Cesarean	5	59.80				
Main	Rearing			.013	1	.00	.985
Effect	Delivery			58.824	1	1.63	.21
Interactive Effect				58.289	1	1.61	.21

<u>Recollection of Quality of Rearing by Father</u>							
Poorly-	Vaginal	15	57.20				
Reared	Cesarean	2	60.00				
Well-	Vaginal	16	58.00				
Reared	Cesarean	5	61.80				
Main	Rearing			8.377	1	.239	.63
Effect	Delivery			67.630	1	1.831	.17
Interactive Effect				1.206	1	.034	.854

Significance

* $P < \text{ or } = \text{ to } .05$

** $P < \text{ or } = \text{ to } .01$

*** $P < \text{ or } = \text{ to } .001$

TABLE 29

Results of a Stepwise Multiple Regression Analysis Predicting Maternal Behavior at Time 2 and Time 3 Among Mothers of "Low SES."

Variables	b	df	F.	P.	r ²	Cum. % Var.
TIME 2						
<u>NCAE Parent Subscale Scores</u>						
Marital Status	3.497	1/126	25.49	.00	.17	17%
	Not in equation (T)					
Delivery	-.074			.37		
Age	.107			.24		
Race	.112			.21		
<u>NCAE Total Scale Scores</u>						
Marital Status	4.323	1/126	22.46	.00***	.15	15%
	Not in equation (T)					
Delivery	-.087			.30		
Age	.120			.19		
Race	.172			.06		
TIME 3						
<u>NCAE Parent Subscale Scores</u>						
Delivery	-2.753	1/86	4.63	.03*	.05	5%
	Not in equation (T)					
Age	.037			.74		
Marital Status	.054			.62		
Race	.031			.77		
<u>NCAE Total Scale Scores</u>						
Delivery	-3.230	1/86	6.06	.02*	.066	7%
	Not in equation (T)					
Age	-.022			.85		
Marital Status	.176			.11		
Race	.176			.10		

Significance: *P < or = .05, **P < or = .01, ***P < or = .001

A stepwise multiple regression analysis was done on a subsample of "Low SES, Single" mothers to look at predictors of maternal behavior in that group. Table 30 displays those results. Due to too few subjects in the subsample a multiple regression equation could not be formed for the NCAF parent subscale at Time 2 nor for the NCAF total scale at Time 3. Race accounted for 8% of the variance in maternal behavior as measured by the NCAF Total Scale at Time 2. Delivery accounted for 14% of the variance at Time 3, measuring maternal behavior on the NCAF Parent Subscale.

Prediction 3 was not supported by the results of this study. There was no interaction effect of quality of rearing and method of delivery on maternal behavior with the newborn.

Prediction 4: The difference in maternal behavior between the three observation periods will be greater in mothers who are poorly-reared and deliver vaginally than in those who are poorly-reared and deliver by cesarean.

Prenatal maternal behavior toward the fetus was measured with a different instrument (MFAT) than was maternal behavior toward the newborn at Time 2 and 3; therefore, although correlations could be assessed, repeated measures were not possible. MFAT was mildly correlated ($.2483$, $P=.00$) with maternal behavior with the newborn at Time 2 but showed no relationship to maternal behavior at Time 3. The poorly-reared who delivered vaginally had a mean total score on the MFAT of 3.95 and the poorly-reared who delivered by cesarean had a mean score of 3.86. This was the only time the vaginal mothers scored higher than the cesarean mothers on maternal behavior. It is important to note, however, that these scores were not significantly different.

TABLE 30

Results of a Stepwise Multiple Regression Analysis Predicting Maternal Behavior at Times 2 and 3 Among a Subsample of Low SES, Single Mothers.

Variables	b	df	F.	P.	r ²	Cum. % Var.
TIME 2						
NCAF Parent Subscale Score						
Equation could not be formed						
NCAF Total Scale Score						
Race	3.069	1/55	4.53	.04	.08	8%
Not in the equation (T)						
Rearing/Mother	.111			.39		
Rearing/Father	-.134			.30		
Delivery	-.228			.08		
Age	.122			.35		
TIME 3						
NCAF Parent Subscale Score						
Delivery	-3.394	1/40	6.57	.01	.14	14%
Not in the equation (T)						
Rearing/Mother	.156			.30		
Rearing/Father	.171			.25		
Age	-.166			.26		
Race	.086			.57		
NCAF Total Scale Scores						
Equation could not be formed						

Significance: *P< or = .05, **P< or = .01, ***P< or = .001.

According to the results of the statistical analysis using the repeated measures technique, there were no significant differences between those poorly-reared mothers who delivered vaginally and those poorly-reared mothers who delivered by cesarean over the span of the two postpartum time periods. There was a significant increase in the scores at Time 3, but the change that occurred over time in the NCAF Total scale reflects an unidentified change within or around the subject herself. It is noteworthy that the scores for cesarean mothers increased more over time than did the scores for the mothers who delivered vaginally even though the differences were not related to the method of delivery. See Table 31 for a complete description of these results.

Like the "rearing by mother" results, there was a significant difference in the "poorly-reared by father" subjects' responses over time as shown in differences between the NCAF Total Scale observations at Time 2 and Time 3 ($F, 19.06, P=.00$). Again, this was not related to method of delivery, but rather to the effect of the individual. These results are detailed in Table 32. Table 33 shows the results of a repeated measures analysis used to determine if there was an interaction effect of rearing and delivery that changed over time. The analysis found no significant difference between Time 2 and Time 3.

Therefore, Prediction 4 was not supported by the results of this study. There was significant change over time in the subjects' behavior as observed on the NCAF Total Scale but this change was not an effect of method of delivery, but rather, a difference reflecting an unidentified change within or around the subject. Prediction 4 is

totally unsupported. In fact, as pointed out above, the actual increase in scores was opposite from the increase expected.

TABLE 31

Results of Repeated Measures Analysis of Maternal Behavior at Time 2 and Time 3
Among a Subsample of "Poorly-Reared by Mother" Subjects by Method of Delivery.

		N.	Mean	S.D.	S.S.	D.F.	F.	P.
<u>MCAP Parent Subscale Scores</u>								
Time	Vaginal	40	40.05	4.23				
2	Cesarean	19	41.00	2.36				
Time	Vaginal	40	39.95	4.31				
3	Cesarean	19	42.21	3.66				
Main	Delivery				66.39	1	2.64	.11
Effect	Number				7.94	1	1.37	.25
Interactive Effect					11.06	1	1.91	.17
<u>MCAP Total Scale Scores</u>								
Time	Vaginal	40	56.45	5.42				
2	Cesarean	19	57.00	3.38				
Time	Vaginal	40	58.07	6.20				
3	Cesarean	19	61.74	6.06				
Main	Delivery				114.26	1	2.52	.12
Effect	Number				260.67	1	15.95	.000***
Interactive Effect					62.37	1	3.82	.06

Significance

* P < or = to .05

** P < or = to .01

*** P < or = to .001

TABLE 32

Results of Repeated Measures Analysis of Maternal Behavior at Time 2 and Time 3
Among a Subsample of "Poorly-Reared by Father" Subjects by Method of Delivery.

		N.	Mean	S.D.	S.S.	D.F.	F.	P.
<u>NCAE Parent Subscale Scores</u>								
Time	Vaginal	47	39.38	4.13				
2	Cesarean	19	40.21	3.14				
Time	Vaginal	47	39.38	7.33				
3	Cesarean	19	42.42	3.15				
Main	Delivery				105.59	1	3.10	.08
Effect	Number				30.56	1	1.37	.25
Interactive	Effect				35.65	1	1.6	.21

<u>NCAE Total Scale Scores</u>								
Time	Vaginal	47	55.72	4.94				
2	Cesarean	19	56.84	3.69				
Time	Vaginal	47	58.28	6.7				
3	Cesarean	19	61.84	5.35				
Main	Delivery				140.44	1	3.58	.06
Effect	Number				385.96	1	19.06	.000***
Interactive	Effect				40.50	1	2.0	.16

Significance

* $P < \text{or} = \text{to } .05$

** $P < \text{or} = \text{to } .01$

*** $P < \text{or} = \text{to } .001$

TABLE 33

Results of Repeated Measures Analysis of Maternal Behavior (MCAF Parent Subscale Scores) at Time 2 and Time 3 by Quality of Rearing by Mother and Method of Delivery.

		N.	Mean	S.D.	S.S.	D.F.	F.	P.
Vaginal T2	Poor/Rear 40		40.05	4.23				
	Well/Rear 40		39.57	3.71				
Cesarean T2	Poor/Rear 19		41.00	2.36				
	Well/Rear 37		41.00	3.60				
Vaginal T3	Poor/Rear 40		39.95	4.31				
	Well/Rear 40		40.31	7.06				
Cesarean T3	Poor/Rear 19		42.21	3.60				
	Well/Rear 37		40.3	7.41				
Main Effect	Delivery				88.74	1	3.04	.08
	Rearing				15.27	1	.52	.47
	Number				4.5	1	.20	.65
Inter/Active Effect	Del/Num				.17	1	.01	.93
	Rear/Num				5.30	1	.24	.62
	Del/Rear/Num				32.00	1	1.43	.23

Significance

* $P < \text{or} = \text{to } .05$

** $P < \text{or} = \text{to } .01$

*** $P < \text{or} = \text{to } .001$

RESEARCH HYPOTHESES

Ho 1: There is no significant difference in maternal behavior between well-reared mothers and poorly-reared mothers.

As reported in Table 3, there was no significant difference in maternal behavior between poorly-reared and well-reared by mother or by father subjects prenatally (Time 1). Table 13 displays the results of the analysis of variance procedure used to test this hypothesis at Time 2. When rearing was defined as "rearing by mother," there were no significant differences found between the poorly-reared and well-reared groups. When it was defined as "rearing by father" there was a significant difference between the behavior of poorly-reared and well-reared subjects ($F, 7.536, P=.007$). Table 14 shows no significant difference in maternal behavior between these mothers at Time 3. Therefore, Ho 1 is accepted when quality of rearing is defined as the subject's recollection of rearing by the mother. The acceptance of Ho 1 was further supported by the results of multiple analysis of variance on the subjects when the entire sample was divided into four groups according to the recollection of rearing by both parents.

The data on mother's recollection of rearing by the father supports the rejection of the null hypothesis when referring to Time 2.

Ha 1: Well-reared mothers score significantly higher on maternal behavior than do poorly-reared mothers.

This research hypothesis is rejected according to the results of this study when rearing is defined as recollection of rearing by mother at all 3 measurement time periods. This research hypothesis is accepted according to the results of this study when rearing is defined as recollection of rearing by father and the measurement is

taken during the immediate postpartum period. The acceptance of this research hypothesis is supported by the results of a MANOVA procedure done on a subsample of subjects who were raised by both biological parents (N=119). The difference in the NCAF Parent Subscale scores at Time 2 between "poorly-reared and well-reared by father" subjects is significant at $P=.005$.

This research hypothesis is rejected by results of this study when the sample is divided into four groups according to rearing by father and by mother.

Ho 2: There is no significant difference in maternal behavior between mothers who give birth by cesarean and those who give birth vaginally.

Table 17 shows no significant difference between the cesarean and vaginally delivered mothers on maternal behavior during the prenatal period. The mothers who delivered by cesarean did score lower, but it was not significantly lower, in fact it was only 13% of one S.D. The analysis of variance, as reported in Table 18, shows a significant difference in maternal behavior between the cesarean and vaginal groups. On the NCAF Parent Subscale there was a difference of 1.15 points (28% of one S.D.). On the NCAF Total Scale there was a difference of 1.6 (27% of one S.D.). At Time 3, the analysis of variance, as seen in Table 19, showed no difference between the groups on the NCAF Parent Subscale, however there was a significant difference on the NCAF Total Score ($F, 4.3, P=.04$).

Therefore, the results of the analysis of the data of this study support the acceptance of the null hypothesis when measurement occurs prenatally.

The results of this data analysis support the rejection of the null hypothesis when measurement of maternal behavior occurs during the immediate postpartum period in the hospital.

The results of the NCAF parent subscale scores at Time 3 support the acceptance of the null hypothesis; however, testing the NCAF total scale scores for differences between cesarean and vaginally delivered mothers supported the rejection of the null hypothesis.

Ha 2: Mothers who deliver vaginally score significantly higher on maternal behavior than do mothers who deliver by cesarean.

Table 17, referring to the prenatal measurement of maternal behavior, shows that vaginally-delivered mothers scored lower, but important to note, not significantly lower, than the mothers delivered by cesarean. Tables 18 and 19 show that in all cases, postnatally, maternal behavior scores were higher for the mothers who delivered by cesarean than than they were for the vaginally delivered mothers.

Therefore, this research hypothesis is rejected. The results of this study show cesarean mothers consistently scored significantly higher than the vaginal mothers.

Ho 3: There is no significant difference in maternal behavior between poorly-reared mothers who give birth by cesarean and those who give birth vaginally.

