Maternal Expectations and Perceptions of Newborns

Margery Salter
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MATERNAL EXPECTATIONS AND PERCEPTIONS
OF NEWBORNS

by
Margery Salter

A Dissertation Submitted to the Faculty of the Graduate School of Loyola University of Chicago in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

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VITA

The author, Margery Salter, is the daughter of Gershon Salter and Edythe (Falk) Salter. She was born on June 17, 1952, in Boston, Massachusetts. She is married to Henry Biller, Ph.D. and continues the use of her own name professionally.

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She co-authored the chapter "The Unwed Adolescent Father" with Henry Biller, Ph.D., which will appear in Children Bearing Children: Adolescent Pregnancy and Parenthood, Duxbury, Press, Scituate, Massachusetts.
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CHAPTER I
REVIEW OF RELATED LITERATURE

The dynamic processes of pregnancy, delivery and early motherhood are significant events in the development of both infant and mother. While traditional research on developmental factors has emphasized the mother's impact on the infant, recent investigations have revealed the reciprocal nature of the mother-child relationship. The focus of the present research stresses the potential influence that the developing fetus and infant can have on maternal expectations and perceptions of babies. In order to assess changes in maternal attitudes over time, mothers were interviewed during the last trimester of pregnancy, two weeks post-partum and three months after delivery. During the pregnancy interview, women were asked questions concerning medical-risk status, perceptions of self, mate, family life, memories of their own parents and childhood experiences, plans for childrearing, and expectations of their own and average babies. In the post-natal contacts, mothers were asked to describe their delivery experiences, perceptions of their own and an average baby, changes in their self-perceptions and relationship with the child's father, aspects of the maternal role and living with an infant at home. The results of the study presented here are focussed on the phenomenology of the mother, her perceptual-cognitive development as it relates to her experience with her infant.

In order to provide a conceptual framework for this
research, a number of topics relevant to maternal development are reviewed. The psychological growth of the expectant mother is examined since her own childhood and maturational experiences contribute to the type of mother she will become. In particular, the ways in which she integrates the changes during pregnancy will influence her adaptation to the maternal role. Consideration of medical-risk factors, maternal anxiety and depression provides insights into the determinants of mothers' perceptions of infants. Research emphasizing the relationship of life stress and adaptive potential for coping with the pregnancy experience and obstetrical complications is also relevant to this study. Investigations of the "bonding or attachment process" emphasize the emotional impact of the birth experience and the mother's early physical contact with her infant, and their impact on the maternal perception of the infant. Maternal ratings of infants have been found to be productive of later behavior and development (Broussard and Hartner, 1970). In addition, research on infant temperament (constitutional factors) is also relevant since mothers' perceptions of infant behaviors are the major criteria for characterizing infant temperament (Thomas, Chess and Birch, 1968).

The dynamic qualities of the mother-child relationship have been cogently described by Sameroff and Chandler (1975) in the context of a "transactional model." They identify the ever-changing aspects of "environment," and the ability of both the mother and child to participate in their own growth
and development. The mother and child are constantly reacting, adjusting and adapting to variations in themselves, each other, and to changing factors in their general environment. They are in a perpetual state of active reorganization and cannot be viewed as maintaining static behavioral patterns. As Sameroff and Chandler emphasize, "The constraints in development are not some set of traits but rather the processes by which these traits are maintained in the transactions between organism and environment.

Motherhood is both a dynamic and dyadic process. The mother's own experience in being parented contributes to her conceptualization of her relationship to her own children. A dramatic example is that personal histories of abusive parents tend to include evidence that they were abused or neglected as children (Fontana, 1968; Steele and Pollack, 1968; Spinetta and Rigler, 1972) and as a consequence lack parenting skills and adequate understanding of childrearing practices. Motherhood is also a dyadic process in that the mother's behavior reflects not only her personality and individual growth, but also her perception of her infant. In this way the partners are continually assimilating and adapting to each others' behavior.

Perhaps the most influential period in the motherhood process is the prenatal period and the infant's first year of life. There is a spurt of development for both the mother and child. Pregnancy is a major developmental milestone in
the lives of most women. It is a rite of passage when a woman must confront a variety of changes in her body, her lifestyle, and in the ways that other people react to her. In conversations with her mate, her obstetrician, her family and friends, the expectant mother examines her anticipations of motherhood, her baby, and what her life will be like when she has responsibility for an infant.
MATERNAL DEVELOPMENT

Early psychodynamic research (Bibring, 1959; Caplan, 1960) described pregnancy as a time of "psychological disequilibrium": shifting id-ego relationships during the pregnancy "crisis" are supposedly responsible for the emotional changes and increased availability of primary process material. In prenatal interviews with women who were pregnant for the first time, Brazelton (1963) found that they were expressing anxiety which often seemed to be of pathological proportions. He felt that the unconscious material they conveyed was so loaded and distorted, so close to the surface, that before delivery he questioned their capacity to adjust to the role of mothering. Yet once the babies were born, these mothers adapted very well. Brazelton interpreted the anxiety and distortion to be the source of readjustment and reorganization for their new role as mothers.

Colman (1963) met weekly with a group of six women throughout their pregnancies and during the early months of mothering. The most frequent observation by the women about their own mental states during pregnancy was of over-reaction to things that would not have ordinarily affected them, and they were usually unable to pinpoint the reasons for their reactions. Colman found that discussions of medical symptoms and concerns were the most common means for the women to express and communicate their feelings about pregnancy. Conversations about death and dying were compulsively brought
up at the group meetings, as were obsessions, phobias and dreams. Colman points out that the focus on unpleasant mental states may have been a function of the clinical setting and the clinical training of the leader.

These studies can be criticized because of the limited size and representativeness of the samples, as well as their basic reliance on clinical observations rather than objective measurement techniques. As in many research projects, there was a self-selection process in the women who volunteered to participate; it is impossible to know what motivated the women who did offer to be interviewed for the studies.

Other investigators have viewed pregnancy from a less pathological perspective; their research has focussed on pregnancy as a maturational crisis with various developmental tasks to be mastered. Rubin (1967) describes pregnancy as a time of identity reformulation and maturation, or re-ordering of interpersonal relationships. She defines four maternal tasks to be accomplished during pregnancy; a) seeking and ensuring safe passage through pregnancy and delivery for herself and her child, b) ensuring acceptance of her child by significant people in her family, c) binding-in to her unborn child, and d) learning to give of herself. According to Rubin, all four tasks are worked on equally and simultaneously.

Rubin maintains that in the first trimester the mother's concern for safety is more related to herself, since there is no awareness of the embryo; the baby is an "abstraction." The
mother seeks approval for her pregnancy, and "binds in" to the idea of being pregnant. "Quickening," the perception of fetal movement within her body, makes the mother aware of the life within her and intensifies her identity with the child. She is protective towards the unseen child, and begins "binding in" to the baby. Towards the end of her pregnancy, her concern is for herself and her baby; what endangers one, endangers the other. She looks forward to completing the pregnancy, but has fears about the ordeal of labor and delivery.

Leifer (1977) also views pregnancy and early motherhood as a series of developmental tasks whose achievement is predictive of adaptation to the maternal role. The degree of personality integration accomplished by early pregnancy was predictive of the extent to which psychological growth was experienced throughout pregnancy and early parenting. She conducted intensive interviews with nineteen women during each trimester of their pregnancies, and spoke with each of them on the telephone within three days of "quickening" (the perception of fetal movement). She interviewed the women again within two weeks after delivery. The seven month post-partum questionnaires were mailed to the subjects because many had moved away from the city where the research was conducted.

According to Leifer, women who were emotionally invested in the fetus tended to focus their anxiety on the fetus. These women who felt intense attachment to their babies from the beginning often viewed their relationship with their infants
after birth as being a continuation of a relationship started during pregnancy. She also found that these women were positively prepared to initiate a relationship with their babies, were alert and responsive to the needs of their infants, and expressed immense enjoyment in contributing to the baby's well-being. In contrast, women who were only moderately attached to the fetus expressed anxiety about both the self and the fetus. They seemed to show only moderate attachment to the baby during the hospital stay; but by the second postpartum month, attachment to the baby was increasing.

Mothers who had only formed a minimal attachment to the fetus tended to focus on themselves or to manifest a generally low level of anxiety about the pregnancy. Shortly after delivery, the most common feeling expressed by these women was detachment. They had difficulty realizing that the baby was really their own, and expressed conflicted feelings about the baby. In sum, Leifer interprets anxiety directed toward the fetus as a reflection of the developing maternal bond, while anxiety directed towards the self appears to impede the development of the mother-child relationship.

These results are particularly interesting when considered in relation to Blau's (1963) findings: Among mothers of premature babies, a stronger positive attachment was associated with a high anxiety level and active seeking of information while their babies were in the intensive care nursery.

While most of this research has linked anxiety with
pregnancy complications, difficult deliveries and subsequent child abnormalities, it is interesting to note that Mason (1963) found that anxiety after the delivery of a premature baby was predictive of a stronger mother-child attachment six to ten weeks later. Among mothers who made good adjustments, anxiety levels were high during an interview on the third postpartum day. These mothers openly acknowledged their anxieties; they actively sought information about the condition of their babies and expressed strong maternal feelings. Supportive behavior on the part of the husband and a previous successful experience with a premature baby were also predictive of a positive attachment. Mothers with poor outcomes generally had a low level of reported anxiety and frequently the anxiety was denied or displaced to worries other than the baby's health. Among these mothers, activity level was low and material feelings were not so evident to the interviewer.

It can be seen from some of the findings of Blau (1963), Mason (1963) and Leifer (1977) that anxiety in the expectant or new mothers is not necessarily dysfunctional. In fact, when there is an objective reason to be anxious, and the anxiety mobilizes the mother to take concrete steps for her and her baby's welfare, it may be quite adaptive. Certainly if anxiety becomes so intense that the mother is immobilized and/or overwhelmed with fright, it can be extremely maladaptive.
BONDING

Based on animal research and observations of mothers' first contact with their newborns, Klaus and Kennell (1972, 1975, 1976) have postulated that a unique period of "special sensitivity for bonding" may exist immediately after delivery. Klaus et al. (1972) feel that "the intensive interest in mothers of their infants eyes and the unusual ability of the newborn to attend and follow, especially in the first hour of life, suggests that the period after birth may be uniquely important" (p. 191). Klaus, Kennell, et al. argue that bonding occurs through early proximal body and skin-to-skin contact.

In their early work, they observed mothers and their normal infants during their first postnatal contact. Within four to eight minutes an orderly progression from fingertip touching of the infant's extremities to massaging-encompassing palm contact on the infant's torso was observed. Mother-to-infant eye-to-eye contact appears to be an important exchange during the development of affectional ties. Mothers of normal premature infants who were permitted to touch their children in the first three to five days of life followed a similar sequence, but at a much slower rate. Some of these mothers took several days to touch their infants in the way that other mothers touched their full-term babies in ten minutes.

Researchers investigating the effects of early mother-infant separation have found dramatic behavioral differences
among mothers who experienced early contact or early separation from their babies. Klaus et al. (1972) compared mothers of full-term babies who were given sixteen hours of extended contact with their infants in the first three post-partum days to mothers who had a limited amount of contact with their babies. They showed that mothers who had early and extended contact with their infants during the post-partum period engaged in significantly more en face and fondling behavior at one month than did the control mothers who did not have this kind and amount of contact.