Table 34 contains the report of the analysis of variance of maternal behavior among the "poorly-reared by mother" subjects by method of delivery. Maternal behavior at Time 2 showed no significant difference. However, at Time 3 the subjects who delivered by cesarean scored significantly higher than did the subjects who delivered vaginally ($F, 5.26, P=.025$ and $F, 6.19, P=.02$).

The "poorly-reared by father" subject's responses were similar on the two scales. The NCAF Scales at Time 2 showed no differences, but at Time 3 the cesarean mothers scored higher on maternal behavior than did the vaginal mothers. ($F, 4.057, P=.048$ and $F, 5.791, P=.019$). The results are displayed in Table 35.

Therefore, the findings of this study support the acceptance of the null hypothesis at Time 2. The findings of this study support the rejection of the null hypothesis at Time 3.

Ha 3: Poorly-reared mothers who deliver vaginally score significantly higher on maternal behavior than do poorly-reared mothers who deliver by cesarean.

This research hypothesis is rejected according to the results of this study. An opposite result was discovered.

Ho 4: There is no significant difference between maternal behavior at Time 2 and maternal behavior at Time 3 among poorly-reared mothers who deliver by cesarean and those who deliver vaginally.

The repeated measures technique was used to test this null hypothesis. Table 31 shows the results of the analysis on "poorly-reared by mother" subjects' scores on the NCAF Parent Subscale as no significant difference between Time 2 and Time 3. There is a significant difference ($F, 15.95, P=.000$) in the within subject (member) effect on the NCAF Total scale.

Table 32 refers to the "poorly-reared by father" subjects. It shows, like the "rearing by mother," no difference on the NCAF Parent Subscale scores between Time 2 and Time 3. Results of the analysis of the NCAF Total scale scores indicate a delivery effect that is significant at $P=.06$ and the within subjects (member) difference is significant at .000.

TABLE 34

Results of Analysis of Variance of Maternal Behavior at Times 2 and 3
Among "Poorly-Reared by Mother" Subjects by Method of Delivery.

	N.	Mean	S.S.	F.	P.
<u>Time 2</u>					
<u>MCAP Parent Subscale</u>					
Vaginal	63	38.78			
Cesarean	26	40.19			
Explained			36.025	2.26	.14
<u>MCAP Total Scale</u>					
Vaginal	63	64.51			
Cesarean	26	56.15			
Explained			49.06	1.79	.18
<u>Time 3</u>					
<u>MCAP Parent Subscale</u>					
Vaginal	41	39.88			
Cesarean	22	42.32			
Explained			85.25	5.26	.025*
<u>MCAP Total Scale</u>					
Vaginal	41	58.10			
Cesarean	22	62.06			
Explained			223.15	6.19	.02*

Significance

* P< or = to .05

** P< or = to .01

*** P< or = to .001

TABLE 35

Results of Analysis of Variance of Maternal Behavior at Times 2 and 3
Among "Poorly-Reared by Father" Subjects by Method of Delivery.

	N.	Mean	S.S.	F.	P.
<u>Time 2</u>					
<u>NCAE Parent Subscale</u>					
Vaginal	62	38.65			
Cesarean	22	40.00			
Explained			29.806	1.83	.18

<u>NCAE Total Scale</u>					
Vaginal	62	54.63			
Cesarean	22	56.59			
Explained			62.50	2.56	.11

<u>Time 3</u>					
<u>NCAE Parent Subscale</u>					
Vaginal	48	39.25			
Cesarean	22	42.50			
Explained			159.34	4.06	.05*

<u>NCAE Total Scale</u>					
Vaginal	48	58.29			
Cesarean	22	62.14			
Explained			222.90	5.79	.02*

Significance

* $P < \text{or} = \text{to } .05$

** $P < \text{or} = \text{to } .01$

*** $P < \text{or} = \text{to } .001$

Therefore, Ho 4 is accepted when the scores are those of the NCAF Parent Subscale, and observations occurred at Time 2. Ho 4 is accepted by the data collected on the NCAF Total scale at Time 3, because, although there was a significant difference in the scores from Time 2 to Time 3, the difference was not related to method of delivery.

Ha 4: The maternal behavior scores for poorly-reared mothers who deliver vaginally show a significant increase from Time 2 to Time 3 which is higher than the increase among poorly-reared mothers who deliver by cesarean.

The data collected for this study support the rejection of this research hypothesis. The vaginally-delivered mothers consistently scored lower than the cesarean delivered mothers. The differences in scores over time were reported above.

Because the results of this data analyses totally reject the expected outcome, the researcher, after the analysis was completed, did a review of the original records to confirm the accuracy of the data entry. Every fifth file was selected from among the supplementary sample of mothers who delivered by cesarean. Eleven files were chosen for the accuracy check. Every twentieth file was selected from among the sample of mothers who delivered vaginally. Eight files were reviewed. Table 36 shows the result of this confirmatory activity. No errors were found in the numbers entered from the raw data. The case numbers listed are different from the mothers' identification numbers. Therefore, the reporting of these individual scores does not violate confidentiality.

TABLE 36

NCAF Scores Selected to Confirm the Accuracy of the Data Entry.

Case #	NCFBPT	NCAFBT	NCFCPT	NCAFCT
Cesareans				
5	45	59	36	56
10	31	47	43	65
15	41	59	40	61
20			41	61
25	39	52	39	57
0	Not entered, insufficient data			
34	35	51		
39	40	59	46	64
44	36	50	36	52
49	42	59	43	62
54	37	49	41	57
Total	346	485	365	535
Mean	38.44	53.89	40.55	59.44
Vaginal				
77	34	49		
97	37	55	34	50
117	40	58	37	56
137	45	66	42	59
156	27	41		
176	41	57	48	68
195	37	55	41	55
215	43	59	38	54
Total	304	440	240	342
Mean	38.00	55.00	40.00	57.00

CHAPTER V

DISCUSSION

IMPLICATIONS OF THE RESULTS ON THE ECOLOGICAL FRAMEWORK OF THE STUDY

Bronfenbrenner's theory of the ecology of human development (1979), Belsky's theory of family transaction and circular influences (1981), and McCubbin's Double ABCX theory (1987) made up the theoretical framework for this study. These three theories provided the basis for looking for a relationship between the upbringing of a female human being, the method of delivering her own first child, and her behavior with that child during the newborn and infancy period. An unanticipated cesarean delivery was viewed as a stressor event. The varieties of responses and coping abilities seen among women after their unanticipated cesareans were, using the theoretical framework, conceptualized to be due to their level of vulnerability, perception of the experience, and internal and external resources. Their level of vulnerability or constitutional strength, as defined in this study and supported by the literature reviewed, was derived from the quality of rearing they experienced. The origin of one's perception lies in one's own personal experience coupled with the meaning supplied by one's own referent group. The internal and external resources were the supports that derive from the demographic and status factors listed in this research. This study was approached from the perspective that socially deprived upbringing and surgical delivery could handicap mothers' behavior with their newborns. Previously published research and the experience of this nurse researcher led to

the presumption that cesarean delivery was less desirable than vaginal and therefore was potentially problematic to maternal behavior with the newborn. The results of this study did not support those views. Maternal behavior among women who had cesareans was more positive than among those women who delivered vaginally. Rearing which in this study was defined in two ways, "rearing by the mother" and "rearing by the father" did, in some of the observations, have an effect on maternal behavior. There was however, no interactive effect between rearing and method of delivery on maternal behavior. The implication, in view of the theoretical framework, is that cesarean delivery was not perceived by the subjects as a stressor event. With the increased incidence of cesarean deliveries there has been more acceptance of the procedure as merely another way to have a baby. A Detroit Free Press article, written by Ellen Creager and published on December 6, 1989, proclaimed that "More women go high tech to ease pain." The headline was in reference to the increase in epidural anesthesia but the article mentioned the increase in cesarean deliveries and the decrease in the number of women choosing alternative birthing centers as the site for delivery. The efforts over the past few years to normalize the cesarean experience appear to have been successful. The majority of women in this study had regional anesthetic, were awake for the delivery, had a family member with them, and had contact with their baby soon after giving birth. All of these factors, normalization, increased incidence, and generalized increased reliance on technology, could reduce the stress or change the perception of cesarean delivery. Rearing as an antecedent to negative perception of the delivery experience was not supported by this research. It was only partially

supported as having an effect on maternal behavior with the newborn. The subjects who reported lower "quality rearing by father" had significantly lower scores on the maternal behavior observation. Thus, there was some support for the theories that early relationships can make an impact that is long-lasting and generational.

Belsky's theory of circular influences was evident in the finding of a slight correlation between marital satisfaction and maternal behavior, both prenatally and during the immediate postpartum period. There was no relationship between marital satisfaction and maternal behavior at four months. It was also evident in the mild negative correlation ($-.3510$, $P=.000$, $N=126$) between marital satisfaction and infant temperament at four months. The correlations that were found among the demographic/status and primary variables lend credence to the theorists' views that maternal behavior is influenced by the multitude of interactions that occur between a person and the people, objects, and incidents in that person's environment over the continuum of time.

THE EFFECT OF REARING ON MATERNAL BEHAVIOR

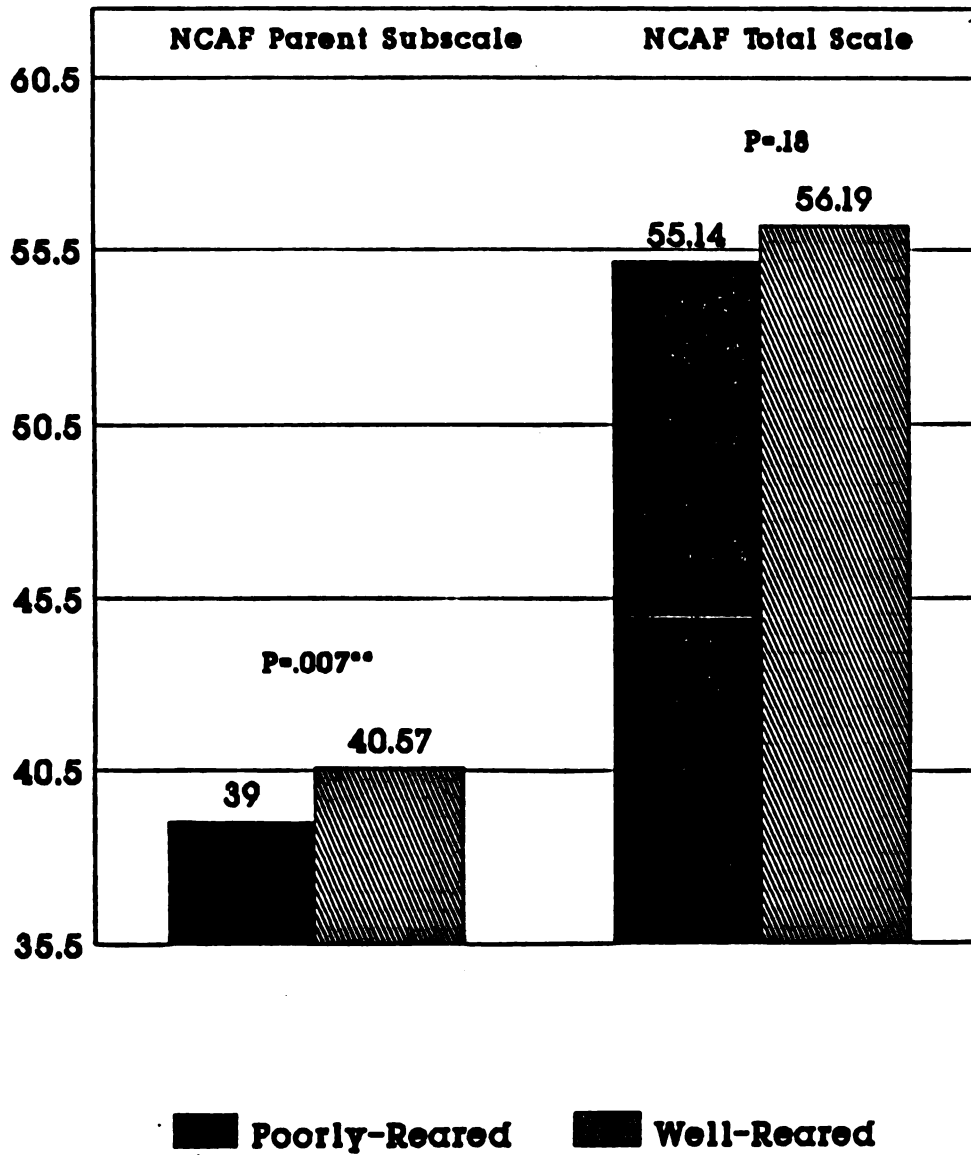
The "quality of rearing by mother" as recollected by the subjects of this research showed no effect on maternal behavior with the newborn. This finding was a surprise since the literature reviewed for this study provided compelling evidence of intergenerational continuity, particularly when referring to the influence of mother. However, the studies cited in Chapter III differed from this study in several ways. Some looked at serious disruptions in the family of origin such as death, divorce, or prolonged separations as the quality of rearing criteria; all measured behavior on older infants and

children, none were done during the immediate and later postpartum period; and, all related mother's rearing to child outcomes, not maternal outcomes as this study did. "Rearing by father," on the other hand, had an effect on maternal behavior in this study. This is consistent with Rick's (1985) study showing a significant difference in the Father Acceptance Total on the MFP between mothers of babies who at one year of age were securely attached and those mothers whose infants were anxiously attached. Table 13 showed the significant difference between the maternal behavior scores during the immediate postpartum period of the "poorly-reared by father" group and the "well-reared by father" group. Figure 12 shows the mean scores for the two groups.

The analysis of variance procedures used to look for relationships between rearing and delivery on maternal behavior also showed a main effect of "rearing by father" on one of the tests. The Parent score at Time 2 showed the similar result. Figure 13 shows the means of the subjects who delivered vaginally and those who delivered by cesarean in the two groups of "poorly-reared and well-reared by father" groups at Time 2.

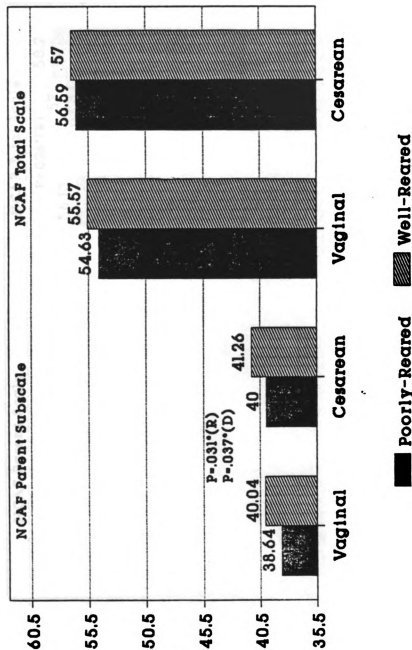
When the sample was subdivided into a group of Low SES, Teen subjects and an analysis of variance was done to determine differences in scores between poorly-reared and well-reared, the "rearing by father" groups again showed a difference. The means of the scores are displayed in Figure 14 as well as on Tables 25 and 26. This subsample, unlike the entire sample, showed a significant difference

Figure 12. Mean Scores of Maternal Behavior for 'Poorly-Reared by Father' and 'Well-Reared by Father' Groups, Time 2



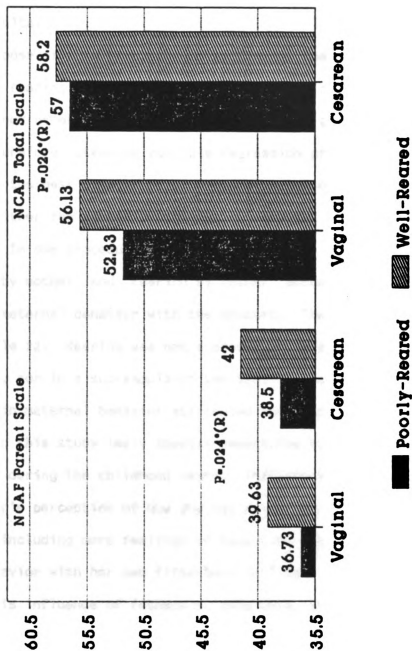
Data from Table 13

Figure 13. Mean Scores of Maternal Behavior for 'Poorly-Reared by Father' and 'Well-Reared by Father' Groups by Delivery, Time 2



Data from Tables 4 & 6

Figure 14. Mean Scores of Maternal Behavior Among Subgroup of Low SES. Teen Subjects for 'Poorly-Reared and Well-Reared by Father' Groups by Delivery, Time 2



Data from Table 26 & 26

on the results of the NCAF Total Scale at Time 2 as well as on the NCAF Parent Scale. Like the entire sample, there were no differences found at Time 3 by quality of rearing. See Table 27 for the display of these results.

The purpose of this research was to examine the dimensions of mother's own rearing and the relationship of those recollections along with the method of delivery on maternal behavior with first-born infants. Therefore, stepwise multiple regression procedures were used to determine the best predictors of maternal behavior. The quality of rearing by either the mother or the father were not significant predictors. In one procedure on the entire sample, the two variables of "rearing by mother" and "rearing by father" accounted for 2% of the variance in maternal behavior with the newborn. These results were shown in Table 22. Rearing was not a predictor in a sub-sample of Low SES subjects, nor in a sub-sample of Low SES, Single subjects. The differences in maternal behavior attributed to the quality of "rearing by father" in this study imply special importance to the father/child relationship during the childhood years. This study indicates that when a mother's perception of how she was raised by her father is recalled as including more feelings of rejection than of acceptance, then her behavior with her own first-born is likely to be lessened in quality. This influence of fathers on daughters, that in this study outweighed the influence of mothers and resulted in intergenerational continuity, is an area that needs exploration. According to Hetherington (1984) fathers respond differently to their children than do mothers. She reports that fathers play a unique role in the socialization of children. Socialization includes communication

skills. The NCAF Parent Scale measures how well the mother communicates verbally and non-verbally (interacts) with her newborn. When her communication skills were less well-developed due to deprived socialization then her maternal behavior score would be lower; not due to a lack of affection, but due to an inadequate ability to communicate affection. Two studies cited by Sagi (1984) found men reported that becoming a father added a special dimension to their lives that resulted in increased personal satisfaction. Sagi suggested that this satisfaction with parenthood could cause the father to be more responsive and sensitive with his children. Therefore, according to Sagi, his influence on his children could be broader.

Abraham Sagi conducted his study on paternal involvement in child care on middle class, urban families in Haifa, Israel. It was known as the "Israeli Project" (Sagi, 1984). One of the components of his study was to determine the consequences of paternal involvement for children. He found that both sons and daughters of highly involved fathers perceived their fathers as more nurturant, more dominant, and less punitive than children of fathers with low involvement. Forty-four percent of this study's subjects' parents were single, separated, or divorced. Therefore, it is possible that recollections of poor-rearing could represent low or non-involved fathers that were interpreted as punitive or rejecting. Because of the number of subjects with non-involved fathers in this total sample, ANOVA procedures were used on a subsample of subjects who, as children, lived with both biological parents (N=119). The analyses revealed that NCAF parent scale scores were significantly higher ($P=.005$) for

those subjects who were "well-reared by father" than for those who were "poorly-reared by father," even among those in two-biological-parent families. In the group of subjects raised by mothers, step-parents, adoptive parents, and others there was no significant difference in NCAF scores between those who were well-reared and those who were poorly-reared by father. All of the scores in this group reporting the absence of at least one biological parent, were significantly lower ($P=.008$) than for the group raised by both biological parents. These results imply a major impact by biological fathers on daughters which is then reflected in mothering skills.

Most of the mothers in this study were born during the 1960's (mean age 22.6) when feminism and paternal involvement were becoming a societal issue. As the expectation for fathers to become more involved increases, is it possible that their breadth of influence is greater than the mothers'? This macrosystem change in family structure that has affected children in so many ways may be exerting its influence in yet another.

THE EFFECT OF METHOD OF DELIVERY ON MATERNAL BEHAVIOR

The method of delivery did, as expected, show an effect on maternal behavior with the newborn. However, the effect shown was an opposite effect to the one predicted. The mothers who delivered by cesarean consistently scored higher on maternal behavior than did those mothers who delivered vaginally. These results are displayed on Table 18 and 19 and Figures 15 and 16. Although this was a surprise finding, it made sense when one looked at the correlation coefficients of the demographic/status variables of age, marital status, race, mother's education, and SES with method of delivery as shown on Tables

8 and 9. The mothers who delivered by cesarean were older, more likely to be married and belonged to the white race, had more education, and were in a higher socioeconomic class than were the mothers who delivered vaginally. It can be assumed that as a group, this class of mothers would perform at a higher level with their newborns than would the young, single, non-white, less-educated, low SES mothers. This subsample of low SES, single, teen subjects showed an interesting difference from the entire sample. The entire sample showed significant differences on both scales at Time 2, whereas the subsample showed no difference. The entire sample's scores on the Total Scale at Time 3 were significantly different, whereas scores on the Parent Scale showed no difference. The subsample's scores on the Total scale at Time 3 showed no difference, whereas scores on the Parent subscale were significantly different, just opposite of the entire sample. Although not conclusive, these results on much smaller numbers indicate that the method of delivery itself may be an important factor. These results are displayed in Table 20, Table 21, and Figures 17 and 18.

The timing of the feeding observation varied from the first to several days post-delivery, depending, not only on the researcher's availability but also on the mothers' and babies' availability, convenience, feeding comfort, and physical state. Therefore analyses were done to determine differences between the group who were observed on the first and second day versus the group who were observed on days 3, 4, or 5 postpartum. One hundred forty-six mother/infant pairs were observed within the first two days postpartum, 100 of whom delivered vaginally and 46 who delivered by cesarean. Analysis of variance

revealed a difference, although not statistically significant ($P = .06$) between the means of the maternal behavior scores obtained on the NCAF Parent Subscale of the group of mothers who delivered by cesarean and those who delivered vaginally. Again, the mothers who delivered by cesarean scored higher (39.78 vs 38.46). There was a statistically significant difference between the groups on the NCAF Total Scale ($P = .04$). The mean for the cesarean-delivered women was 55.65, and the mean for the vaginally-delivered women was 53.82. Thirty-six women were observed on days 3, 4, and 5 of whom 13 were delivered by cesarean, and 18 were observed after the fifth day, of whom 6 were delivered by cesarean. There were no significant differences in the maternal behavior scores between the cesarean and vaginally-delivered women in those groups. Therefore, age of baby did not contribute to the finding of higher scores among cesarean-delivered women.

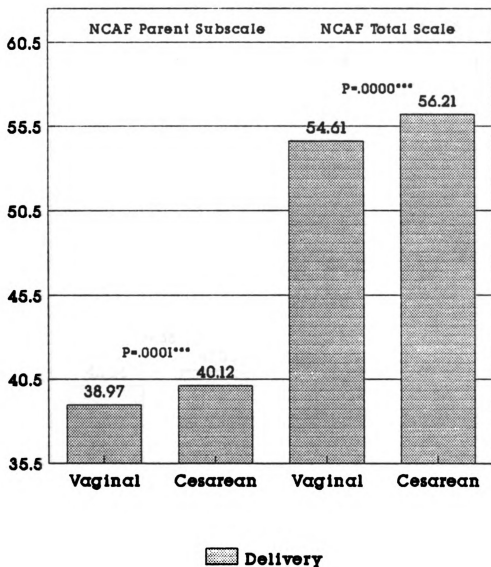
Cranley (1981) found in her study of maternal/fetal attachment that the mothers who subsequently delivered by cesarean had significantly lower mean scores than did the mothers who delivered vaginally. In this study, the cesarean mother's scores were lower, but not significantly so. In fact, the difference was only 18% of one standard deviation. This was the only measure of maternal behavior where the cesarean scores were even slightly lower than the vaginal scores.

The method of delivery continued to show a statistically significant difference in the maternal behavior scores at Time 2 when delivery and rearing were subjected to analysis of variance or multiple analysis of variance procedures. The differences in the mean maternal behavior scores by rearing and delivery are depicted in

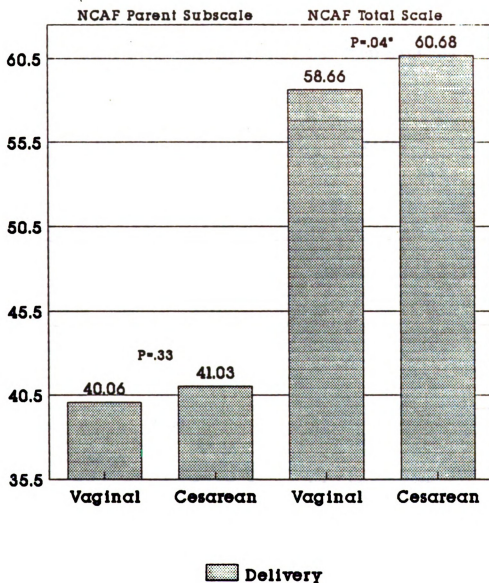
Figures 19 and 20. The NCAF Parent Scale scores at Time 3 again showed no difference in the main effect of delivery. However, the NCAF Total Scale scores did differ significantly by delivery. These mean scores are displayed in Figure 21. The group of mothers who dropped out of the study after Time 2 did not differ significantly in their method of delivery from the mothers who continued in the study through Time 3; therefore the lack of significant difference in the Parent Score should reflect an actual mediation of the maternal behavior. The Total score includes observation of the infants' behavior and therefore results in a higher score for both vaginally and cesarean delivered mothers. Since the Parent score is not significantly different between vaginally and cesarean delivered mothers, one has to wonder if, because the cesarean mothers interact more positively with their newborns, the infant then at four months is more responsive, therefore causing the higher score on the NCAF Total Scale which is significantly higher than the vaginally delivered group.