Barnett et al. (1970) studied mothers' reactions to premature infants who were still in incubators. They compared mothers of premature infants who were allowed into the infant nursery to handle and feed their babies to mothers who were not allowed to enter the nurseries and did not touch their babies until they were ready to leave the hospital. The mothers who were allowed to handle their babies demonstrated more commitment to the infant, self-confidence in their ability to mother, more skill and competence in care-taking.

Leiderman et al. (1973) found that mothers of full-term infants smile more frequently at their babies than mothers of premature babies smile at their babies. He considers this to be indicative of an attenuated relationship between mother and infant. He found that a major effect of early separation among mothers of prematures is lowered self-confidence in their ability to care for their infants.
Greenberg et al. (1973) also found more confidence and responsiveness to the infant among mothers who had been permitted more contact with their full-term newborns than among control subjects. Similarly, Seashore et al. (1973) found that separation from their premature infants in the first weeks of life lowered self-confidence among first-time mothers, but not for multiparous mothers. Comparing mothers initially low in self-confidence (disregarding parity), those who were separated from their babies were more likely to remain low until the infant was discharged from the hospital.

Kennell, Tause and Klaus (1975) found behavior differences in the quality of the mother-infant relationship between mothers having as little as one-half hour skin-to-skin contact with their newborns immediately after birth followed by twelve hours of separation compared to mothers who did not have this type of early contact. The effects on the mother-child relationship were observed one year later.

Peterson and Meehl (1978) conducted prenatal interviews with expectant families, and observed them again at seven days, and one, two, and three months after delivery. The amount of material-infant separation was found to be the most significant variable in predicting maternal attachment; less separation correlated with greater attachment. Mothers ratings of the birth experience, length of labor (longer labors were associated with greater attachment) and prenatal attitude were also significant predictors (in descending order) of maternal
attachment.

Other researchers have attempted to understand attachment from the infant's point of view. Bowlby (1969) views early bonding to the mother or "principal caregiver" as the essential precursor of later social relationships. Under the stress of anxiety, fear, illness or fatigue, the baby seeks out the caregiver; attachments develop to the person who brings comfort at these times. Bowlby describes the "seeking out" of adult comforting as an innate capacity to promote proximity and contact with adults by signally behaviors. He postulates that biological predispositions in adults motivate them to respond to the infant signals.

Ainsworth (1973, 1977, 1978, 1979) has investigated the ways in which attachment behavior becomes organized, and its value in predicting later adjustments by using a standardized laboratory technique called the strange situation. In evaluating one year old children's response to exploration, separation and reunion with their mothers, Ainsworth has characterized children as securely or insecurely attached. Stayton and Ainsworth (1973) found that the children of "sensitive responsive" mothers showed positive greetings on reunion and more following behavior than children of less sensitive, less responsive, mothers. Less crying on separation from mothers also indicated their more "secure" attachment.

This concept of "sensitive responsiveness" presents parenting as a "process of reciprocal interaction--an active dialog between parent and child" (Rutter, 1979). Lamb and
Easterbrooks (1980) view "parental sensitivity" as a characteristic of adult behavior; they define it as an "adult tendency to provide contingent, appropriate and consistent responses to an infant's signals or needs" (p. 127).
MATERNAL RATINGS OF INFANTS

Broussard and Hartner (1970, 1971) studied the relationship of the mother's perception of her neonate to the child's subsequent development. The Neonatal Perception Inventory, a five-point Likert Scale, was devised to assess the mother's view of her baby's crying, spitting, feeding, elimination, sleeping and predictability. Broussard and Hartner divided infants into Low-Risk and High-Risk groups based on the maternal perceptions; this was predictive of social and emotional developed as defined by need for therapeutic intervention for the child at four and one-half years of age. Upon reevaluation of these same children at ten/eleven years of age, Broussard (1976) found that none of the twenty-one children with psychopathology at age four and one-half were judged to be free of mental disorder. Among the thirty children found healthy at age four and one-half, twelve (40%) had no mental disorder. Among the nineteen who needed further study at age four and one-half, four (21%) had no mental disorder at age ten/eleven years.

According to Broussard, the critical variable associated with the child's emotional development in this study is judged to be the mother's early perception of him. This relationship appears to be independent of the educational level of either parent, father's occupation, changes in income, maternal age, type of delivery, family size or incidence of tonsillectomy.
The data indicate that the association between the maternal perception of the neonate and the subsequent emotional development of the child has persisted over time, and is predictive of the probability of mental disorder at age ten/eleven among firstborns.

As the infants in this study were considered to be "normal" by the physicians providing health care, Broussard argues that the mother's expectations may influence the child's behavior to the extent that these become a self-fulfilling prophecy. She concludes that maternal perception has an influence on child development.

Ten years later, Palasin (1980) published the results of a replication study using the Neonatal Perception Inventory. She administered the NPI to children who were part of a longitudinal study in which the maternal perception scores had been obtained when the children were one month old. Four and a half years later, a child psychiatrist using the same materials and procedures described in Broussard and Hartner's study, evaluated the children individually in free play and interview sessions. Although one-third of the children were identified as having problems, the relationship between mother's perceptions of their infants at one month and the children's later emotional status was not demonstrated.

Palasin reviewed possible population and procedural differences in trying to account for the failure to replicate the Broussard and Hartner study. There were no significant
sex-of-child or risk-factor differences among groups. Palasin speculates that there may have been long-term treatment effects in the earlier study.

Freese and Thoman (1978) evaluated several questionnaires which were designed to assess maternal qualities associated with women's experiences during pregnancy and the first five post-partum weeks. They included the Neonatal Perception Inventory as one of the measures purported to have internal consistency and short-term test-retest reliability. They administered the NPI to a group of women 34-56 hours post-partum and for the second time twenty-four hours later.

Field, et al. (1978) used a modified version of the Brazelton Neonatal Behavioral Assessment Scale to determine how similar mothers' assessments are to those of trained Brazelton testers, and whether mothers' assessments of their newborns change in the first month of life. The infants were tested at birth and one month of age by their mothers using all Brazelton items except reflexes; they were examined at birth only by trained testers using the full Brazelton Scale. The Bayley Developmental Scales were administered at eight months to determine whether early ratings of mothers and testers correlated with later assessments.

The researchers were surprised to find that mothers' assessments of their newborns are relatively similar to those of trained Brazelton testers; both mothers and testers assigned inferior ratings to post-term, post-mature newborns, and
optimal Brazelton scores to the normal infants. Mothers did
tend to under-estimate their infants' social interaction
skills. Mothers assigned more optimal scores to their infants
at one month of age; Field attributes this to the more organ­
ized and complex abilities that the babies exhibit, and to the
mothers' greater experience with them.

Mothers of term infants continue to assign their babies
better scores than do mothers of post-term infants at one
month; Field interprets this as a continuation of inferior
behaviors of post-term babies beyond the neonatal period.
Correlations between mothers' and testers' motoric process
scores at birth and eight-month Bayley Motor Scale scores were
weak. Overall, mothers are fairly objective about their new­
borns' behavior as assessed on a modified version of the
Brazelton Scale.
INFANT CHARACTERISTICS

A recent trend in child development research concerns investigations attempting to define infants' dispositional or constitutional factors, and to examine their influence on the reciprocal nature of mother-child interactions. The infant temperament research is particularly relevant to this study since mothers' perceptions of infant behaviors are the major criteria for characterizing infant temperament.

Thomas, Chess and Birch (1968) studied a sample of children in New York from infancy through the preschool period. They found that infants who were perceived by their mothers to be "difficult" had irregular patterns of sleeping, eating and eliminating, were easily upset by changes in the environment and were predominantly negative in mood. At the preschool follow-up, these babies defined as "difficult" were more likely than "easy" babies to develop problems requiring psychiatric intervention. The authors stress that infant temperament alone did not predict later adjustment; the interaction of difficult infants with insensitive parents appeared to be most frequently associated with later psychopathology (1977).

Moss (1967) conducted research which indicated that more irritable infants receive more maternal contact. Specifically, he found male infants to be more irritable, and that sex differences in irritability were stable from three weeks to three months. He suggests that the increased stimulation which male infants in his sample received may reflect the fact
that they cried more and elicited more interaction from their mothers.

However, Bell and Ainsworth (1972) found a negative relationship between infant crying and maternal responsiveness. Although infants' characteristics were not a focus of this work, their short-term longitudinal research suggests that limited maternal responsiveness precedes increases in infant crying. Probably these data indicate the complex and reciprocal nature of the mother-infant relationship rather than any simple unidimensional influence such as the baby's crying eliciting more attention, or the mother's attention reducing the baby's crying. Using maternal ratings of infant temperament and home visitors' ratings of maternal responsiveness, Millones (1978) found that mothers who were rated as more responsive caregivers had rated their own babies as easy to care for.

Campbell (1979) observed three-month-old infants and their mothers at home. She found no significant sex differences in individual maternal behaviors, contingent responsiveness to infant crying or in mutual vocalizing. Her findings did indicate the maternal ratings of infant temperamental characteristics at three months are related to independently observed patterns of both maternal and infant behavior at three months, and to maternal behavior at eight months. While correlations for the sample as a whole suggested a weak association between maternal ratings of irregularity and lowered maternal responsiveness, the scales indicative of difficult temperament were highly intercorrelated. Infants who were
rated by their mothers as extremely irregular, nonadaptable, and negative in mood received less responsive mothering at three months, and this pattern was still in evidence at the eight month follow-up visit. Mothers who perceived their infants as difficult to care for spent less time interacting with their infants, vocalized to them less, and were less responsive to their social bids (both vocalizing and crying) than were a group of control mothers who did not rate their infants as difficult.

At the three month interview, the home visitors observed a tendency for infants rated as more difficult to cry more often and for longer times. By the eight month observations, however, infants rated as difficult at three months no longer cried more than the control infants who had not been perceived as difficult. The difficult infants were no longer rated as more negative in mood or less adaptable than the control babies, although they were still seen as more irregular. Both maternal ratings and home visitors' observations of infant behavior suggest that by eight months these allegedly difficult infants were not very different from controls. Despite this, the home visitors observed the mothers to be significantly less responsive to these infants' cries and vocalizations. A methodological advantage of this study was the use of observers to independently rate the maternal behaviors; this avoided the problem of intercorrelating two different types of maternal reports.

Campbell's (1979) data are consistent with the findings
of Broussard and Hartner (1970, 1971) and Millones (1978) which suggest that negative maternal perceptions of infant behavior may be associated with less than optimal patterns of mothering. Negative maternal perceptions of infant behavior, even when they change over time, may have detrimental effects on the developing mother-infant relationship in the first year of life.
PREGNANCY AND ANXIETY

An early trend in pregnancy research was to relate maternal anxiety and stress to obstetric variables and pregnancy outcome. Researchers investigating anxiety and personality factors have made attempts to use more clear and objective measurement techniques to assess the internal and external factors that would be associated with psychological discomfort for the mother and the potential physical status of the mother and child.

Davids and DeVault (1062) administered a comprehensive battery of psychological tests to clinic patients in their third trimester of pregnancy. After delivery, the women were classified by their obstetricians into "normal" or "abnormal" subgroups on the basis of delivery room complications and childbirth abnormalities. These groups did not differ in either age, IQ scores, gravidity or parity; women in the abnormal group experienced significantly longer labor times. On objective and projective psychological tests, the women who later experienced abnormalities and difficulties in the process of childbirth showed a higher degree of anxiety during pregnancy.