Because the premise of this study was that method of delivery had an effect on maternal behavior with the newborn, several stepwise multiple regression procedures were used to partial out the variance in maternal behavior scores. Delivery accounted for only 3% of the variance in maternal behavior scores when a stepwise multiple regression procedure was applied to the entire sample. When the procedure was applied to a subsample of Low SES subjects and done on the Time 2 data, delivery made no significant contribution to the variance. Marital status was the best predictor. However, at Time 3, delivery accounted for 5% of the variance in the Parent scores and 7%

7

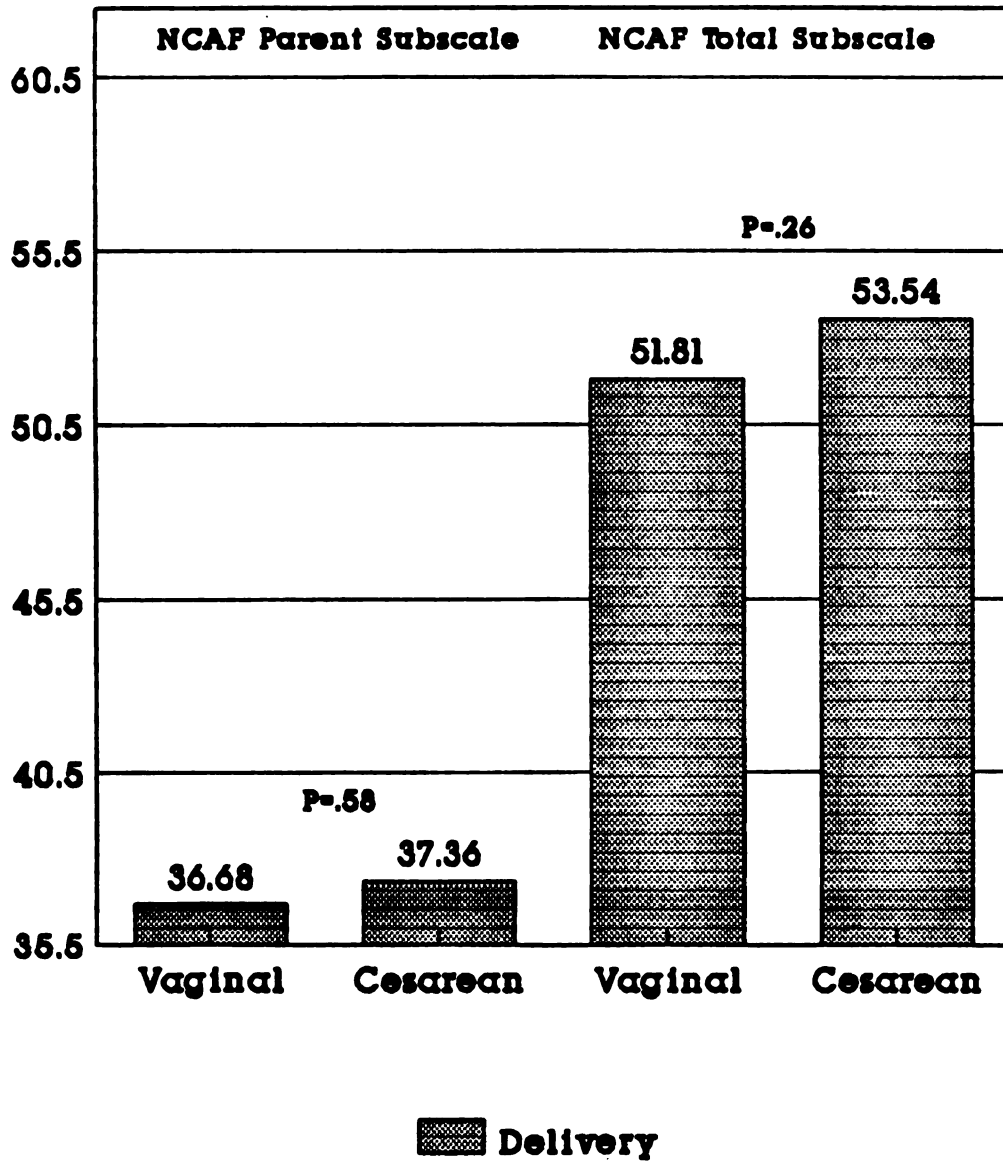
Figure 15. Mean Scores of Maternal Behavior by Delivery, Time 2

Data from Table 18

Figure 16. Mean Scores of Maternal Behavior by Delivery. Time 3

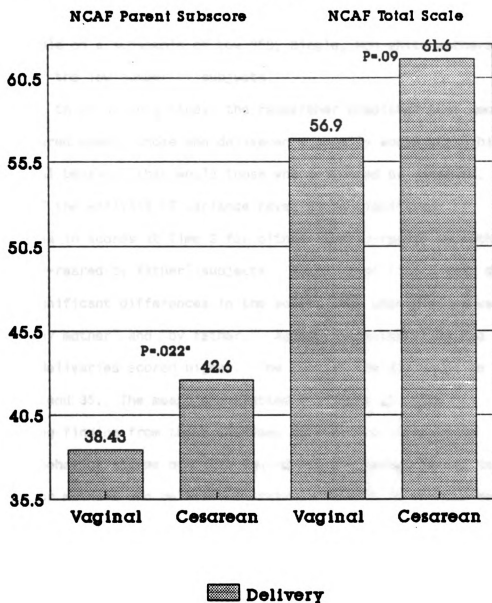
Data from Table 19

Figure 17. Mean Scores of Maternal Behavior by Delivery Among Low SES, Single Teen Mothers, Time 2



Data from Table 20

Figure 18. Mean Scores of Maternal Behavior by Delivery Among Low SES, Single, Teen Mothers, Time 3

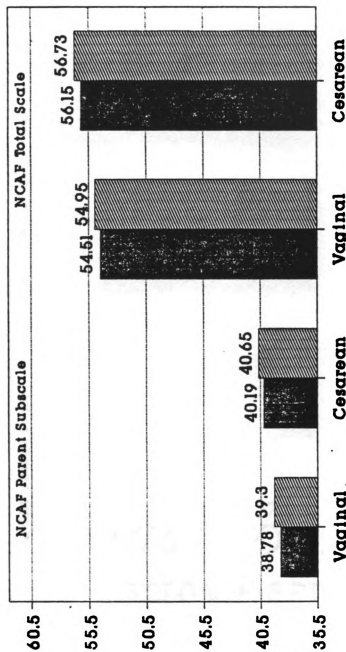


Data from Table 21

on the Total scores. These results can be seen in Table 29. When multiple regression was done on the subsample of Low SES, Single mothers, the method of delivery accounted for 14% of the variance in NCAF Parent scores at Time 3 as shown on Table 30. The procedure was not possible on a subsample of Low SES, Single, Non-white mothers because of the low number of subjects.

Prior to doing this study, the researcher predicted that among poorly-reared women, those who delivered vaginally would score higher on maternal behavior than would those who delivered by cesarean. Results of the analysis of variance revealed no significant differences in scores at Time 2 for either "poorly-reared by mother" or "poorly-reared by father" subjects. Analysis of Time 3 data did reveal significant differences in the scores both when rearing was defined "by mother" and "by father." Again, the mothers who had cesarean deliveries scored higher. The results are displayed in Tables 34 and 35. The means are plotted in Figure 22. The interesting finding from these analyses is that the increase in maternal behavior scores over the four-month postpartum period is greater for mothers who deliver by cesarean than it is for the mothers who deliver vaginally. So, not only do the cesarean mothers perform at a higher level with their babies during the immediate postpartum period, but their improved performance is greater as the baby grows. One has to question the role social support plays in explaining this phenomena. Although social support, as measured by the MSSSI, showed no correlation with delivery in this study and only slight correlation with maternal behavior at Time 2 and none at Time 3; there is a difference in the way cesarean and vaginal mothers are cared for

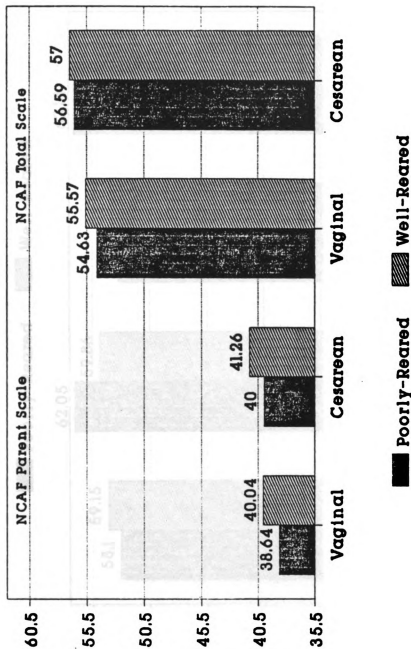
Figure 19. Mean Scores of Maternal Behavior by Rearing by Mother and Delivery, Time 2



■ Poorly-Reared ▨ Well-Reared

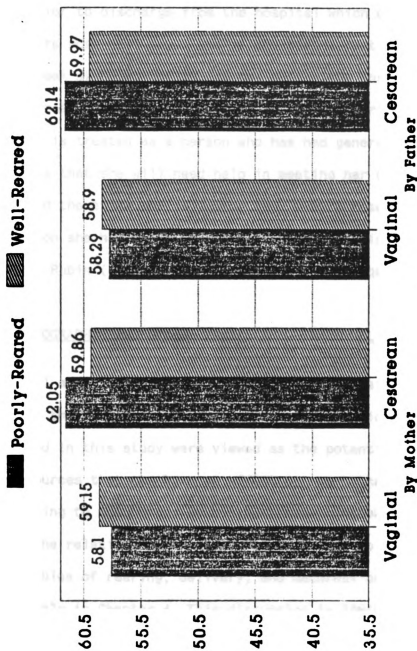
Data from Tables 4 & 6

Figure 20. Mean Scores of Maternal Behavior by Rearing by Father and Delivery Time 2



Data from Tables 4 & 5

Figure 21. Mean Scores of Maternal Behavior by Rearing and Delivery. Time 3



Data from Table 7

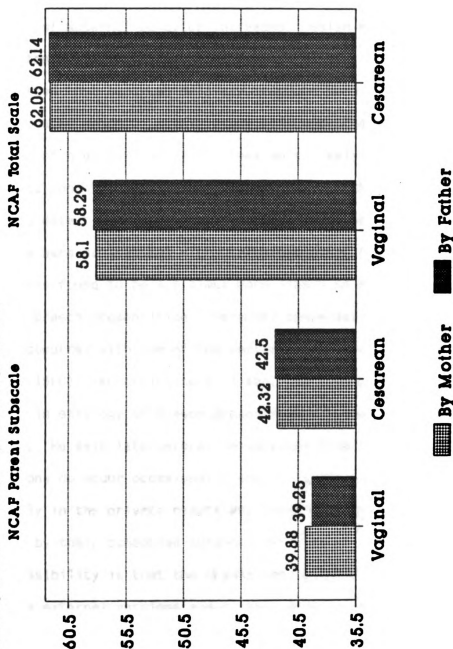
following delivery. The vaginal mother is ambulatory and expected to be fairly self-sufficient within a few hours after delivery. She is expected to learn how to care for her baby and become adjusted to the feeding method prior to discharge from the hospital which occurs no later than 48 hours post-delivery. She is advised to rest for at least the first week at home, but rarely has sufficient instrumental support for this rest to take place. The mother who experiences a cesarean delivery is treated as a person who has had general surgery. The expectation is that she will need help in meeting her own and the babies' needs, and therefore she is "cared for." As a result of this dependent condition she has time to pass through the "taking in" period which Reva Rubin (1984) says is an important prerequisite to "taking hold."

THE EFFECT OF DEMOGRAPHIC AND STATUS VARIABLES ON MATERNAL BEHAVIOR WITH THE NEWBORN

An ecological approach is essential to any comprehensive, holistic study of the complexity of birth. The demographic and status variables included in this study were viewed as the potential internal and external resources that can have an effect on new mothers' coping abilities, according to McCubbin's Double ABCX model (McCubbin & Figley, 1983). The relationship that each of these variables has to the primary variables of rearing, delivery, and maternal behavior is presented completely in Chapter 4. This discussion is limited to especially pertinent and unexpected findings.

Marital status, socioeconomic status, and race were found to be the best predictors of maternal behavior with the newborn. The findings of this study, then, support society's efforts in targeting

Figure 22. Mean Scores of Maternal Behavior Among 'Poorly-Reared by Mother and by Father' Groups by Delivery, Time 3



Data from Tables 34 & 36

the single, non-white women of low SES as the high risk population for problematic maternal/infant interaction. Interestingly, by four months postpartum, particularly among single, teen mothers of low SES and mothers who report poor quality rearing, the effect of delivery as a predictor of maternal behavior increases. Helen Marieskind, in her report to the U.S. Department of Health, Education, and Welfare in 1979, reported that cesarean delivery occurred more frequently in college educated women. In this study well-educated, older, married, white women of high SES were 1.76 times more likely to have cesareans. Analysis was done by cross tabulation of SES with the indication for cesarean to detect differences in the reasons for cesarean. The proportions were as expected with the exception of breech. The high SES group was found to be 4.7 times more likely to have a cesarean because of breech presentation. Personal conversation about this phenomena occurred with one of the obstetricians from Practice B (Williams, 1990). According to Williams, there should be no difference in etiology of breech presentation between the high and low SES groups. He said late natural conversions from breech to cephalic presentations do occur occasionally and it is possible that women, particularly in the private practices, could preempt the natural conversion by their scheduled surgical delivery at the 39th week. Another possibility is that the physicians in training in the clinics may do more external versions and/or have more success with the procedure than do the private practitioners. Still another plausible explanation is that there is bias in the sampling process. The risk of a convenience sample is the lack of assurance of accuracy in an unusual finding like this one.

The finding that the high SES group is more likely to deliver by cesarean seems incongruent with what is known about health risk and complications of pregnancy. This incongruence probably explains the popular belief that the number of cesareans should and could be drastically reduced. The results of this study indicate a positive attribute of cesarean delivery, and that is higher scores on maternal behavior with the newborn. These differences in scores were not only significant in the entire sample, but they held true in the subsamples of low SES mothers and poorly-reared mothers. In fact, in some instances there was wider difference in the vaginal vs cesarean scores in the Low SES group than in the entire sample. Whether the positive differences in maternal behavior as a result of cesarean are attributable to more caring, emotional/social support; a growing trust and reliance on technological methods; normalization of the process; and/or increasing acceptance by the peer group is the question that begs an answer. This unexpected finding needs much more exploration.

CHAPTER VI

SUMMARY AND CONCLUSIONS

CLINICAL IMPLICATIONS OF THIS RESEARCH

This research has produced surprising but interesting findings that could change some long-held beliefs of maternal/child health practitioners. The fathers' impact on their grown daughters' maternal behavior was an especially important finding. The fact that the group of subjects who were raised by both biological parents scored significantly higher on maternal behavior with their newborns than did subjects who were raised by no more than one biological parent or some otherwise related combination of adults is supportive of the intergenerational parenting links reviewed in Chapter II. The ramifications of this result, in light of the increasing number of single parent families, must be addressed empirically through future research as well as pragmatically in the clinical setting. It is important for clinicians to take fathers and fathers' role in parenting seriously. Fathers are currently welcomed in prenatal education classes, hospital maternity units, and physicians' offices. More emphasis may be needed in including them in the teaching and supportive programs. This study supports allowing fathers unlimited participation in the childbearing/rearing experience and encouraging their involvement in every way possible with their children. Single mothers may want to involve the biological father in the care of the newborn, when appropriate and possible. If it is true, as Sagi (1984) says, that fathers find more satisfaction in parenting than

mothers, then the reasons for this should be explored. Possibly there are ways to increase maternal satisfaction and, therefore, broaden mothers' positive influence as well.

The results of this research raise the question of why more advantaged than disadvantaged mothers deliver by cesarean. As Doctors Myers and Gleicher of Mt. Sinai Hospital in Chicago advocated, in their New England Journal of Medicine article (1988), a monitoring program could be implemented by hospitals to assure that cesarean delivery is only done when absolutely medically necessary. They recommended more stringent criteria and mandatory second opinion. If the 1990 mothers have more trust in technology than they do in the efficiency of their own bodies, then public education is indicated. Cesarean delivery is expensive. Decreasing the number of cesareans could save health care dollars.

The health care community needs to look at the support it provides new mothers following vaginal delivery. If, indeed, the cesarean mothers are providing higher quality interaction with their babies during feedings, it may well be because they are having their own personal needs met more satisfactorily. Reva Rubin's theory of postpartum development is an important concept to consider in preparing for early discharge from the hospital. Self-esteem, a feeling of competence, physical comfort, and a supportive environment are elements affecting the ability to care for a baby and to begin to build a loving, reciprocal relationship (Davis & Wallbridge, 1981). Attention to the needs of the new mother must be the focus of maternity care. Early discharge simply moves the site for postpartum

care; it does not remove the need (Michigan Department of Public Health, 1985).

Marital status, socio-economic status, and race were the best predictors of maternal behavior with the newborn. These variables are currently considered on most psychosocial risk indexes. This research provides support for continuing to include this information in assessment and to begin interventions during the prenatal period that strengthen the family's resources in preparation for the new baby.

LIMITATIONS OF THE STUDY

The generalizability of the findings from this research is limited due to the sample selection procedure used and the resultant potential for sampling bias. Certain impressions can, however, be shared.

The validity of the conclusions regarding the mothers' own rearing is questionable. The instrument used required the subjects to recall their perceptions of how they were reared by their mothers and by their fathers. These recalled perceptions of childhood may or may not represent actual parental behavior (Ricks, 1985).

The questions used to determine mothers' perception of the cesarean experience did not assess her personal feelings adequately. If the research is replicated, more qualitative probing would be advisable.

The attrition rate for this longitudinal study was 23%. Therefore, the results at four months postpartum had limited comparative value with those from the immediate postpartum period.

SUGGESTIONS FOR FUTURE RESEARCH

The two major findings of this research, the impact of paternal influence on daughters' subsequent maternal behavior and the achievement of higher scores on maternal behavior by mothers who deliver by cesarean, are areas that need further exploration. A cultural shift may be occurring as the new decade arrives that will affect childbearing and childrearing practices. Cesarean delivery and paternal involvement are two areas that may be reflecting cultural changes. Researchers need to find and use consistent instruments to measure maternal behavior so that studies can be compared, accumulated, and thus, lead to generalizable conclusions about the predictors of growth-producing maternal behavior. This research needs to be replicated in a variety of populations. The absence of influence of effective mothering in this study suggests that interesting further research might include a replication using fathers as the primary subjects; one wonders if the converse of this study would reveal that the quality of mothering to a son would be reflected in that son's ability to father. An important contribution could be made to the knowledge about maternal/infant attachment by follow-up studies of this sample at two and five years.

Every child needs to attach to at least one healthy, caring adult in order to grow into a healthy, happy, productive member of society (Magid & McKelvey, 1987). If further research confirms the findings of paternal influence, then the mores of society which have seemingly evolved to the nearly total acceptance of single parenting must be reassessed. If further research confirms the findings of more positive parenting following cesarean delivery, then societal

attitudes and values around childbearing need to be reassessed.

The challenge for researchers is to discover how that attachment can best be assured and, after learning the secrets, to share them widely with parents and professionals.

APPENDICES

STUDY OF MATERNAL BEHAVIOR WITH FIRST-BORN

CONSENT FORM

Over the past decade there has been increasing interest in the styles of behavior that occur between mothers and their babies. At the present time, little is known about how these behaviors develop and what circumstances seem to contribute to their occurrence. This study is designed to describe the various styles of behavior between first-time mothers and their babies and the factors that seem to relate to this interaction. Knowledge from this study will help parents, professionals, and communities provide environments which are supportive to mothers as they begin to develop relationships with their babies. I am inviting you to participate in this study and asking your permission to question and observe you at this time and after your baby is born.

Participation in this study will involve:

1. Your written response to questions that describe your current behavior with your unborn baby, your memories of childhood experiences, and your current relationships with family members and friends. This questionnaire will be completed during your last month of pregnancy in your physician's office.
2. Your written response to questions regarding your baby's birth and your feelings about your labor and delivery while you are in the hospital.
3. Observation of you and your baby during a feeding period by the researcher while you are in the hospital.
4. Your written response to questions regarding your baby's behavior, your memories of your own childhood, and your current relationships with family members and friends. This questionnaire will be mailed to you just prior to your baby's third month birthday.
5. Observation of you and your baby during a feeding period in your own home by the researcher when your baby is three months old.
6. Your consent to allow me to obtain and use information from your medical record.

All information you provide will be entirely confidential. The questionnaires, coded with your Identification number, will be stored with the identifying information you provide in a locked file. This file is only available to the researcher and her advisor. The results will be reported as group summaries with no one individual identifiable in the record. You may have a copy of the results on request. You should also understand that you are free to withdraw your consent and discontinue your participation at any time. Your decision whether or not to participate and/or withdraw will have no effect on the care received by you or your family. I will be happy to answer any questions you might have at any time.

I have read the preceding statement and hereby agree to participate in this study. In giving my consent, I acknowledge that my participation is voluntary, and can be withdrawn at any time.

Date

Signature

Address:

Street

Number

City

Zip

Phone Number

I would like to receive a copy of the results of the research results. Yes _____ No _____

Thank you for agreeing to participate.

Research Investigator

Researcher's Phone Number

STUDY OF MATERNAL BEHAVIOR WITH FIRST-BORN**CONSENT FORM**

Over the past decade there has been increasing interest in the styles of behavior that occur between mothers and their babies. At the present time, little is known about how these behaviors develop and what circumstances seem to contribute to their occurrence. This study is designed to describe the various styles of behavior between first-time mothers and their babies and the factors that seem to relate to this interaction. Knowledge from this study will help parents, professionals, and communities provide environments which are supportive to mothers as they begin to develop relationships with their babies. I am inviting you to participate in this study and asking your permission to question and observe you and your baby.

Participation in this study will involve:

1. Your written response to questions that describe you, your family, and your current relationships with family members and friends.
2. Your written response to questions regarding your baby's birth and your feelings about your labor and delivery while you are in the hospital.
3. Observation of you and your baby during a feeding period by the researcher while you are in the hospital.
4. Your written response to questions regarding your baby's behavior, your memories of your own childhood, and your current relationships with family members and friends.
5. Observation of you and your baby during a feeding period in your own home by the researcher when your baby is three months old.
6. Your consent to allow me to obtain and use information from your medical record.

All information you provide will be entirely confidential. The questionnaires, coded with your Identification number, will be stored with the identifying information you provide in a locked file. This file is only available to the researcher and her advisor. The results will be reported as group summaries with no one individual identifiable in the record. You may have a copy of the results on request. You should also understand that you are free to withdraw your consent and discontinue your participation at any time. Your decision whether or not to participate and/or withdraw will have no effect on the care received by you or your family. I will be happy to answer any questions you might have at any time.

I have read the preceding statement and hereby agree to participate in this study. In giving my consent, I acknowledge that my participation is voluntary, and can be withdrawn at any time.

Date

Signature**Address:**

Street

Number

City

Zip

Phone Number

I would like to receive a copy of the results of the research results. Yes_____No_____

Thank you for agreeing to participate.

Research Investigator

Researcher's Phone Number

STUDY OF MATERNAL BEHAVIOR WITH FIRST-BORN

FCE #999

FACE SHEET

Mother's Name _____

Father's Name _____

Identification Number _____

Expected date of birth _____

Mother's Address _____

Mother's Phone _____

Alternate phone/address _____

Baby's birth date _____ Sex _____ Wt. _____

Baby's Name _____

Date of Discharge from hospital _____

Physicians _____

Dates of Observations: Prenatal _____

Hospital _____

In Home _____

STUDY OF MATERNAL BEHAVIOR WITH FIRST-BORN

FCE #999

QUESTIONNAIRE #1

1. What is your assigned Identification No.?_____
2. What is your age as of your last birthday?_____
3. When is your expected due date?_____

PLEASE PLACE A CHECKMARK () PRECEEDING THE ONE (1) STATEMENT THAT BEST DESCRIBES YOU IN THE FOLLOWING QUESTIONS.

4. What is your marital status?

_____Single (Never married)

_____Single (Separated, Widowed, Divorced)

If single, do you live with male partner?

_____Yes

_____No

_____Married (Living with spouse)

5. What is your race?

_____White

_____Black

_____American Indian

_____Oriental

_____Other

6. What is your religious preferance?

_____Catholic

_____Jewish

_____Protestant

If Protestant, are you?

_____Reformed

_____Christian Reform

_____Other

_____No Preferance

7. Was your pregnancy

_____Planned?

_____Not planned?

_____Not planned, but not trying to prevent?

8. Have you attended prenatal classes?

_____No

_____Attended lecture series

_____Attended Preparation for Labor series

_____Attended Lamaze classes

9. Did your spouse/friend attend class with you?

_____Yes

_____No

10. What is your occupation?_____

Briefly describe your occupation_____

11. How much formal school have you completed?

- _____ Less than 7th grade
- _____ 7-8-9 years
- _____ 10-11 years
- _____ High School graduate
- _____ 1-3 1/2 years college
- _____ College graduate
- _____ Graduate degree

12. What is your husband/live-in friend's occupation?

Briefly describe his occupation _____

13. How much formal school has he completed?

- _____ Less than 7th grade
- _____ 7-8-9 Years
- _____ 10-11 years
- _____ High School graduate
- _____ 1-3 1/2 years college
- _____ College graduate
- _____ Graduate degree

14. Are your parents living?

☐ Mother and father are living☐ Both parents are deceased☐ One parent is deceased

Approximate date of:

Mother's death _____

Father's death _____

15. Are your parents separated/divorced/never married?

☐ No☐ Yes

If yes, please go on:

☐ Never married

Approximate date of divorce:

How old were you at the time?