In these cases it is difficult to be certain whether the higher anxiety level is causally related to obstetrical complications, or whether some independent personality variable, genetic and/or biological factor, is responsible for both anxiety and obstetric difficulties. The authors do not specify
whether any of the women in the "abnormal" group had known medical conditions (diabetes, high blood pressure) which would have made them more nervous during pregnancy, and would increase the likelihood of a difficult delivery. In 1962, the effects of smoking, alcohol and drugs on pregnancy and childbirth were not very well documented, and were probably not considered in evaluating the expressed anxiety or the obstetrical process.

At six weeks after these mothers delivered, Davids and DeVault (1961) were able to re-test half of their pregnant subjects. When tested during pregnancy the "normal" and "abnormal" delivery groups performed equally well on intelligence testing. When they were examined with comparable tests at a later date, those who had recently experienced difficult deliveries or had given birth to abnormal children now performed significantly more poorly (16 IQ points lower) than did the women who had not recently undergone a traumatic delivery. This research supported their clinical observations that stress or emotional upset very often serve to detract from the individual's utilization of her intellectual powers. Ottinger and Simmons (1964) found an association between mothers' scores on the IPAT Anxiety Scale and the amount of crying behavior of newborns as measured by a microphone attached to a stabilimeter on which each baby was placed. Babies of mothers who manifested a high level of anxiety during pregnancy cried more frequently than babies of mothers in the low anxiety group.
An interesting sidelight is that they did not observe much difference in the way that mothers handled their babies during feeding. Such data seem to suggest the possibility that the amount of crying may be related to prenatal or genetic factors rather than to contemporaneous events in the mother-child relationship.

Using a sample of well-functioning women, Lubin, Gardiner and Roth (1975) administered checklists for anxiety, depressive mood, somatic symptoms and the IPAT Anxiety Scale in each trimester of their subjects' pregnancies. They found that anxiety varied as a function of trimester; it decreased in the middle of pregnancy, and returned to the initial level during the last trimester. Significant relationships were found between somatic symptoms and anxiety, somatic symptoms and history of medical complaint; a negative correlation was found between education and overt anxiety. The finding that pregnancy anxiety varies as a function of trimester leads one to question the results of studies which only assessed personality variables at one point during the pregnancy. Typically, researchers have treated the one-shot assessment as a measure of ongoing personality style (state characteristics) while it may really have been registering a situational (trait) emotional condition. Studying women with a history of psychiatric disorder, Rosen and Downs (1968) discovered that these women gave birth to an unusually large proportion of low-birth-weight newborns. Sameroff and Zax (1972) reported that there were significantly more pregnancy and delivery
complications among neurotically depressed and schizophrenic women than among either normal or personality disordered women. Somewhat similar to Stott's results, Sameroff (1972) suggested that schizophrenics and neurotics were, as a group, more anxious but that the critical factors determining the correlation with obstetrical complications was the severity and chronicity of the psychiatric disorder rather than the diagnostic type per se.
Another line of research has focused on exploring the relationship between life stress and pregnancy experience or obstetrical difficulties. Nuckolls, Cassell and Kaplan (1972) used the schedule of Recent Experience to measure life change for two years prior to pregnancy. Psychosocial assets were measured by questionnaires in terms of the woman's adaptive potential and her supportive interpersonal resources. After delivery, medical records were used to define each delivery as "complicated" or "normal." Neither life change nor psychosocial asset scores were independently related to complications. When the variables were considered together, however, it was found that if the life change score was high both before and during pregnancy, women with favorable psychosocial assets had only one-third the amount of complications as women with poor social and personal resources for coping with stressful life events.

Gorsuch and Key (1974) criticized earlier research which only assessed pregnant women's anxiety at one or two time-points and ignored objective measures of life change and stress. These authors used the State-Trait Anxiety Inventory to measure the mothers' state anxiety at each month. The Life Change Inventory, an adaptation of the Schedule of Recent Experience, was administered to measure the occurrence of life events which require greater amounts of adaptation. On the basis of medical records subjects were divided into "normal"
and "abnormal" obstetric groups. Retrospective ratings of pre-pregnancy anxiety did not differ significantly between the two groups.

Their results show that high levels of anxiety and the occurrence of life events are both independent factors related to abnormalities of pregnancy. The measures of anxiety that predict abnormal pregnancies actually occur earlier than do the life changes that predict abnormal pregnancies. Gorsuch and Key view anxiety as another psychological factor in pregnancy complications in addition to the stress produced by life changes.

Analyses dividing the stressful life events by trimester of pregnancy indicated that the second and third trimesters were the most highly correlated with abnormal pregnancies. Anxiety, however, is generally dysfunctional when it occurs early in the pregnancy; this suggests that state anxiety is an independent contributor to abnormalities of pregnancy.

Gorsuch and Key did not find trait anxiety to be related to pregnancy complications, contrary to the results of Stott (1977), McDonald (1965), Grimm (1961), and Davis and DeVault (1962). This lack of replication is probably due to the more specific definition of trait anxiety used by Gorsuch and Key. Previous measures were trait anxiety scales typically administered during the last trimester. These measures probably assessed changes in state anxiety that occurred during the pregnancy itself. As Lubin, Gardener and Roth (1975) have
shown, the last trimester of pregnancy is a time of heightened anxiety; therefore, measures of anxiety taken only at that time would be artificially elevated.

Williams, Williams, Griswold and Holmes (1975) administered the Schedule of Recent Experience to post-partum mothers who delivered premature or full-term babies. The two groups reported the same amount of life change, both during pregnancy and the two years prior to conception. Interestingly, both groups had experienced enough life change to be classified as having a major life crisis. The women's scores on the Schedule of Recent Experience were not predictive of premature delivery.

Yammamoto and Kinney (1976) elaborated on the life change scale research by including an opportunity for subjects to define the emotional importance events in the scale have to them. The researchers asked pregnant women to rate the personal stressfulness of life changes, in addition to reporting the events which actually happened to them. The high correlation between MMPI Lie Scale scores and Manifest Anxiety scores led the researchers to posit a "Yeasaying" response bias. The significant correlation between Lie Scale scores and the Life Events scores suggests that the subjects' willingness to reveal private and potentially embarrassing aspects of their lives can also bias Life Events Scores.

There was a consistently high pattern of correlation between Manifest Anxiety Scale scores, measures of stressful life event and a woman's resources for coping with these events. Yammamoto and Kinney feel that this research will contribute to
developing a causal model to account for social variables influencing psychological states such as anxiety in pregnant women.

Jones (1978) was curious about the potential utility of objective measures of life-change, anxiety and personality in selecting patients who, although without evidence of serious medical difficulties, would be at risk for labor or delivery complications due to the presence of internally or externally imposed psychological stress. He found that the Schedule of Recent Experience was a moderately reliable predictor of labor complications.

Interestingly, there was a negative relationship between Schedule of Recent Experience scores and labor complications; in other words, subjects with higher change scores had a lower rate of complications. Jones hypothesizes that women who had experienced higher levels of change in the past, and had learned to cope and adapt, were less affected physiologically in the hospital setting than patients with lower levels of previous life change. It is important to add that his subjects were patients in a residential facility for women throughout the state of Iowa; a patient typically arrives at the unit two weeks before her due date and stays there until her labor begins, then she is transferred to the hospital. Many of these women were young, possibly away from home for the first time, and frequently leaving their spouse and other children at home.
ANXIETY AND RISK

Blumberg (1980) studied the relationship between neonatal risk, the mother's post-partum depression and anxiety, and her perception of the newborn. A methodologically advanced feature of this study was the use of graduated levels of risk reflecting the range of neonatal conditions in the general population. She found that mothers of infants at higher levels of risk reported significantly higher levels of depression and anxiety in the first five post-partum days than did the other mothers. Similarly, mothers of infants with higher levels of risk revealed more negative perceptions of their newborns than did mothers of newborns with lower levels of risk. Married mothers were more likely to have infants with lower risk, and younger mothers were more likely to bear babies with higher risk.

Although neonatal risk was highly correlated with each of the post-partum (state) adjustment measures, it was not significantly correlated with pre-pregnant (trait) measures. Blumberg interprets this to mean that the risk variable was related to current, but not more chronic, feelings of depression and anxiety.

Blumberg did not anticipate the extent to which neonatal risk tended to overwhelm the contributions of the other independent variables. Despite the diversity of maternal and demographic characteristics examined, the risk factor appeared to have a "homogenizing" effect on the sample. Ethnic and social class differences tended to be mitigated by the impact
of the condition of the newborn. This conclusion was particularly striking in the analyses of post-partum depression, which was significantly related only to neonatal risk. In the case of post-partum anxiety, the age variable accounted for a significant increase in variance over and above the effect of neonatal risk; younger mothers reported higher levels of anxiety than did older mothers. Mothers who had caesarean section deliveries revealed more positive perceptions of their infants than mothers who had normal deliveries. Although caesarean sections were associated with being married, the relationship between marital status and perception of the newborn were not significant.

Blumberg's theory that positive attitudes toward pregnancy and childbirth would facilitate post-partum adjustment was only partially supported. Feelings about pregnancy, as measured by the Maternal Attitude to Pregnancy Instrument (MAPI) were significantly related to post-partum anxiety, but not to depression or perception of the newborn. Blumberg suggests that the correlations between the MAPI and pre-pregnant (trait) anxiety, and state and trait anxiety, indicate that "a woman's characterological anxiety level and her more specific attitudes toward the maternity cycle are both predictive of her level of post-partum anxiety" (p. 148). Blumberg interprets the relationship found in other studies between positive attitudes towards pregnancy and successful post-partum adjustment as reflecting a general sense of well-being in addition to an
acceptance of feminine identification and the maternal role. "Conversely, a woman who approaches pregnancy and motherhood with a negative attitude may be revealing a chronically higher level of anxiety that has become focused on the specific stresses of the childbirth experience" (p. 148). As Barnard has pointed out, "Because of previous life circumstances, some mothers are at high risk for attachment" in addition to any problems caused by the premature birth (cited in Klaus and Kennell, 1976, p. 113).
CONCLUSIONS

Much of the research that has been reviewed in this section underscores the potential importance of maternal perceptions in the development of the mother-child relationship (Broussard and Hartner, 1970, 1971; Field et al., 1978; Millones, 1978; Campbell, 1978; Palasin, 1980). There is some evidence that maternal perceptions play an important role in the bonding process (Bowlby, 1969; Ainsworth, 1973, 1979), in predicting birth difficulties or abnormalities, and the later development of the child (Broussard and Hartner, 1970, 1971; Klaus and Kennell, 1976) and they are a vital building block in the growing research efforts to understand the potential effects of infant temperament on the developing child (Thomas, Chess and Birch, 1968; Campbell, 1979).

The bulk of research on the influence of prenatal factors and maternal attitudes can be criticized because the format is retrospective or measures are only taken at one point in time with no basis for assessing change. Sameroff and Chandler's (1975) "transactional model" describes the mother-child relationship as a dynamic interaction over time. Each member of the dyad effects the other both directly and indirectly. The only way to unravel the components of this crucial relationship is a prospective longitudinal study beginning prenatally.