16. Who did you live with as a growing child?

☐ Biological mother and father☐ Biological mother☐ Biological father☐ Biological mother & stepfather/mate/friend☐ Biological father & stepmother/mate/friend☐ Adoptive parents☐ Grandparents☐ Other

17. What was your placement in your original family?

_____Youngest child

_____Oldest child

_____Between the oldest & youngest.

18. How many brothers and sisters do you have?

_____None

_____One

_____Two

_____Three

_____Four

_____Five

_____Six

_____More than six

MATERNAL-FETAL ATTACHMENT SCALE

by

Mecca Cranley, 1979

Please respond to the following items about yourself and the baby you are expecting. There are no right or wrong answers. Your first impression is usually the best reflection of your feelings.

Make sure you mark only one answer per sentence

	D	U		D
	e	n		e
	f	c		r
				t
	Y	Y	a	
	e	e	i	N
	s	s	n	o
				o
1. I talk to my unborn baby.....	___	___	___	___
2. I feel all the trouble of being pregnant is worth it...	___	___	___	___
3. I enjoy watching my tummy jiggle as the baby kicks inside.....	___	___	___	___
4. I picture myself feeding the baby.....	___	___	___	___
5. I'm really looking forward to seeing what the baby looks like.....	___	___	___	___
6. I wonder if the baby feels cramped in there.....	___	___	___	___
7. I refer to my baby by a nickname.....	___	___	___	___
8. I imagine myself taking care of the baby.....	___	___	___	___
9. I can almost guess what my baby's personality will be from the way s/he moves around.....	___	___	___	___
10. I have decided on a name for a girl baby.....	___	___	___	___
11. I do things to try to stay healthy that I would not do if I were not pregnant.....	___	___	___	___
12. I wonder if the baby can hear inside of me.....	___	___	___	___
13. I have decided on a name for a baby boy.....	___	___	___	___
14. I wonder if the baby thinks and feels inside of me.....	___	___	___	___
15. I eat meat and vegetables to be sure my baby gets a good diet.....	___	___	___	___
16. I seems my baby kicks and moves to tell me it's eating time.....	___	___	___	___
17. I poke the baby to get him/her to poke back.....	___	___	___	___
18. I can hardly wait to hold the baby.....	___	___	___	___
19. I try to picture what the baby will look like.....	___	___	___	___
20. I stroke my tummy to quiet the baby when there is too much kicking.....	___	___	___	___
21. I can tell that the baby has hiccoughe.....	___	___	___	___
22. I feel my body is ugly.....	___	___	___	___
23. I give up doing certain things because I want to help my baby.....	___	___	___	___
24. I grasp my baby's foot through my tummy to move it around.....	___	___	___	___

MOTHER/FATHER/PEER SCALE

Please indicate the extent to which the following statements describe your childhood relationship with the people indicated by using the following scale and circling the appropriate number following each statement.

1	2	3	4	5
STRONGLY DISAGREE WITH STATEMENT	SOMEWHAT DISAGREE WITH STATEMENT	UNCERTAIN ABOUT STATEMENT	SOMEWHAT AGREE WITH STATEMENT	STRONGLY AGREE WITH STATEMENT

WHEN I WAS A CHILD, MY MOTHER (or mother substitute):

- | | | | | | |
|---|---|---|---|---|---|
| 1) encouraged me to make my own decisions. | 1 | 2 | 3 | 4 | 5 |
| 2) helped me learn to be independent. | 1 | 2 | 3 | 4 | 5 |
| 3) felt she had to fight my battles for me when
I had a disagreement with a teacher or friend. | 1 | 2 | 3 | 4 | 5 |
| 4) was overprotective of me. | 1 | 2 | 3 | 4 | 5 |
| 5) encouraged me to do things for myself. | 1 | 2 | 3 | 4 | 5 |
| 6) encouraged me to try things my way. | 1 | 2 | 3 | 4 | 5 |
| 7) did not let me do things that other kids my
age were allowed to do. | 1 | 2 | 3 | 4 | 5 |
| 8) sometimes disapproved of specific things I did,
but never gave me the impression that she dis-
liked me as a person. | 1 | 2 | 3 | 4 | 5 |
| 9) enjoyed being with me. | 1 | 2 | 3 | 4 | 5 |
| 10) was someone I found very difficult to please. | 1 | 2 | 3 | 4 | 5 |
| 11) usually supported me when I wanted to do new
and exciting things. | 1 | 2 | 3 | 4 | 5 |
| 12) worried too much that I would hurt myself or
get sick. | 1 | 2 | 3 | 4 | 5 |
| 13) was often rude to me. | 1 | 2 | 3 | 4 | 5 |
| 14) rarely did things with me. | 1 | 2 | 3 | 4 | 5 |
| 15) didn't like to have me around the house. | 1 | 2 | 3 | 4 | 5 |
| 16) would often do things for me that I could do
for myself. | 1 | 2 | 3 | 4 | 5 |

(REMINDER: 1=Strongly Disagree, 5=Strongly Agree)

- | | | | | | |
|--|---|---|---|---|---|
| 17) let me handle my own money. | 1 | 2 | 3 | 4 | 5 |
| 18) could always be depended upon when I really needed her help and trust. | 1 | 2 | 3 | 4 | 5 |
| 19) did not want me to grow up. | 1 | 2 | 3 | 4 | 5 |
| 20) tried to make me feel better when I was unhappy. | 1 | 2 | 3 | 4 | 5 |
| 21) encouraged me to express my own opinion. | 1 | 2 | 3 | 4 | 5 |
| 22) made me feel that I was a burden to her. | 1 | 2 | 3 | 4 | 5 |
| 23) gave me the feeling that she liked me as I was; she didn't feel she had to make me over into someone else. | 1 | 2 | 3 | 4 | 5 |

WHEN I WAS A CHILD, MY FATHER (OR father substitute):

- | | | | | | |
|---|---|---|---|---|---|
| 24) encouraged me to make my own decisions. | 1 | 2 | 3 | 4 | 5 |
| 25) helped me learn to be independent. | 1 | 2 | 3 | 4 | 5 |
| 26) felt he had to fight my battles for me when I had a disagreement with a teacher or friend. | 1 | 2 | 3 | 4 | 5 |
| 27) was overprotective of me. | 1 | 2 | 3 | 4 | 5 |
| 28) encouraged me to do things for myself. | 1 | 2 | 3 | 4 | 5 |
| 29) encouraged me to try things my way. | 1 | 2 | 3 | 4 | 5 |
| 30) did not let me do things that other kids my age were allowed to do. | 1 | 2 | 3 | 4 | 5 |
| 31) sometimes disapproved of specific things I did, but never gave me the impression that he disliked me as a person. | 1 | 2 | 3 | 4 | 5 |
| 32) enjoyed being with me. | 1 | 2 | 3 | 4 | 5 |
| 33) was someone I found very difficult to please. | 1 | 2 | 3 | 4 | 5 |
| 34) usually supported me when I wanted to do new and exciting things. | 1 | 2 | 3 | 4 | 5 |
| 35) worried too much that I would hurt myself or get sick. | 1 | 2 | 3 | 4 | 5 |

(REMINDER: 1=Strongly Disagree, 5=Strongly Agree)

- | | | | | | |
|---|---|---|---|---|---|
| 36) was often rude to me. | 1 | 2 | 3 | 4 | 5 |
| 37) rarely did things with me. | 1 | 2 | 3 | 4 | 5 |
| 38) didn't like to have me around the house. | 1 | 2 | 3 | 4 | 5 |
| 39) would often do things for me that I could do for myself. | 1 | 2 | 3 | 4 | 5 |
| 40) let me handle my own money. | 1 | 2 | 3 | 4 | 5 |
| 41) could always be depended upon when I really needed his help and trust. | 1 | 2 | 3 | 4 | 5 |
| 42) did not want me to grow up. | 1 | 2 | 3 | 4 | 5 |
| 43) tried to make me feel better when I was unhappy. | 1 | 2 | 3 | 4 | 5 |
| 44) encouraged me to express my own opinion. | 1 | 2 | 3 | 4 | 5 |
| 45) made me feel I was a burden to him. | 1 | 2 | 3 | 4 | 5 |
| 46) gave me the feeling that he liked me as I was; he didn't feel he had to make me over into someone else. | 1 | 2 | 3 | 4 | 5 |

WHEN I WAS A CHILD, OTHER CHILDREN:

- | | | | | | |
|--|---|---|---|---|---|
| 47) liked to play with me. | 1 | 2 | 3 | 4 | 5 |
| 48) were always criticizing me. | 1 | 2 | 3 | 4 | 5 |
| 49) often shared things with me. | 1 | 2 | 3 | 4 | 5 |
| 50) often picked on me and teased me. | 1 | 2 | 3 | 4 | 5 |
| 51) were usually friendly to me. | 1 | 2 | 3 | 4 | 5 |
| 52) would usually stick up for me. | 1 | 2 | 3 | 4 | 5 |
| 53) liked to ask me to go along with them. | 1 | 2 | 3 | 4 | 5 |
| 54) wouldn't listen when I tried to say something. | 1 | 2 | 3 | 4 | 5 |
| 55) were often unfair to me. | 1 | 2 | 3 | 4 | 5 |
| 56) would often try to hurt my feelings. | 1 | 2 | 3 | 4 | 5 |

MATERNAL SOCIAL SUPPORT INDEX

Please share with us the things you do in your home as a mother by answering the questions below. Check the answer you feel is true for you.

- | | | | | |
|--|-----------------|--------------------------|--------------------------------------|---------------------------------|
| | No one
_____ | I
Generally
Do it. | Generally
Someone Else
Does it | Someone
Else and
I do it. |
|--|-----------------|--------------------------|--------------------------------------|---------------------------------|
1. Who fixes meals?
 2. Who does the grocery shopping?
 3. Who lets your children know what is right and wrong?
 4. Who fixes things around the house or apartment?
 5. Who does the inside cleaning?
 6. Who works outside around the house or apartment?
 7. Who pays the bills?
 8. Who takes your child to the Doctor if he/she is sick?
 9. Who sees to it that your children go to bed?
 10. Who takes care of car problems on short notice (if appropriate)? No car
 11. If no car, can you get one in a few hours if needed? Yes _____ No _____

For the remainder of the questionnaire, please CIRCLE the answer that is true for you.

12. How many relatives do you see once a week or more often?
0 1 2 3 4 5 6 7 8 9 10 or more
13. Would you like to see relatives:
More often Less often It's about right
14. How many people can you count on in times of need?
0 1 2 3 4 5 6 7 8 9 10 or more
15. How many people would be able to take care of your children for several hours if needed?
0 1 2 3 4 5 6 7 8 9 10 or more
- 15 a. How many of these people are from your neighborhood?
None Some Most All

16. Do you have a boyfriend or husband? Yes_____ No_____

17. If yes, how happy are you in the way your boyfriend or husband lets you know what he feels or thinks?

Very happy Happy Unhappy Very Unhappy

18. Are there adults, not including your boyfriend or husband, with whom you have regular talks?

Yes_____ No_____

19. If yes, think about the person you talk with the most. Are you happy with the talks that you have with this person?

Very happy Happy Unhappy Very Unhappy

20. How often do you attend meetings of the following groups?

Don't belong	Attend	Attend	Attend
	< 1x/mo.	1x/mo	>1x/mo.

A. Religious (eg. church)

B. Educational (eg. school, parent groups)

C. Social (eg. bowling, scouting groups)

D. Political (eg. work for local candidate)

E. Other:_____

21. Are you a member of any committee or do you have any other duties in any of your groups?

Yes_____ No_____

FEELINGS SCALE

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

- 0 RARELY or none of the time (less than 1 day)
- 1 SOME or a little of the time (1-2 days)
- 2 OCCASIONALLY or a moderate amount of time (3-4 days)
- 3 MOST OR ALL of the time (5-7 days)

During the past week:

0 1 2 3

1. I was bothered by things that usually don't bother me.
2. I did not feel like eating; my appetite was poor.
3. I felt that I could not shake off the blues even with help from my family or friends.
4. I felt that I was just as good as other people.
5. I had trouble keeping my mind on what I was doing.
6. I felt depressed.
7. I felt that everything I did was an effort.
8. I felt hopeful about the future.
9. I thought my life had been a failure.
10. I felt fearful.
11. My sleep was restless.
12. I was happy.
13. I talked less than usual.
14. I felt lonely.
15. People were unfriendly.
16. I enjoyed life.
17. I had crying spells.
18. I felt sad.
19. I felt that people dislike me.
20. I could not get "going."

DYADIC ADJUSTMENT SCALE

Most persons have disagreements in their relationships. Please indicate below the approximate extent of agreement or disagreement between you and your partner (mate, spouse, friend, etc.) for each item on the following list. Place a checkmark in the appropriate column to indicate your answer.