The current study focuses on the development of the mother with particular emphasis on how maternal expectations
and perceptions change over the time of childbirth and early mothering. Assessments took place during the last trimester of pregnancy, within two weeks post-partum and three months after delivery. The measures used included the Neonatal Perception Inventories (Broussard and Hartner, 1970), the Parental Attitude Research Instrument (Schaffer and Bell, 1958) and the Carey Infant Temperament Scale (Carey, 1977).

The Neonatal Perception Inventories are a series of Likert Scales measuring the mother's global perception of her baby in terms of general qualities like crying, sleeping, activity, size and happiness. Mothers provided their own baseline data by rating both their own babies and a hypothetical "average" baby. The Parental Attitude Research Instrument, administered during pregnancy, consists of opinion-statements describing various aspects of family life and child-rearing; mothers indicated how much they agreed with each statement. The Carey Infant Temperament Scale requires mothers to rate specific eating, sleeping, soiling and play behaviors of their own infants. These instruments were used to determine the mother's prenatal expectations of her baby, and changes in her attitudes are delivery and experience with her own baby in her own home.

Two groups of subjects were used because it was predicted that mothers classified as medically-at-risk would expect their babies to be different than mothers not so identified. Mothers from the High Risk Pregnancy Clinic exhibited a range of
physical problems including diabetes, premature labor, and drug addiction; mothers from the Childbirth Education classes did not have such serious medical problems. These two groups together provided a wide range of individual variation among subjects. It was predicted that the two groups would expect their babies to be different, and would perceive their babies differently as a function of the mother's pregnancy experience.

At a more general level, however, the most fundamental purpose of this investigation was to see if there is any regular, constant, predictable course of development for maternal perceptions of babies. It was predicted that mothers' perceptions of their own babies would become more positive over time, and that their perceptions of average babies would change in a parallel fashion.
CHAPTER II
METHODS

Subjects. The subjects were thirty-one White women between eighteen and thirty-eight years of age who were in the last trimester of pregnancy during the initial phase of the research. A total of seventeen were recruited from the High Risk Pregnancy Clinic and fourteen from the Childbirth Education classes at Women and Infants Hospital in Providence, Rhode Island.

The majority of the Clinic mothers were married, having their first child, and under twenty-five years of age, but they tended to be from lower- and working-class backgrounds and had typically only completed one or two years of high school. (See Table 1) The medical conditions which defined a high-risk pregnancy for this group included diabetes, hypertension, medication-addiction and premature labor.

All the women from the Childbirth Education classes were married, in their middle to late twenties, went to private obstetricians for prenatal care, and most were having their first child. In contrast to the Clinic mothers, they tended to be of middle- or upper-middle socioeconomic status and had completed at least high school; several had advanced professional degrees. Table 1 summarizes and compares the specific subject characteristics of the Childbirth Education class mothers and the High Risk Clinic mothers.
TABLE 1

<table>
<thead>
<tr>
<th>Clinic Mothers Childbirth Education Mothers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Maternal Age</td>
</tr>
<tr>
<td>Parity</td>
</tr>
<tr>
<td>Pregnancy Planned</td>
</tr>
<tr>
<td>Socioeconomic Class**</td>
</tr>
<tr>
<td>Number of Risk Factors***</td>
</tr>
</tbody>
</table>

* 0 = no prior births
** Hollingshead-Redlich Scale
1 = highest 5 = lowest
*** See Appendix A
General Procedure. The examiner reviewed each High Risk Clinic patient's chart to determine the mother's expected delivery date, the medical reason for placement in the High Risk Clinic, and whether the woman had a telephone. The examiner then approached each woman individually while she was waiting for her physical examination. They were told that a research project would be conducted at the Clinic to examine pregnant women's attitudes and expectations of babies and childrearing, and to compare them to attitudes that the women have after their babies are born.

The women were shown the Consent Form (see Appendix B) and told that participation in the study involved filling out some questionnaires while they waited for their appointment that day, and three telephone interviews; one while they were pregnant, one when the baby was two weeks old, and the third interview when the baby was three months old. They were then given an opportunity to ask questions about the study. Volunteers were then asked to sign the Consent Form and fill out the Neonatal Perception Inventories (see Appendix C) and the Parental Attitude Research Instrument (PARI, see Appendix D). These were collected by the examiner before the subject left the Clinic that day; if any questionnaires were incomplete, the examiner asked for the answers during the Pregnancy Interview (see Appendix E). The Pregnancy Interview was conducted by telephone.

The examiner visited several Childbirth Education classes to recruit subjects who were receiving prenatal
care from private obstetricians. The study was described to each group of prospective mothers and fathers in the same manner as to the Clinic mothers. Volunteers were asked to read and sign the Consent Form and the Neonatal Perception Inventories during the class break. The PARI was administered by telephone during the Pregnancy Interview.

The examiner telephoned each mother within two weeks of her expected delivery date to administer the Post-Natal Interview (see Appendix F) which included a second presentation of the Neonatal Perception Inventories. Ten weeks after that interview, the examiner telephoned again to administer the Three Month Interview (see Appendix G), including the Neonatal Perception Inventories again, and the Carey Infant Temperament Scale (see Appendix H).

The Prenatal Measures were administered to mothers during the last trimester of pregnancy. The Neonatal Perception Inventories were developed by Broussard and Hartner (1970, 1971) to measure the mother's perception of her neonate as compared to her expectations of the average baby. These inventories were modified to a seven-point Likert Scale by Arney and Nagy (1976) to measure the mother's perceptions of her infant in the following areas: crying, sleeping, alertness, activity level, deviance, happiness and cause for maternal concern. In this study the scale was administered during pregnancy to assess the mother's expectations of her baby's characteristics as compared to those of average babies.
The Parental Attitude Research Instrument (Shaeffer and Bell, 1958) consists of twenty-three subscales of five items each. The items are opinion-statements describing various aspects of child-raising and family life; subjects indicate how much they agree with the statements on a four-point scale. Six subscales of the PARI were administered to assess the women's feelings of Control and Hostility. The Hostility Factor is derived by summing the following subscales: Marital Conflict, Rejection of Homemaking, Irritability. The Control Factor consists of the sums of the scores for these subscales: Ascendancy, Intrusiveness, Deification.

During the Post-natal Interview, within two weeks after delivery, the Neonatal Perception Inventories were readministered to the mothers. In the Third Month Post-partum Interview, the mother's again completed the Neonatal Perception Inventories. At this last interview, they also gave specific behavioral ratings of their infants on the Carey Infant Temperament Scale (1977).

The Carey is a seventy-item questionnaire version of the Chess, Thomas and Birch (1977) interview used in the New York Longitudinal Study. It consists of the following nine scales: sleeping, feeding, soiling/wetting, bathing, reactions to nail-cutting or hair-brushing procedures, visits to doctor, responses to illness, sensory reactions, responses to people and places, play activity. These responses are scored high, medium or low for each of the following temperament dimensions: activity rhythmicity, adaptability, approach, threshold, intensity, mood, distractability and persistence.
CHAPTER III

RESULTS

A group (two levels: private obstetrician versus pregnancy clinic) by interview time period (three levels: pregnancy, two weeks post-partum and three weeks postpartum) by whose baby (two levels: My baby versus average baby) analysis of variance (Biomed, 1979; Winer, 1971) was used to determine changes in mothers' expectations/perceptions of their babies and a hypothetical "average" baby over time. A total of ten analyses of variance were computed; one for each of the nine variables on the Neonatal Perception Inventory (calm/excited, sleep, size, etc.) and a summed score of all the variables for "my baby" and "average baby" at each of the three time periods. Even though some a priori predictions were made (e.g. changes in mothers' perceptions of their babies and average babies over time), the large number of analyses led us to use the relatively conservative procedure of Duncan's Multiple Range Test, with a minimal $p < .05$ significance level to assess simple effects differences (Edwards, 1972).

Group membership did not have a significant effect on any of the Neonatal Perception Inventory items. See Table 2) Hence, it will not be discussed further in the following analyses.

Calm-Excitable. On the Calm-Excitable dimension of the Neonatal Perception Inventory, there was a significant main effect of Time ($F=3.65; \text{df}=2/58; p \lessdot .05$). (See Table 3 and Figure 1)
TABLE 2

GROUP DIFFERENCES

Comparisons between High Risk Mothers and Childbirth Education Mothers on the Neonatal Perception Inventory.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Degrees of Freedom</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calm-Excited</td>
<td>1,29</td>
<td>0.00</td>
<td>0.99</td>
</tr>
<tr>
<td>Sleeping</td>
<td>1,29</td>
<td>0.07</td>
<td>0.80</td>
</tr>
<tr>
<td>Strength</td>
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<td>0.06</td>
<td>0.80</td>
</tr>
<tr>
<td>Crying</td>
<td>1,29</td>
<td>0.32</td>
<td>0.58</td>
</tr>
<tr>
<td>Alertness</td>
<td>1,29</td>
<td>0.34</td>
<td>0.56</td>
</tr>
<tr>
<td>Normal-Different</td>
<td>1,29</td>
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<td>0.83</td>
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<tr>
<td>Size for Age</td>
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<td>0.82</td>
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<tr>
<td>Happiness</td>
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<td>0.13</td>
<td>0.72</td>
</tr>
<tr>
<td>Cause for Worry</td>
<td>1,29</td>
<td>0.14</td>
<td>0.71</td>
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<tr>
<td>Total Score</td>
<td>1,29</td>
<td>0.31</td>
<td>0.58</td>
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</tbody>
</table>
TABLE 3

CALM - EXCITED

<table>
<thead>
<tr>
<th>Source</th>
<th>Sums of Squares</th>
<th>Degrees of Freedom</th>
<th>Mean Square</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
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<td>1</td>
<td>2319.91</td>
<td>390.25</td>
<td>0.00</td>
</tr>
<tr>
<td>Class</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.99</td>
</tr>
<tr>
<td>Error</td>
<td>172.38</td>
<td>29</td>
<td>5.95</td>
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<tr>
<td>Time</td>
<td>25.14</td>
<td>2</td>
<td>12.57</td>
<td>3.65</td>
<td>0.03</td>
</tr>
<tr>
<td>Time by Class</td>
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<td>2</td>
<td>0.37</td>
<td>0.11</td>
<td>0.90</td>
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<tr>
<td>Error</td>
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<td>58</td>
<td>3.44</td>
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<td></td>
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<tr>
<td>Baby</td>
<td>11.07</td>
<td>1</td>
<td>11.07</td>
<td>3.74</td>
<td>0.06</td>
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<tr>
<td>Baby by Class</td>
<td>1.43</td>
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<td>1.43</td>
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<td>0.49</td>
</tr>
<tr>
<td>Error</td>
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<td>Time by Baby</td>
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<td>Time by Baby by Class</td>
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<tr>
<td>Error</td>
<td>118.85</td>
<td>58</td>
<td>2.05</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
FIGURE 1
CALM - EXCITED

Average Baby

My Baby

Pregnancy Post-Natal Three Months After Delivery
By three months after delivery, mothers were seeing average babies as more calm than they had expected them to be during pregnancy \( p < .05 \). They saw their own babies as much calmer at two weeks post-partum than they had expected them to be during pregnancy \( p < .05 \). However, by three months they were perceiving their own babies as less calm than at two weeks \( p .05 \), but as similar to what they had expected during pregnancy.

There was also a significant Time by Whose Baby Interaction \( F=4.36; \text{df}=2/58; p < .02 \). Table 3 and Figure 1 provide illustrations of these findings. The only significant difference between perceptions of their own babies and the average baby occurred at two weeks; during this time frame, mothers were clearly seeing their own babies as much calmer than they had either expected them to be \( p < .05 \) or than they perceived average babies to be at two weeks \( p < .05 \). Mothers perceived their own two week old babies to be more calm than they expected the average baby to be during pregnancy \( p < .001 \).

Sleep. On mothers' judgments of babies' sleep, there was a significant main effect of Time \( F=10.50; \text{df}=2/58; p < .0001 \). (See Table 4 and Figure 2). In essence, mothers' post-partum experiences led them to conclude that babies (both their own babies and average babies) slept better than they had expected them to sleep. Mothers perceived the average baby as sleeping better both at two weeks \( p < .05 \) and at three months \( p < .05 \) than they had expected them to sleep. Similarly, mothers
<table>
<thead>
<tr>
<th>Source</th>
<th>Sums of Squares</th>
<th>Degrees of Freedom</th>
<th>Mean Squares</th>
<th>F</th>
<th>p</th>
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FIGURE 2
SLEEPING

Average Baby

My Baby

Pregnancy  Post-Natal  Three Months

0  1  2  3  4  5
perceived their own babies to sleep better both at two weeks and three months than the mothers had expected \( p < .05 \).

**Strong-Weak.** On the Strong-Weak variable, there was a main effect of Time \( (F=12.59; \text{df}=2/58; p < .0001) \) and a main effect of Whose Baby \( (F=31.58; \text{df}=1/29; p < .0001) \). (See Table 5 and Figure 3). Mothers perceived the "average" three month old baby as being stronger than they had expected during the pregnancy interview \( p < .01 \) and as stronger than they perceived the average two week old baby \( p < .05 \). Similarly they perceived their own two-week old babies as being stronger than they had anticipated during pregnancy \( p < .05 \) and perceived their own three month old babies as much stronger than they had expected during the pregnancy interview \( p < .001 \).

Overall, mothers expected and perceived their babies to be stronger than the average baby; their expectations during pregnancy for the average baby and their own babies were relatively similar. However, at two weeks \( p < .001 \) and at three months \( p < .005 \) they perceived their own babies as significantly stronger than they perceived the average baby.

**Crying.** On the Crying dimension, there was a main effect of Time \( (F=3.63; \text{df}=2/58; p < .05) \) and a main effect of Whose Baby \( (F=9.86; \text{df}=1/29; p < .005) \). (See Table 6 and Figure 4). Mothers perceived both the "average" baby and their own babies at three months as somewhat less likely to cry than their pregnancy predictions of how much babies cry. Overall, mothers
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FIGURE 3
STRENGTH

Average Baby

My Baby

3.22
2.87
2.06
1.80
1.19

0
1
2
3
4
5

Pregnancy
Post-Natal
Three Months After Delivery
TABLE 6
CRYING

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FIGURE 4
CRYING

Average Baby

4.5
4.32
3.80

My Baby

4.0
3.80
3.25

0
1
2
3
4
5

Pregnancy
Post-Natal
Three Months After Delivery

[Graph showing crying levels over time for average and specific babies]
tended to expect and perceive their own babies as crying less than the average baby, but at none of the interview periods were the differences clearly significant.

Alertness. In terms of alertness versus passivity, there was an extremely strong main effect of Time \(F=18.74; \ df=2/58; \ p<.0001\) and an extremely strong main effect of Whose Baby \(F=30.10; \ df=1/29; \ p<.0001\). (See Table 7 and Figure 5). Mothers perceived both the average baby and their own babies as being more alert at three months than they expected newborns to be during pregnancy \(p<.001\). They also perceived both the average baby \(p<.001\) and their own babies \(p<.005\) to be more alert than they had expected them to be during pregnancy. Mothers expected their own babies to be more alert than an average baby \(p<.05\) during pregnancy, and did perceive them that way at two weeks \(p<.005\) and at three months.

Normalcy. There was a Main Effect of Time \(F=19.97; \ df=2/58; \ p<.0001\) and Whose Baby \(F=9.07; \ df=1/29; \ p<.01\) when mothers were asked to rate the relative normalcy of their own babies and the average baby (See Table 8 and Figure 6).

At three months, mothers perceived both the average baby and their own babies as being more normal than they had perceived either of them to be at two weeks \(p<.001\) or had expected either of them to be during pregnancy \(p<.001\). Mothers perceived their own babies as being significantly more normal than the average baby at two weeks \(p<.005\) whereas
TABLE 7
ALERTNESS

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FIGURE 5
ALERTNESS

Average Baby

3.29
3.48
2.45

My Baby

2.25
2.06
1.22

Pregnancy  Post-Natal  Three Months After Delivery
### TABLE 8

**NORMAL - DIFFERENT**

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FIGURE 6
NORMAL - DIFFERENT

My Baby

Average Baby

0 1 2 3 4 5
Pregnancy Post-Natal Three Months After Delivery
their expectations during pregnancy and perceptions at three months of their own babies, as compared to the average baby, were virtually the same.

There was also a significant interaction of Time by Whose Baby with respect to perceptions of normalcy (F=4.06; df=2/28; p<.05). (See Table 8 and Figure 6) Mothers perceived their own babies at three months as more "normal" than they expected the average baby to be during pregnancy (p<.001) or than they perceived the average baby to be at two weeks (p<.001). They perceived their own two week old babies to be more normal than they expected the average baby to be during pregnancy (p<.001). They perceived the average three month old baby as more normal than they anticipated their own babies would be during pregnancy (p<.001).

**Size.** Concerning mothers' judgment of babies' size, there was a Main Effect of Time (F=5.02; df=2/58; p<.01). (See Table 9 and Figure 7) Mothers perceived both the average baby and their own babies as being bigger at three months (p<.05) than they had expected their babies to be when interviewed during pregnancy.

**Happiness.** When mothers were asked to rate an average baby and their own babies in terms of happiness, results showed a main effect of Time (F=16.98; df=2/58; p<.0001) and a Main Effect of Whose Baby (F=17.15; df=1/29; p<.001). (See Table 10 and Figure 8).
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SIZE FOR AGE

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FIGURE 7
SIZE FOR AGE

My Baby

Average Baby

3.84  3.61
3.58  3.35

2.93  2.84

5

4

3

2

1

0

Pregnancy  Post-Natal  Three Months After Delivery
### TABLE 10

**HAPPINESS**

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FIGURE 8
HAPPINESS

Average Baby

My Baby

0
1
2
3
4
5

Pregnancy  Post-Natal  Three Months After Delivery
Mothers perceived the average baby at three months as happier than they perceived him/her at two weeks \( (p < .001) \) or that they expected him/her to be during pregnancy. Mothers perceived their own babies to be much happier at two weeks and at three months \( (p < .001 \text{ for each}) \) than they have anticipated during pregnancy.

During the pregnancy interview, there was no difference in the mothers' expectations of an average baby and their own babies in terms of happiness. At the two-week post-partum interview, however, there was a dramatic difference: mothers perceived their own babies as being much more happy \( (p < .001) \) than they thought the average baby was happy. At three months, mothers continued to perceive their own babies as being happier than an average baby although the difference was less clearcut \( (p < .05) \).

There was also a significant interaction of Time by Whose Baby \( (F=4.07; \text{df}=2/58; p < .05) \). (See Table 10 and Figure 8). At three months, mothers perceived their own babies as happier than they had expected the average baby would be during pregnancy \( (p < .001) \) or perceived the average baby at two weeks \( (p < .001) \). They perceived their own babies at two weeks to be happier than they expected the average baby to be during pregnancy \( (p < .001) \). They perceived the average baby at three months to be happier than their pregnancy expectations of their own babies \( (p < .001) \).
Worry. In mothers' evaluation of how much worry their babies cause them compared to how much worry the average baby causes his/her mother, there were neither significant Main Effects nor significant Interaction Effects. (See Table 11 and Figure 9).

Total. When the mothers' ratings on the nine variables were summed for the average baby and for their own babies at each of the three time periods, there was a highly significant Main Effect of Time ($F=36.48; \text{df}=2/58; p<.0001$) and a Main Effect of Whose Baby ($F=16.99; \text{df}=1/29; p<.001$). (See Table 12 and Figure 10).

Overall, mothers perceived the average baby as possessing more positive qualities at three months than at either two weeks ($p<.001$) or than they had expected during pregnancy ($p<.001$). Mothers perceived their own babies to have better qualities at both three months ($p<.001$) and at two weeks ($p<.005$) than they had expected during pregnancy. They perceived their babies as being somewhat better at three months than they had viewed them at two weeks ($p<.05$).

Mothers expected their own babies to possess somewhat better qualities than an average baby at two weeks ($p<.05$). At two weeks, the mothers did view their own babies as being much better than the average baby ($p<.001$). At three months, however, there was essentially no difference in the mothers' perceptions of the average baby and their own babies.
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<th>p</th>
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FIGURE 9
WORRY
(Cause for Maternal concern)
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FIGURE 10
TOTAL PERCEPTION SCORE
(Nine NPI Variables Summed)

Average Baby

33.19
30.09
24.03
20.32
19.87

My Baby

30.06

Pregnancy  Post-Natal  Three Months After Delivery
There was also a significant Time by Whose Baby Interaction ($F=16.99; \text{df}=1/29; p<.001$) with respect to the total perception scores. (See Table 12 and Figure 10). Mothers perceived their own babies at two weeks and at three months to have more positive qualities than they had expected the average baby to have during pregnancy ($p<.001$). They perceived their own three month old babies to have better characteristics than they perceived the average baby to possess at two weeks ($p<.001$). By three months they perceived the average baby to have more positive qualities than they had expected their own babies to have during pregnancy ($p<.001$) or than they perceived their own babies to have at two weeks ($p<.01$).
CHAPTER IV

DISCUSSION

The present study is an early step in a longitudinal research project to examine pregnant women's perceptions concerning the type of baby they think they will have, and factors which might influence such expectations and perceptions of the baby after delivery. The discrepancy between a woman's expectations of a hypothetical "average" baby and their own babies appear to be particularly meaningful. Mothers were asked to rate an average baby on the nine items of the Neonatal Perception Inventory (Broussard and Hartner, 1970), and then to rate their own expected babies on the same variables. After delivery, mothers were asked to rate the average baby and their own babies on the same variables at two weeks postpartum and again at three months. The focus of the study was on changes in maternal perceptions as a function of their experiences during pregnancy, delivery and early motherhood.

The most dramatic findings in this study were the changes over time with regard to the mothers' expectations/perceptions of both the average baby and their own babies. There was a large change from prenatal expectations to the mothers' perceptions at three months after delivery. On nine of ten variables, mothers viewed the average baby in a more positive way at three months than they had expected the average baby to be during pregnancy. Similarly, on seven of ten variables, mothers viewed their own babies more positively at three months than they had expected them to be during the
pregnancy interview.

It seems that the mothers are becoming more comfortable with their own babies in particular and with babies in general. Their changing attitudes over time suggest a strengthening attachment to their own babies, which is later reflected in their views of average babies.