Column 1= Always agree
 Column 2= Almost always agree
 Column 3= Occasionally disagree
 Column 4= Frequently disagree
 Column 5= Almost always disagree
 Column 6= Always disagree

- | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 1. Handling family finances | | | | | | |
| 2. Matters of recreation | | | | | | |
| 3. Religious matters | | | | | | |
| 4. Demonstrations of affections | | | | | | |
| 5. Friends | | | | | | |
| 6. Sex relations | | | | | | |
| 7. Conventionality (correct or improper behavior) | | | | | | |
| 8. Philosophy of life | | | | | | |
| 9. Ways of dealing with parents or in-laws | | | | | | |
| 10. Aims, goals, and things believed important | | | | | | |
| 11. Amount of time spent together | | | | | | |
| 12. Making major decisions | | | | | | |
| 13. Household tasks | | | | | | |
| 14. Leisure time interests and activities | | | | | | |
| 15. Career decisions | | | | | | |

For questions 16 through 23 use the following definitions:

Column 1= All the time
 Column 2= Most of the time
 Column 3= More often than not
 Column 4= Occasionally
 Column 5= Rarely
 Column 6= Never

- | | 1 | 2 | 3 | 4 | 5 | 6 |
|--|---|---|---|---|---|---|
| 16. How often do you discuss or have you considered divorce, separation, or terminating your relationship? | | | | | | |
| 17. How often do you or your mate leave the house after a fight? | | | | | | |
| 18. In general, how often do you think that things between you and your partner are going well? | | | | | | |
| 19. Do you confide in your mate? | | | | | | |
| 20. Do you ever regret that you married (or lived together)? | | | | | | |
| 21. How often do you and your partner quarrel? | | | | | | |
| 22. How often do you and your mate "get on each others' nerves?" | | | | | | |
| 23. Do you kiss your mate? | | | | | | |
| 24. Do you and your mate engage in outside interests together: | | | | | | |

All Most Some Very few None of them

Use the following definitions to describe how often the events in questions 25 through 28 occur between you and your mate.

Column 1= Never
 Column 2= Less than once a month
 Column 3= Once or twice a month
 Column 4= Once or twice a week
 Column 5= Once a day
 Column 6= More often

- | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 25. Have a stimulating exchange of ideas: | | | | | | |
| 26. Laugh together: | | | | | | |
| 27. Calmly discuss something: | | | | | | |
| 28. Work together on a project: | | | | | | |

There are some things about which couples sometimes agree and sometimes disagree. Indicate if either item below caused differences of opinions or were problems in your relationship during the past four weeks. (Check yes or no)

Yes No

29. Being too tired for sex.

30. Not showing love.

31. The response choices in the next item represent different degrees of happiness in your relationship. The middle point, "happy," represents the degree of happiness of most relationships. Please check the response which best describes the degree of happiness, all things considered, of your relationship:

- ☐ Extremely unhappy
- ☐ Fairly unhappy
- ☐ A little unhappy
- ☐ Happy
- ☐ Very happy
- ☐ Extremely happy
- ☐ Perfect

32. Which of the following statements best describes how you feel about the future of your relationship?

- ☐ I want desperately for my relationship to succeed and would go to almost any length to see that it does.
- ☐ I want very much for my relationship to succeed and will do all I can to see that it does.
- ☐ I want very much for my relationship to succeed, and will do my fair share to see that it does.
- ☐ It would be nice if my relationship succeeded, but I can't do much more than I am doing now to help it succeed.
- ☐ It would be nice if it succeeded, but I refuse to do anymore than I am doing now to keep the relationship going.
- ☐ My relationship can never succeed, and there is no more that I can do to keep the relationship going.

STUDY OF MATERNAL BEHAVIOR WITH FIRST-BORN
QUESTIONNAIRE #2

1. What is your assigned identification No.?_____

2. When was your baby born?

Time_____

Date_____

PLEASE PLACE A CHECKMARK () PRECEEDING THE ONE (1)
STATEMENT THAT BEST DESCRIBES YOUR SITUATION IN THE FOLLOWING
QUESTIONS.

3. How was your baby born?

____Vaginally

____Cesarean

4. What is the sex of your baby?

____Male

____Female

5. What did your baby weigh at birth?

____Less than 5 pounds

____5 lbs. 1 oz to 6 pounds

____6 lbs. 1 oz to 7 pounds

____7 lbs. 1 oz to 8 pounds

____More than 8 pounds

6. When did you first see, touch, and/or hold your baby for more than you recall as a fleeting moment?

☐ Immediately after birth

☐ Within the first hour after birth

☐ After the first hour but before baby was three hours old.

☐ When baby was between three & six hours old.

☐ When baby was six to twelve hours old.

☐ When baby was twelve to twenty-four hours old.

☐ After baby was twenty-four hours old.

7. How are you feeding your baby?

☐ Breast

☐ Bottle

8. How would you describe your labor experience:

☐ Pleasant

☐ Mainly pleasant

☐ Mainly unpleasant

☐ Unpleasant

☐ Did not experience labor

9. How would you describe the degree of pain you experienced in labor?

☐ No pain

☐ Little pain

☐ Pain, but no worse than expected

☐ Pain worse than expected

☐ Severe Pain

10. Thinking of your labor experience would you:

____Happily repeat the experience?

____Repeat the experience?

____Not repeat the experience?

11. Did you have a coach/partner with you in labor?

____Yes

____No

____Only part of the time.

12. Did you have a coach/partner with you in the delivery, birthing, or operating room?

____Yes

____No

13. Was this coach partner:

____your spouse?

____your male friend?

____your female friend?

____your parent, sister, brother, aunt?

____someone other than those listed above?

14. Was this coach/partner:

____helpful/supportive?

____not helpful/supportive?

____a hindrance to you?

15. How long was labor?

- ☐ No labor
- ☐ Less than 4 hours
- ☐ 4 to 8 hours
- ☐ 9-12 hours
- ☐ More than 12 hours

16. Type of anesthesia?

- ☐ None
- ☐ Local
- ☐ Pudendal
- ☐ Epidural
- ☐ Spinal
- ☐ General

17. Indication for Cesarean (if applicable)

- ☐ Failure to progress
- ☐ Breech
- ☐ Fetal distress
- ☐ Bleeding disorder
- ☐ Maternal disease

INFANT TEMPERAMENT QUESTIONNAIRE
(for 4 to 8 month old infants)

revised, 1977

by William B. Carey, M.D., and Sean C. McDevitt, Ph.D.

Child's Name: _____ Sex _____
Date of Birth: _____ Present Age _____
Rater's Name: _____ Relationship _____
Date of Rating: _____ to child

The purpose of this questionnaire is to determine the general pattern of your infant's reactions to his/her environment.

The questionnaire consists of several pages of statements about your infant. Please circle the number indicating the frequency with which you think the statement is true for your infant. Although some of the statements seem to be similar, they are not the same and should be rated independently. If any item cannot be answered or does not apply to your infant, just draw a line through it. If your infant has changed with respect to any of the areas covered, use the response that best describes the recently established pattern. There are no good and bad or right and wrong answers, only descriptions of what your infant does. When you have completed the questionnaire, which will take about 25-30 minutes, you may make any additional comments at the end.

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USING THE FOLLOWING SCALE, PLEASE CIRCLE THE NUMBER THAT INDICATES HOW OFTEN THE INFANT'S RECENT AND CURRENT BEHAVIOR HAS BEEN LIKE THAT DESCRIBED BY EACH ITEM.

	Almost never 1	Rarely 2	Variable usually does not 3	Variable usually does 4	Frequently 5						Almost always 6
1. The infant eats about the same amount of solid food (within 1 oz) from day to day.	almost never	1	2	3	4	5	6	almost always			
2. The infant is fussy on waking up and going to sleep (frowns, cries)	almost never	1	2	3	4	5	6	almost always			
3. The infant plays with a toy for under a minute and then looks for another toy or activity.	almost never	1	2	3	4	5	6	almost always			
4. The infant sits still while watching TV or other nearby activity.	almost never	1	2	3	4	5	6	almost always			
5. The infant accepts right away any change in place or position of feeding or person giving it.	almost never	1	2	3	4	5	6	almost always			
6. The infant accepts nail cutting without protest.	almost never	1	2	3	4	5	6	almost always			
7. The infant's hunger cry can be stopped for over a minute by picking up, pacifier, putting on bib, etc.	almost never	1	2	3	4	5	6	almost always			
8. The infant plays continuously for more than 10 min. at a time with a favorite toy.	almost never	1	2	3	4	5	6	almost always			
9. The infant accepts his/her bath any time of the day without resisting it.	almost never	1	2	3	4	5	6	almost always			
10. The infant takes feedings quietly with mild expression of likes and dislikes.	almost never	1	2	3	4	5	6	almost always			
11. The infant indicates discomfort (fusses or squirms) when diaper is soiled with bowel movement.	almost never	1	2	3	4	5	6	almost always			
12. The infant lies quietly in the bath.	almost never	1	2	3	4	5	6	almost always			
13. The infant wants and takes milk feedings at about the same times (within one hour) from day to day.	almost never	1	2	3	4	5	6	almost always			
14. The infant is shy (turns away or clings to mother) on meeting another child for the first time.	almost never	1	2	3	4	5	6	almost always			

Almost never 1	Rarely 2	Variable usually does not 3	Variable usually does 4	Frequently 5	Almost always 6
15. The infant continues to fuss during diaper change in spite of efforts to distract him/her with game, toy or singing, etc.			almost never	1 2 3 4 5 6	almost always
16. The infant amuses self for $\frac{1}{2}$ hour or more in crib or playpen (looking at mobile, playing with toy).			almost never	1 2 3 4 5 6	almost always
17. The infant moves about much (kicks, grabs, squirms) during diapering and dressing.			almost never	1 2 3 4 5 6	almost always
18. The infant vigorously resists additional food or milk when full (spits out, clamps mouth closed, bats at spoon, etc.)			almost never	1 2 3 4 5 6	almost always
19. The infant resists changes in feeding schedule (1 hour or more) even after two tries.			almost never	1 2 3 4 5 6	almost always
20. The infant's bowel movements come at different times from day to day (over one hour difference).			almost never	1 2 3 4 5 6	almost always
21. The infant stops play and watches when someone walks by.			almost never	1 2 3 4 5 6	almost always
22. The infant ignores voices or other ordinary sounds when playing with a favorite toy.			almost never	1 2 3 4 5 6	almost always
23. The infant makes happy sounds (coos, smiles, laughs) when being diapered or dressed.			almost never	1 2 3 4 5 6	almost always
24. The infant accepts new foods right away, swallowing them promptly.			almost never	1 2 3 4 5 6	almost always
25. The infant watches other children playing for under a minute and then looks elsewhere.			almost never	1 2 3 4 5 6	almost always
26. The infant reacts mildly (just blinks or startles briefly) to bright light such as flash bulb or letting sunlight in by pulling up shade.			almost never	1 2 3 4 5 6	almost always
27. The infant is pleasant (smiles, laughs) when first arriving in unfamiliar places (friend's house, store).			almost never	1 2 3 4 5 6	almost always
28. The infant gets sleepy at about the same time each evening (within $\frac{1}{2}$ hr.)			almost never	1 2 3 4 5 6	almost always
29. The infant accepts regular procedures (hair brushing, face washing, etc.) at any time without protest.			almost never	1 2 3 4 5 6	almost always

Almost never 1	Rarely 2	Variable usually does not 3	Variable usually does 4	Frequently 5					Almost always 6
30. The infant sits still (little squirming) while traveling in car seat or stroller.			Almost never	1	2	3	4	5	6 almost always
31. The infant's initial reaction to a new baby sitter is rejection (crying, clinging to mother, etc.)			almost never	1	2	3	4	5	6 almost always
32. The infant keeps at it for many minutes when working on a new skill (rolling over, picking up object, etc.)			almost never	1	2	3	4	5	6 almost always
33. The infant moves much (squirms, bounces, kicks) while lying awake in crib.			almost never	1	2	3	4	5	6 almost always
34. The infant objects to being bathed in a different place or by a different person even after 2 or 3 tries.			almost never	1	2	3	4	5	6 almost always
35. The amount of milk the infant takes at feedings is quite unpredictable (over 2 oz. difference) from feeding to feeding.			almost never	1	2	3	4	5	6 almost always
36. For the first few minutes in a new place or situation (new store or home) the infant is fretful.			almost never	1	2	3	4	5	6 almost always
37. The infant notices (looks carefully at) changes in the appearance or dress (hairdo, unfamiliar clothing) of the mother.			almost never	1	2	3	4	5	6 almost always
38. The infant reacts strongly to foods, whether positively (smacks lips, laughs, squeals) or negatively (cries).			almost never	1	2	3	4	5	6 almost always
39. The infant is pleasant (coos, smiles etc.) during procedures like hair brushing or face washing.			almost never	1	2	3	4	5	6 almost always
40. The infant continues to cry in spite of several minutes of soothing.			almost never	1	2	3	4	5	6 almost always
41. The infant keeps trying to get a desired toy, which is out of reach, for 2 min. or more.			almost never	1	2	3	4	5	6 almost always
42. The infant greets a new toy with a loud voice and much expression of feeling (whether positive or negative)			almost never	1	2	3	4	5	6 almost always
43. The infant plays actively with parents—much movement of arms, legs, body.			almost never	1	2	3	4	5	6 almost always