It is interesting to note that there was virtually no change from mothers' expectations of the average baby during pregnancy to perceptions of the average baby at two weeks. There were, however, notable changes from two weeks to three months. The greatest change in the mothers' perceptions of their own babies seemed to occur between the pregnancy interview and the two-week post-partum interview. Again, this was in great contrast to the virtual lack of change from pregnancy expectations to the two-week perceptions of the average baby.

This dramatic imbalance in perceptions of the average baby and their own babies from pregnancy to two weeks may be a reflection of several factors. The mothers' much more positive view of their own babies at two weeks may reflect a sense of relief that their babies are healthy and intact. It may indicate an alleviation of the mothers' anxieties, fears and concerns during pregnancy. It probably reflects engrossment and attachment toward the newborn. Indeed, it may be that mothers are so focussed on their own babies that they cannot generalize their egocentric views of their own babies to the average baby at two weeks.
In contrast to the discrepancy between mothers' perceptions of the average baby and their own babies at two weeks, by three months there seems to be more of a concordance or convergence of mothers' perceptions of their own babies relative to the average baby. This phenomenon may reflect a cognitive integration or change: mothers can now relate the reality of their own babies to the average baby. Mothers may become more interested in invidious comparisons at three months than they were at two weeks.

Mothers perceived their own babies to be better at two weeks than they expected the average baby or their own babies to be during the pregnancy interview. The most significant variables in this judgment were calmness, normalcy, happiness and the total perception score. One might interpret this as a kind of post-partum relief.

It is certainly clear that the mothers' perceptions about the average baby were changing from the two-week to the three-month period. Indeed, mothers modified their views about the relative alertness, normalcy and total view of the average baby during this period. But again, there was not as much change in the mothers' view of their own babies; they seemed to have achieved a relative consistency in their perceptions of their own babies by the two week period. The only relatively strong change was seeing their babies as more alert; no change was reflected in other variables or in the total perception score.
The mothers' perceptions of the average baby changed a great deal from two weeks to three months, whereas perceptions of their own babies underwent the greatest change from pregnancy to two weeks post-partum. It appears that by three months mothers see the average baby and their own babies as being relatively similar. They are perceiving their own babies realistically; perhaps they were able to generalize at this point in time, but were not able to do so at two weeks after delivery. By the time their babies are three months old, mothers are generally becoming more comfortable with them and perhaps more knowledgable about babies in general.

Interestingly, data analysis showed that the mothers' ratings of normalcy and the total perception score were the most sensitive indicators and discriminators of change. Mothers' perceptions of happiness and alertness were also important variables reflecting changes; ratings of babies' strength was a moderately good indicator of changing perceptions. These variables were the most subjective judgments on the Neonatal Perception Inventories. The relatively concrete variables such as babies' size, amount of crying and sleeping were less robust indicators of change in maternal perceptions. Mothers' ratings of worry about babies stayed basically the same from pregnancy through three months after delivery. From these results one could speculate that mothers have an emotional need to view their babies positively; they do not, however, seem to misperceive or misrepresent the relatively
objective qualities of their babies.

It is interesting to note that no group differences were due to obvious differences in the subject populations. In reviewing the data initially, there appeared to be some important group differences between High Risk Clinic and Childbirth Education mothers. Although some of the mothers recruited from Childbirth Education classes would be considered to have high risk pregnancies, there were clear differences between the groups with Clinic mothers generally having more of the medical risk variables, lower socioeconomic status and fewer planned pregnancies.

Based at least on the fact that the Clinic mothers had more risk factors, it could have been speculated that they would have more negative expectations during pregnancy. Assuming that their babies were born healthy, these mothers might show more of a positive shift in their perceptions of their babies after delivery.

Based on these differences, it was decided that the two groups might differ in their expectations/perceptions of their own babies. Salter's (1980) findings indicated that source of prenatal care (High Risk Clinic vs. private obstetrician) did not predict mothers' expectations of how their babies would differ from the average baby during the pregnancy interviews. Similarly, with the present study, data analysis did not reveal a significant main effect of group membership on any variable of the Neonatal Perception Inventory or in the total perception score. It is relevant to point out that much of the potential
anxiety of the Clinic patients concerning risk factors in their pregnancies may have been greatly alleviated by the quality of medical care that they were receiving. The present researcher was very impressed with the way in which the hospital staff was emotionally, as well as medically, supportive to the mothers.

Despite group differences in terms of Risk, SES and pregnancy planning, the fact that the groups did not differ in their perceptions of babies points to the generality of the present findings. Although there were only thirty-one subjects, they were quite heterogeneous: socioeconomic status ranged from lower to upper class; maternal age ranged from eighteen to thirty-six years; education ranged from seventh grade through graduate degrees. Despite this diversity among subjects, there was great consistency in their expectations and perceptions. Again, this suggests that we are dealing with a general process of mothers' perceptual change over time as a function of having a baby. A normalization process seems to occur, where the mothers demonstrate a natural tendency to adjust their perceptions over time.

There were clear individual differences in maternal perceptions; however, despite such differences relating to the mothers' own particular experience, personality characteristics and current family environment, one is still finding tremendous consistency in perceptual change over time. This indicates that the experience of having a baby is so powerful
that it may generally override idiosyncratic variations among mothers. It is important to emphasize again that the individual differences among mothers were not related to their group membership during pregnancy (e.g. whether they were in the High Risk Clinic or the Childbirth Education group). In a similar vein, Blumberg (1980) found that pregnancy risk homogenized background factors of mothers who responded to attitudinal questionnaires.

There are other related factors which may have also contributed to the dramatic and potentially generalizable findings of the current investigation. It certainly can be argued that there is some selectivity in both subgroups of subjects; not all high risk expectant mothers end up as hospital outpatients, and not all healthy mothers participate in Childbirth Education classes. But again, there does seem to be a wide range of individual differences in both subgroups.

The consistency of the present results can also be viewed in the context of life stress research. The seeming inconsistency in findings by researchers (Gorsuch and Key, 1974; Jones, 1978) attempting to find support for previous life stress effects on early maternal adaptation may be a function of the fact that pregnancy and childbirth are, in themselves, such dramatic life stress and life change agents that they obscure events in the several years prior to conception in the lives of many women. From this perspective, pregnancy and childbirth may be great levelers in the process
of some aspects of maternal development, such as the formation of maternal expectations and perceptions of infants.

One cannot just look at the way parents may react to the infant or the infant's reactions to the parent in isolation of the parents' cognitive and perceptual schemata. If one ignores parental perceptions of infants and infant behaviors, an important factor in understanding the mutuality of the parent-infant developmental process is left out.
BIBLIOGRAPHY


Grimm, E. Psychological tension in pregnancy. Psychosomatic Medicine, 1961, 23, 520-527.


APPENDIX A: RISK FACTOR

For every item that was scored in a positive direction, the subject received one point which contributed to the total score on the Risk Factor.

(a) Marital status: 1 point for unmarried; 0.5 for married during pregnancy; 0.5 for unmarried but living with father of baby.

(b) Maternal age: less than 18 years or greater than 30 years.

(c) More than two previous abortions.

(d) A previous premature baby.

(e) A previous stillborn.

(f) A period of prolonged (greater than 1 year) unwanted sterility.

(g) Length of time since last pregnancy less than 12 months.

(h) Parity less than one child or greater than seven children.

(i) RH Blood Group Incompatibility.

(j) Maternal infections or acute medical problems.

(k) Maternal chronic disease(s). (One point assigned for each disease.)

(l) Blood pressure higher than 140/90.

(m) Prescription medication given to mother during pregnancy.

(n) Chronic drug abuse.

(o) Smoking more than one package of cigarettes per week.

(p) Alcohol more than two times per week.

(q) Aspirin more than two times per week.

(r) Twins or multiple births.

(s) Stress (i.e., death of friend or relative; divorce; moving; car accident).
APPENDIX B: CONSENT FORM

WOMEN AND INFANTS HOSPITAL OF RHODE ISLAND

I, ___________________ of ___________________, consent to participation in the Project, "Psychological Variables in Maternal Attachment." I understand that the study involves:

A. Purpose, Nature and Duration of Study: This research project is designed to investigate the feelings, attitudes and expectations of pregnant women, and to document how they develop and change as their babies grow. If you agree to participate in the study, you will be interviewed at a regular clinic appointment during your pregnancy, within two weeks after your baby is born, and again when your baby is two-three months old.

B. The Means By Which It Is To Be Conducted: The procedure requires about an hour of interview questions administered by a psychologist and 30 minutes of self-administered questionnaires at each session. These questions were designed to assess certain attitudes toward pregnancy, motherhood and one's self-concept. Your identity will remain confidential; answer forms will be coded so that only the interviewer will know your name in association with your answers.

C. Possible Benefit or Lack of Benefit to Myself and/or My Child: The main focus of this research is to understand relationships between maternal attitudes during pregnancy and child-rearing. Hopefully, knowledge of how women like yourself feel about pregnancy, their babies and their new maternal roles will assist physicians and other health professionals in understanding and sensitively helping other pregnant women. It is possible that some of the interview questions will help you to reflect on some ideas that you had not considered before, or to think of them in a new way. While the study may not be of personal benefit to every individual who participates, eventually we should obtain results that will prove helpful to others.

D. Risks and Hazards of this Study: No apparent risks.

E. Possible Alternative Procedures: None, as this is exploratory and non-therapeutic.

If you have any questions about this study, please call Margery Salter at (401) 884-0772,
I certify that:

(a) I understand the written/oral explanation of this study, and that an offer was made to answer my questions.
(b) I understand that in no instances will any names be used, but that statistical information from the study may be used for professional education or research purposes. If I desire, my specific conditions and findings may be discussed at a personal conference with my physician and family.
(c) I will be told of any changes in the risks or benefits of this project.
(d) I understand that I am free to withdraw consent and to stop taking part in this study at any time, and that I will continue to receive the best possible care for myself and/or my child.
(e) I acknowledge that I have been given a copy of this consent form.

Patient ___________________________ Date ____________
Witness ___________________________ Date ____________
APPENDIX C
# APPENDIX C

## NEONATAL PERCEPTION INVENTORIES

On the left side of the page, please circle the point between the two words on each line which best describes the way that you expect your newborn baby to be. On the right side of the page, please circle the point which best describes your impression of the average newborn infant.

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APPENDIX D
APPENDIX D: PARI

Name __________________________ Date ____________

Below are a group of questions about your opinions and ideas about family life and child-rearing. Read each of the statements below and then rate them as follows:

A = Strongly agree
a = Mildly agree
d = Mildly disagree
D = Strongly disagree

Indicate your opinion by drawing a circle around the "A" if you strongly agree, around the "a" if you mildly agree, around the "d" if you mildly disagree, and around the "D" if you strongly disagree.

There are no right or wrong answers, so answer according to your own opinion.

1. A young mother feels "held down" because there are lots of things she wants to do while she is young.

2. Raising children is a nerve-wracking job.

3. A married woman knows that she will have to take the lead in family matters.

4. A good mother wants to have a share in all her child's experiences.

5. Parents deserve the highest esteem and regard of their children.

6. People who think they can get along in marriage without arguments just don't know the facts.

7. Most young mothers are bothered more by the feeling of being shut up in the home than by anything else.

8. It's a rare mother who can be sweet and even tempered with her children all day.

9. The whole family does fine if the mother puts her shoulder to the wheel and takes charge of things.

10. A child should never keep a secret from his parents.
APPENDIX D: PARI (contd.)

11. Loyalty to parents comes before everything else. A a d D

12. No matter how well a married couple love one another, there are always differences which cause irritation and lead to arguments. A a d D

13. One of the bad things about raising children is that you aren't free enough of the time to do just as you like. A a d D

14. Children will get on any woman's nerves if she has to be with them all day. A a d D

15. Children and husbands do better when the mother is strong enough to settle most of the problems. A a d D

16. It is a mother's duty to make sure she knows her child's innermost thoughts. A a d D

17. A child soon learns that there is no greater wisdom than that of his parents. A a d D

18. Sometimes it's necessary for a wife to tell off her husband in order to get her rights. A a d D

19. One of the worst things about taking care of a home is a woman who feels she can't get out. A a d D

20. Mothers very often feel they can't stand their children a moment longer. A a d D

21. If a mother doesn't go ahead and make rules for the home, the children and husband will get into trouble they don't need to. A a d D

22. An alert parent should try to learn all her child's thoughts. A a d D

23. The child should be taught to revere his parents above all other grown-ups. A a d D

24. It's natural to have quarrels when two people who both have minds of their own get married. A a d D

25. Having to be with the children all the time gives a woman the feeling her wings have been clipped. A a d D
APPENDIX D: PARI (contd.)

26. It's natural for a mother to "blow her top" when children are selfish and demanding.  A a d D

27. A mother has to do the planning because she is the one who knows what's going on in the home.  A a d D

28. A mother should make it her business to know everything her children are thinking.  A a d D

29. More parents should teach their children to have unquestioning loyalty to them.  A a d D

30. There are some things which just can't be settled by a mild discussion.  A a d D
APPENDIX E

PREGNANCY QUESTIONNAIRE

1. What is your expected delivery date? day:  month:  Year:  
   What is your birthdate? day:  month:  year:  
   Your height?  
   What was your average weight during the year preceding your pregnancy?  

2. Are you married?  If so, date of marriage.  
   Are you living with your partner?  
   Divorced?  
   Living alone?  How long?  

3. Were you previously married?  Dates:  
   Was your partner previously married?  Dates:  

4. Do you have other children?  
   Name  Birthdate  Birthweight  Medical problems at birth? (list)  Serious medical problems later? (list)  
   __________________________  __________________________  __________________________  __________________________  

5. Were any of your children born prematurely?  
   Name  Birthdate  Birthweight  How many weeks early?  How long in hospital?  
   __________________________  __________________________  __________________________  __________________________  

6. Have you ever lost a baby by:  
   Abortion:  _____ (Was the reason elective?  _____  
   Medical?  _____)  
   Miscarriage?  _____ Cause, if known __________________________  
   How many weeks into pregnancy?  
   Stillbirth?  _____ Cause, if known __________________________
7. Does this have any influence in how you feel about this pregnancy? If so, please explain.

8. Was this pregnancy planned?

9. Did you ever consider aborting this pregnancy? If so, what changed your mind?

10. When did you first realize that you were pregnant? What was your initial reaction? How did you feel when you first learned that you were pregnant?

11. Why did you want to have a baby now?

12. What are some of the reasons for NOT wanting to have a baby now?

13. Has your attitude about having a baby changing during your pregnancy? If so, at what point.

14. Was there a need for you and your partner to consult a genetic counselor? (Possible Tay-Sachs disease, Sickle-cell anemia, previous birth defects.) If so, what considerations were there in your decision to continue the pregnancy?

15. How long since your last pregnancy?

16. Was there a period of prolonged, unwanted sterility? If so, how long?

17. Did you use birth control before this pregnancy? If so, what method(s)? How long?

18. How much weight have you gained during this pregnancy?


20. Is there Rh or other Blood Group Incompatibility between you and your partner?

21. Do you have any chronic diseases? (Beginning prior to conception and continuing throughout the pregnancy: i.e. diabetes, hypertension.)

22. Have you had any illnesses during this pregnancy? If so, please specify.

23. Have you taken any medications during this pregnancy? Please specify.

24. Do you smoke cigarettes? If so, how many packs
a week? How many years have you smoked?

25. During your pregnancy have you taken any:

Aspirin? How many? How Often?
Alcohol? How much? How Often?
Sleeping pills? How many? How often?

26. Have you had any unusual stresses during your pregnancy? (Death of friend or relative, divorce, loss of job, moving, etc.) Please explain.

27. Do you anticipate any financial difficulties? Do you receive any financial help from your parents or your partner's parents, or do you expect to in the future? Please explain.

28. Since you have become pregnant, what has been on your mind the most?

29. How has pregnancy been different from what you expected it to be like?

30. Compared to most pregnant women, do you think that you are having an easier or a harder time in pregnancy? Why is that?

31. For you, what has been the best thing about being pregnant? What has been the worst thing about being pregnant?

32. Have other people treated you differently in any way since you've become pregnant? If so, in what way?

33. Many pregnant women have told us that they have some fears during pregnancy (losing the baby, pain of labor or delivery, harm to themselves or the baby); what are some of the fears that you have? Please explain.

34. What do you usually do when you find yourself becoming fearful?

35. Do you ever think what you would do if you had a deformed or damaged baby? What is that?

36. Compared to your general mood before your pregnancy, now do you feel more:

- Cheerful
- Irritable
- Relaxed

- Easily hurt
- Depressed
- Ups and downs
- Tense

37. Do you have a preference for the sex of your child? If so, which? Any reason?
38. Do you plan to have other children? Why?

39. Have you chosen a name for your baby? If so, what? Will the child be named after anyone? If so, who? Were there any other considerations in selecting your child's name?

40. Have you set aside a room or a space for the baby? Have you bought or borrowed baby furniture? Have you bought or borrowed baby clothes? If not, when do you think that you will make these arrangements? Would you like any help from your partner, your mother or your partner's mother in doing these things? Please explain.

41. How do you plan to feed your baby in the first month? How do you feel about nursing? How did you come to this decision?

42. Are you involved in any birth education classes? If so, what? Is your partner involved in birth education classes with you?

43. Do you talk with your partner about the baby? How often: daily weekly once a month If so, what do you talk about most often?

44. If you have other children, what have you told them about this pregnancy and the birth of this baby? Why?

45. Since you became pregnant, have you read any books about babies or child development? If so, how many?

46. Have you ever taken any courses in child development? If so, how many?

47. What is (was) your occupation? What is your partner's occupation?

48. What is the highest academic grade or degree that you completed?

49. How long have you worked at your present (or last) job? When did you, or will you, leave work? Do you plan to return to work? When? Have you made any arrangements for a housekeeper or a baby sitter? What are they?
50. What do you expect from your partner in sharing the responsibilities of child-raising?

51. What qualities or attributes of yourself would you like to see in your child?

52. What qualities or attributes of your partner would you like to see in your child?

53. What aspects of yourself would you NOT like to see in your child. Why?

54. What aspects of your partner would you NOT like to see in your child. Why?

55. What are some of the major ways that your family has influenced you?

56. What are some of the major ways that your partner's family has influenced him?

57. Do you feel that your parents did a good job of childraising? What aspects of their parenting would you like to emulate?

58. What do you plan or hope to do differently with your children from the way that your parents treated you?

59. Does your partner feel that his parents did a good job of raising him? Have you discussed with him what aspects of his own parents he would like to emulate? If so, what are they?

60. Do you know of any ways that your partner wants to parent differently from the way his parents treated him?

61. From what you remember, did your parents seem to enjoy parenting? Why?

62. What did your parents tell you about your own infancy? (Anecdotes about sleeping or eating patterns, size, activity level, etc.)

63. Do you have any souvenirs from your own infancy? toys books clothes furniture baby shoes baby books other

64. When you daydream about what your baby will be like, what do you imagine?
65. How do you feel about your appearance now that you are pregnant?

66. In what ways do you think that you will be a good mother? In what ways will it be hard for you to be as good a mother as you would like to be?

67. What do you think having a child will add to your life?

68. How important do you think being a mother will be for your development as a person?
   Very important? No more important Less important than
   than other areas other areas

69. What are some of the things that you find yourself daydreaming about now that you are pregnant?

70. What do you think the first two weeks will be like after the baby is born?

71. When you first take the baby home, how do you think you will feel?

72. Would you like to have your mother or some other woman help you take care of the baby then? Why?

73. Do you consider yourself to have strong maternal feelings?
MENSTRUAL HISTORY

74. Compared to most women, do you think your periods were:
   Easier        About average        More difficult

75. During your periods, did you feel:
   About the same as usual?
   More elated?
   More depressed?
   More irritable?
   More relaxed?

76. During your periods did you feel:
   More energetic?        As energetic as usual?
   Less energetic?        More sexual desire?        As much
   sexual desire as usual?        Less sexual desire?

77. How long did your periods usually last?

78. Was your menstrual flow heavy?        average?        Light?

79. Did you experience menstrual cramps?
   Not at all        Mild        Moderate        Severe

80. How do you feel about not menstruating since you've been pregnant?
   I miss it        No special feeling
   I'm glad not to be menstruating

81. In general, how did you feel about your menstrual cycle?
PREGNANCY ANXIETY SCALE

Please put a check in the column (Always, Often, Sometimes, Rarely, Never) which best describes your agreement with the following statements.

Always  Often  Sometimes  Rarely  Never

I am worried about my own health

I am worried about my developing baby

I am looking forward to having my baby

I am anxious about pain during labor

I am anxious about pain during delivery

I worry about getting my figure back after the baby is born

I am worried that my baby will be harmed during delivery

I am very careful about what I eat

I feel that childbirth will fulfill my womanly role
MATERNAL SELF-PERCEPTION SCALE

Circle the point between the two words on each line which you think best describes you compared to other women your age (use the mid-point 4 as the average for women your age).

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</table>

Excitable
Sleep Well
Emotionally Weak
Physically Weak
Talkative
Active
Normal
Big
Unhappy
Outgoing
Mature
APPENDIX F
APPENDIX F: POSTNATAL QUESTIONNAIRE

Name: ______________________

1. What was your baby's birthdate? Day: Year: Month:
   What was the expected delivery date: Day: Year: Month:
   What was the baby's birthweight: lbs: oz.
   Is your baby a boy or girl? ____ What is your baby's name? ______________________

PLEASE ANSWER THE FOLLOWING QUESTIONS AS FULLY AS POSSIBLE.