Almost never 1	Rarely 2	Variable usually does not 3	Variable usually does 4	Frequently 5	Almost always 6	
44. The infant watches another toy when offered even though already holding one.			almost never	1 2 3 4 5 6	almost always	
45. The infant's initial reaction at home to approach by strangers is acceptance.			almost never	1 2 3 4 5 6	almost always	
46. The infant wants daytime naps at differing times (over 1 hour difference) from day to day.			almost never	1 2 3 4 5 6	almost always	
47. The infant continues eating solid foods without reacting to differences in taste or consistency.			almost never	1 2 3 4 5 6	almost always	
48. The infant cries when left to play alone.			almost never	1 2 3 4 5 6	almost always	
49. The infant adjusts within 10 min. to new surroundings (home, store, play area).			almost never	1 2 3 4 5 6	almost always	
50. The infant's daytime naps are about the same length from day to day (under one half hour difference).			almost never	1 2 3 4 5 6	almost always	
51. The infant moves about much during feedings (squirms, kicks, grabs).			almost never	1 2 3 4 5 6	almost always	
52. The infant reacts (stares or startles) to sudden changes in lighting (flash bulbs, turning on light).			almost never	1 2 3 4 5 6	almost always	
53. The infant can be soothed by talking or games when sleepy.			almost never	1 2 3 4 5 6	almost always	
54. The infant displays much feeling (vigorous laugh or cry) during diapering or dressing.			almost never	1 2 3 4 5 6	almost always	
55. The infant lies still when asleep and wakes up in the same place.			almost never	1 2 3 4 5 6	almost always	
56. The infant adjusts easily and sleeps well within 1 or 2 days with changes of time or place.			almost never	1 2 3 4 5 6	almost always	
57. The infant reacts to changes in temperature or type of milk or substitution of juice.			almost never	1 2 3 4 5 6	almost always	
58. The infant watches television for more than 5 minutes at a time.			almost never	1 2 3 4 5 6	almost always	
59. The infant can be calmed for a few minutes by being picked up, played with, T.V., if fussing about soiled diaper.			almost never	1 2 3 4 5 6	almost always	
60. The infant wants and takes solid food feedings at about the same time (within 1 hour) from day to day.			almost never	1 2 3 4 5 6	almost always	

Almost never 1	Rarely 2	Variable usually does not 3	Variable usually does 4	Frequently 5	Almost always 6	
61. The infant is content (smiles, coos) during interruptions of milk or solid feeding.			almost never	1 2 3 4 5 6	almost always	
62. The infant accepts within a few minutes a change in place of bath or person giving it.			almost never	1 2 3 4 5 6	almost always	
63. The infant cries for less than one minute when given an injection.			almost never	1 2 3 4 5 6	almost always	
64. The infant shows much bodily movement (kicks, waves arms) when crying.			almost never	1 2 3 4 5 6	almost always	
65. The infant continues to react to a loud noise (hammering, barking dog, etc.) heard several times in the same day.			almost never	1 2 3 4 5 6	almost always	
66. The infant's initial reaction is withdrawal (turns head, spits out) when consistency, flavor or temperature of solid foods is changed.			almost never	1 2 3 4 5 6	almost always	
67. The infant's time of waking in the morning varies greatly (by 1 hour or more) from day to day.			almost never	1 2 3 4 5 6	almost always	
68. The infant continues to reject disliked food or medicine in spite of parents' efforts to distract with games or tricks.			almost never	1 2 3 4 5 6	almost always	
69. The infant reacts even to a gentle touch (startle, wriggle, laugh, cry).			almost never	1 2 3 4 5 6	almost always	
70. The infant reacts strongly to strangers: laughing or crying.			almost never	1 2 3 4 5 6	almost always	
71. The infant actively grasps or touches objects within his/her reach (hair, spoon, glasses, etc.).			almost never	1 2 3 4 5 6	almost always	
72. The infant will take any food offered without seeming to notice the difference.			almost never	1 2 3 4 5 6	almost always	
73. The infant's period of greatest physical activity comes at same time of day.			almost never	1 2 3 4 5 6	almost always	
74. The infant appears bothered (cries, squirms) when first put down in a different sleeping place.			almost never	1 2 3 4 5 6	almost always	
75. The infant reacts mildly to meeting familiar people (quiet smiles or no response).			almost never	1 2 3 4 5 6	almost always	

Almost never 1	Rarely 2	Variable usually does not 3	Variable usually does 4	Frequently 5	Almost always 6	
76. The infant is fussy or moody throughout a cold or an intestinal virus.			almost never	1 2 3 4 5 6	almost always	
77. The infant wants an extra feeding at a different time each day (over one hour difference).			almost never	1 2 3 4 5 6	almost always	
78. The infant is still wary or frightened of strangers after 15 minutes.			almost never	1 2 3 4 5 6	almost always	
79. The infant lies still and moves little while playing with toys.			almost never	1 2 3 4 5 6	almost always	
80. The infant can be distracted from fussing or squirming during a procedure (nail cutting, hair brushing, etc.) by a game, singing, TV, etc.			almost never	1 2 3 4 5 6	almost always	
81. The infant remains pleasant or calm with minor injuries (bumps, pinches).			almost never	1 2 3 4 5 6	almost always	
82. The infant's initial reaction to seeing doctor is acceptance (smiles, coos).			almost never	1 2 3 4 5 6	almost always	
83. The infant reacts to a disliked food even if it is mixed with a preferred one.			almost never	1 2 3 4 5 6	almost always	
84. The infant plays quietly and calmly with toys (little vocalization or other noise).			almost never	1 2 3 4 5 6	almost always	
85. The infant's fussy period occurs at about the same time of day (morning, afternoon or evening.)			almost never	1 2 3 4 5 6	almost always	
86. The infant lies still during procedures like hair brushing or nail cutting.			almost never	1 2 3 4 5 6	almost always	
87. The infant stops sucking and looks when he/she hears an unusual noise (telephone, door bell) when drinking milk.			almost never	1 2 3 4 5 6	almost always	
88. The infant pays attention to game with parent for only a minute or so.			almost never	1 2 3 4 5 6	almost always	
89. The infant is calm in the bath. Like or dislike is mildly expressed (smiles or frowns).			almost never	1 2 3 4 5 6	almost always	
90. The infant requires introduction of a new food on 3 or more occasions before he/she will accept (swallow) it.			almost never	1 2 3 4 5 6	almost always	

Almost never 1	Rarely 2	Variable usually does not 3	Variable usually does 4	Frequently 5	Almost always 6	
91. The infant's first reaction to any new procedure (first haircut, new medicine, etc.) is objection.				almost never	1 2 3 4 5 6	almost always
92. The infant acts the same when the diaper is wet as when it is dry. (no reaction)				almost never	1 2 3 4 5 6	almost always
93. The infant is fussy or cries during the physical examination by the doctor.				almost never	1 2 3 4 5 6	almost always
94. The infant accepts changes in solid food feedings (type, amount, timing) within 1 or 2 tries.				almost never	1 2 3 4 5 6	almost always
95. The infant moves much and for several minutes or more when playing by self (kicking, waving arms and bouncing).				almost never	1 2 3 4 5 6	almost always

Additional Comments

	YES	NO
V CLARITY OF CUES		
01. CHILD SIGNALS READINESS TO EAT.		
02. CHILD DISPLAYS A BUILD-UP OF TENSION AT THE BEGINNING OF FEEDING.		
03. CHILD DEMONSTRATES A DECREASE IN TENSION WITHIN A FEW MINUTES AFTER FEEDING HAS BEGUN.		
04. CHILD HAS PERIODS OF ALERTNESS DURING THE FEEDING.		
05. CHILD DISPLAYS AT LEAST TWO DIFFERENT EMOTIONS DURING THE FEEDING.		
06. CHILD HAS PERIODS OF ACTIVITY AND INACTIVITY DURING THE FEEDING.		
07. CHILD'S MOVEMENTS ARE SMOOTH AND COORDINATED DURING THE FEEDING.		
08. CHILD'S ARM AND LEG MOVEMENTS ARE GENERALLY DIRECTED TOWARD PARENT DURING FEEDING (NOT OUTPLACED).		
09. CHILD MAKES CONTACT WITH PARENT'S FACE OR EYES AT LEAST ONCE DURING FEEDING.		
10. CHILD VOCALIZES DURING FEEDING.		
11. CHILD SMILES OR LAUGHS DURING FEEDING.		
12. CHILD AVERTS GAZE, LOOKS DOWN OR TURNS AWAY DURING FEEDING.		
13. CHILD ACTIVELY REJECTS FOOD OFFERED.		
14. CHILD DEMONSTRATES SATISFACTION AT END OF FEEDING THROUGH SLEEP, FACIAL EXPRESSIONS, DECREASED MUSCLE TONE, ARMS EXTENDED ALONG SIDE, VOCALIZATIONS OR CHANGE IN ACTIVITY LEVEL OR MOOD.		
15. CHILD DOES NOT HAVE MORE THAN TWO RAPID STATE CHANGES DURING FEEDING.		
SUBSCALE TOTAL # OF YES ANSWERS		
VI RESPONSIVENESS TO PARENT		
16. CHILD RESPONDS TO FEEDING ATTEMPTS BY PARENT DURING FEEDING.		
17. CHILD RESPONDS TO GAZE, SOCIAL PLAY OR SOCIAL CUES OF PARENT DURING FEEDING.		
18. CHILD LOOKS IN THE DIRECTION OF THE PARENT'S FACE AFTER PARENT HAS ATTEMPTED TO ALERT THE CHILD VERBALLY OR NON-VERBALLY DURING FEEDING.		
19. CHILD VOCALIZES TO PARENT DURING FEEDING.		
20. CHILD VOCALIZES OR SMILES WITHIN 5 SECONDS OF PARENT'S VOCALIZATION.		
21. CHILD SMILES AT PARENT DURING FEEDING.		
22. CHILD EXPLORES PARENT OR REACHES OUT TO TOUCH PARENT DURING FEEDING.		
23. CHILD SHOWS A CHANGE IN LEVEL OF MOTOR ACTIVITY WITHIN 5 SECONDS OF BEING HANDLED OR REPOSITIONED BY PARENT.		
24. CHILD SHOWS POTENT DISENGAGEMENT CUES DURING LAST HALF OF FEEDING.		
25. CHILD SHOWS POTENT DISENGAGEMENT CUES WITHIN 5 SECONDS AFTER PARENT MOVES CLOSER THAN 7 TO 8 INCHES FROM CHILD'S FACE.		
26. CHILD DOES NOT TURN AWAY OR AVERT GAZE FROM PARENT DURING FIRST HALF OF FEEDING.		
SUBSCALE TOTAL # OF YES ANSWERS		

OVER TOTALS FOR EACH CATEGORY:

SENSITIVITY TO CUES	
RESPONSE TO DISTRESS	
SOCIAL-EMOTIONAL GROWTH POTENTIAL	
COGNITIVE GROWTH POTENTIAL	
CLARITY OF CUES	
RESPONSIVENESS TO PARENT	
TOTAL # OF YES ANSWERS	

HOW MANY QUESTIONS:
1. WOULD YOU SAY THIS WAS A TYPICAL FEEDING?
A. YES B. NO
IF NO, WHY NOT?

2. WERE YOU UNCOMFORTABLE DURING ANY PART OF THE FEEDING DUE TO MY PRESENCE?
A. YES B. NO
IF YES, WHY?

3. DO YOU HAVE ANY CONCERNS ABOUT THE FEEDING OR YOUR CHILD'S SATISFACTION?
A. YES B. NO
IF YES, SPECIFY

4. OBSERVER'S COMMENTS:

NURSING CHILD ASSESSMENT SATELLITE TRAINING
UNIVERSITY OF WASHINGTON
SCHOOL OF NURSING, WJ-10
SEATTLE, WASHINGTON 98195
USA
(206) 543-8528

STUDY OF MATERNAL BEHAVIOR WITH FIRST-BORN
FCE #999
SCHEDULE OF OBSERVATIONS AND MEASUREMENT

(Primary Sample=X, Postnatal-only sample=0)

MEASUREMENT	TIME 1	TIME 2	TIME 3
<u>Consent</u>	X	0	
<u>Face Sheet</u>	X	0	
<u>Risk Index</u>	X	0	
<u>Dependent Variable</u>			
Maternal Behavior			
Fetal Attachment Scale	X		
Barnard Feeding Scale		X & 0	X & 0
Caldwell HOME			X & 0
Barnard Teaching Scale			X & 0
<u>Independent Variables</u>			
Mother/Father/Peer Scale	X		0
Luster's Developmental Hx	X		0
Method of Delivery		X & 0	
<u>Correlates</u>			
Questionnaire #1	X	0	
Questionnaire #2		X & 0	
Center for Epidemiologic Studies Depression Scale	X	X & 0	X & 0
Edinburgh Postnatal Depression Scale		X & 0	X & 0
Maternal Social Support Index	X		X & 0
Dyadic Adjustment Scale	X		X & 0
Infant Temperament Questionnaire			X & 0

LIST OF REFERENCES

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