2. What was the duration of your labor? ______
   Was it induced? ______

3. Did you take any drugs during labor or delivery? If so, please specify: ______________________

4. What was the fetal presentation? ______________________
   Was the umbilical cord nuchal or knotted? _____________
   Was there cord prolapse? ____ Placental infarction _____

5. When was the onset of stable and independent respiration by your baby? ______________________
   Was resuscitation required? ____ If so, why? _____________

6. APGAR score 1 minute _____ APGAR score 5 minutes _____

7. Did your baby have any positive or suspected infection? If so, please explain ______________________

8. Did your baby have any noninfectious illness or anomaly? If so, please explain ______________________

9. Did your baby need ventilary assistance? If so, please explain ______________________

10. Did your baby need a transfusion or surgery? If so, please explain ______________________
11. Did the baby have any convulsions? _____ Any metabolic disturbance? _____ Temperature disturbance? ________
If so, please explain ________________________________

12. How was your baby feeding within the first 24 hours?

_____________________________________________________

13. How did you first know that it was time to go to the hospital

_____________________________________________________

14. What were your thoughts as you went to the hospital?

_____________________________________________________

15. How did you get to the hospital? Did anyone go with you?

_____________________________________________________

16. What were your thoughts during labor?

_____________________________________________________

17. What was the experience of giving birth like for you?

_____________________________________________________

18. Was your partner present during delivery and/or in the first few hours after the baby was born? __________

19. How did you feel and what did you think when you first saw the baby? ________________________________

20. How did your partner respond when he first saw the baby? ________________________________

21. Did the physicians or nurses say anything that particularly stands out in your memory? __________________

22. When your baby was in the infant nursery, how did you get information about your child? ______________
Did you have telephone contact with the nursery staff __
How often? ________________________________
22. (contd)

How often did you visit the nursery? _______________________
How long did you stay at each visit? _______________________

23. How did you feel about your stay in the hospital? _______________________

24. When did you go home from the hospital? _________________
When did your baby go home from the hospital? _____________

25. How did you feel when you first brought the baby home? _______________________

26. How did your partner respond to having you and the baby home? _______________________

27. If you have other children, how did they respond to your return, and how did they respond to the baby? _____________

28. How did the baby's grandparents respond to the baby? _______________________

29. Has your relationship with your partner changed in any way? _______________________

30. How do you feel about being a mother? _______________________

31. How does your partner feel about being a father? _________________

32. What changes have you noticed in your baby? _________________

33. What changes are there in your body and physical appearance now, compared to the year before your pregnancy? _______________________

34. How do you feel about your body now? How do you feel about your appearance? _______________________

35. How do you feed your baby? How Often? What is feeding time like for you? _________________________
36. How are night feedings? Does your partner get up with you?

37. Have you received any help in caring for the baby or with household responsibilities? If so, from whom?

38. How is having the baby at home different from what you expected?

39. Is there anything about your baby that gives you cause for concern? If so, please explain.

40. Do you plan to have other children? Why?

Please check the column (Always, Often, Sometimes, Rarely, Never) which best describes your agreement with the following statements:

I feel tenderly towards my baby

I feel annoyed at my baby

I feel indifferent towards my baby

I feel angry at my baby

I feel giving towards my baby

I feel hatred towards my baby

I feel playful towards my baby.

I feel drained by my baby

I feel more womanly now that I have a baby
Always Often Sometimes Rarely Never

I feel more maternal now that the baby is born

I feel the baby has brought me closer to my partner

I feel the baby has brought my partner closer to me

I feel that my partner resents the baby

I feel closer to my mother since the baby has been born

I feel uncertain of my ability to care for my baby

I feel I am incompetent to care for my baby

I feel overwhelmed by all the things that I have to do for the baby

I feel overwhelmed by all the things I have to do for my husband and other children

I wish I had more outside help with housework

I wish my mother would help me more with my baby

I wish my partner would help me more with the baby

I feel tied down by all I have to do for the baby

I resent the limitations that having a baby has imposed on my life
I want to have more children

I sometimes feel sad or cry for no apparent reason

I feel comfortable in handling my baby

Feeding my baby is pleasant for both of us

I feel that feeding my baby makes us feel closer to each other

I feel very womanly when I feed my baby

I have strong maternal feelings when I feed my baby

I feel relaxed when I feed my baby

I feel that my relationship with my partner has changed positively since the baby was born

I feel that my relationship with my partner has changed negatively since the baby was born

I like to think of myself as a mother

I like to think of my partner as a father

I am curious about my baby's development

I am anxious for the time when my baby will begin walking and talking
Always    Often    Sometimes    Rarely    Never

I think I will enjoy having an older child more than an infant.

I am afraid to touch my baby.

I feel confident of my ability to care for my baby.

I would like to have a job.

Please circle the point between the two words on each line which best describes your experience as a mother so far:

<table>
<thead>
<tr>
<th>Satisfying</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7 Frustrating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hectic</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7 Calm</td>
</tr>
<tr>
<td>Expanding</td>
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<td>6</td>
<td>7 Limiting</td>
</tr>
<tr>
<td>Happy</td>
<td>1</td>
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<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7 Unhappy</td>
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<td>4</td>
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<td>6</td>
<td>7 Restful</td>
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</tbody>
</table>
On the left side of the page, please circle the point between the two words on each line which best describes your newborn baby. On the right side of the page, please circle the point between the two words on each line which best describes, in general, the other newborn babies that you saw in the hospital.

<table>
<thead>
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<th>My newborn baby</th>
<th>Other newborn babies</th>
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</tr>
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</tr>
<tr>
<td>causes me a lot of worry 1 2 3 4 5 6 7 no worry</td>
<td>causes me a lot of worry 1 2 3 4 5 6 7 no worry</td>
</tr>
</tbody>
</table>
APPENDIX G
APPENDIX G.

THIRD MONTH INTERVIEW

Name: ____________________________
Date: ____________________________

1. How long have you had your baby home with you now? _____

2. How are things going generally?

3. What is the baby's feeding time like?

4. How has your partner responded to the baby?

5. Does he share in care-giving responsibilities with you? In what way?

6. What is the best thing about having a baby so far?

7. What is the part you enjoy the least about having a baby so far?

8. What are the baby's sleep patterns? How long does the baby sleep during a 24-hour period?

9. How is having the baby home different from what you expected?

10. Has the baby been sick in any way?

11. How did you find the pediatrician who is helping you to take care of your baby?

12. How many times have you taken your baby to the pediatrician's office so far? What were the causes?

13. Have you telephoned your pediatrician for some advice or because of any concern about your baby?

14. Did you become particularly friendly with any of the women who delivered babies around the time that you gave birth to your baby?

   If so, was this woman in the hospital at the same time you were?

   Have you seen her since you left the hospital?

   Do you think that you will see her again?

   Do you think or hope that this will be a special friendship?

15. Who do you feel gives you the most help with the baby?
16. Has your relationship with your mother changed in any way since your baby has been born?

17. Would you like to have more help with your baby, taking care of your home or your other children?

18. If you have other children, how do they respond to the baby now?

19. Do you feel that you have enough time to do all the things that you need to? How do you manage this situation?

20. In general, how has your mood been lately? How do you feel about yourself and the people around you?

21. Have you noticed any changes in yourself since the baby has been born?

22. Is there anything about your baby that gives you cause for concern? If so, please explain.

23. Do you plan to have other children? Why?

Please check the column (Always, Often, Sometimes, Rarely, Never) which best describes your agreement with the following statements.

<table>
<thead>
<tr>
<th>I feel tenderly towards my baby</th>
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<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
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<tbody>
<tr>
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<td>I feel playful towards my baby</td>
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<tr>
<td>I feel drained by my baby</td>
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Always Often Sometimes Rarely Never

I feel more womanly now
that I have a baby

I feel more maternal
now that the baby is born

I feel the baby has
brought me closer
to my partner

I feel the baby has
brought my partner
closer to me

I feel that my partner
resents the baby

I feel closer to my
mother since the baby
has been born

I feel uncertain of my
ability to care for my baby

I feel I am incompetent
to care for my baby

I feel overwhelmed by
all the things that
I have to do for the baby

I feel overwhelmed by
all the things I have
to do for my husband
and other children

I wish I had more outside help with housework

I wish my mother would help me more with my baby

I feel tied down by all
I have to do for the baby
I resent the limitations that having a baby has imposed on my life

I want to have more children

I sometimes feel sad or angry for no apparent reason

I feel comfortable in handling my baby

Feeding my baby is pleasant for both of us

I feel that feeding my baby makes us feel closer to each other

I feel very womanly when I feed my baby

I have strong maternal feelings when I feed my baby

I feel relaxed when I feed my baby

I feel that my relationship with my partner has changed positively since the baby was born

I feel that my relationship with my partner has changed negatively since the baby was born

I like to think of myself as a mother

I like to think of my partner as a father

I am curious about my baby's development
I am anxious for the time when my baby will begin walking and talking.

I think that I will enjoy having an infant more than an older child.

I think that I will enjoy having an older child more than an infant.

I am afraid to touch my baby.

I feel confident of my ability to care for my baby.

I would like to have a job.
Please circle the point between the two words on each line which best describes your experience as a mother so far:

<table>
<thead>
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<th>Satisfying</th>
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<td>Happy</td>
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On the left side of the page, please circle the point between the two words on each line which best describes your baby. On the right side of the page, please circle the point between the two words on each line which best describes, in general, the other babies that you know.

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APPENDIX H
APPENDIX H.

CAREY INFANT TEMPERAMENT SCALE

Please circle the letter for each item below which most accurately describes your child's behavior. Do not leave any questions blank.

Sleep:

1. (a) Generally goes to sleep at about same time for night and naps (within 1/2 hours).
   
   (b) Partly the same times, partly not.
   
   (c) No regular pattern. Times vary 1-2 hours or more.

2. (a) Generally wakes up at about same time from night and naps.
   
   (b) Partly the same times, partly not.
   
   (c) No regular pattern. Times vary 1-2 hours or more.

3. (a) Generally happy (smiling, etc.) on waking up and going to sleep.
   
   (b) Variable mood at these times.
   
   (c) Generally fussy on waking up and going to sleep.

4. (a) Moves about crib much (such as from one end to other) during sleep.
   
   (b) Moves a little (a few inches).
   
   (c) Lies fairly still. Usually in same position when awakens.

5. With change in time, place or state of health:
   
   (a) Adjusts easily and sleeps fairly well within 1-2 days.
   
   (b) Variable pattern.
   
   (c) Bothered considerably. Takes at least 3 days to readjust sleeping routine.

Feeding:

6. (a) Generally takes milk at about same time. Not over 1 hour variation.
   
   (b) Sometimes same, sometimes different times.
   
   (c) Hungry times unpredictable.
7. (a) Generally takes about same amount of milk, not over 2 oz. difference.

(b) Sometimes same, sometimes different amounts.

(c) Amounts taken unpredictable.

8. (a) Easily distracted from milk feedings by noises, changes in place, or routine.

(b) Sometimes distracted, sometimes not.

(c) Usually goes on sucking in spite of distractions.

9. (a) Easily adjusts to parents' efforts to change feeding schedule within 1-2 tries.

(b) Slowly (after several tries) or variable.

(c) Adjusts not at all to such changes after several tries.

10. (a) If hungry and wants milk, will keep refusing substitutes (solids, water, pacifier) for many minutes.

(b) Intermediate or variable.

(c) Gives up within a few minutes and takes what is offered.

11. (a) With interruption of milk or solid feedings, as for burping, is generally happy, smiles.

(b) Variable response.

(c) Generally cries with these interruptions.

12. (a) Always notices (and reacts to) change in temperature or type of milk, or substitution of juice or water.

(b) Variable.

(c) Rarely seems to notice (and react to) such changes.

13. (a) Suck generally vigorous.

(b) Intermediate.

(c) Suck generally mild and intermittent.

14. (a) Activity during feedings--constant squirming, kicking, etc.

(b) Some motion; intermediate.

(c) Lies quietly throughout.
15. (a) Always cries loudly when hungry.
   (b) Cries somewhat but only occasionally hard or for many minutes.
   (c) Usually just whimpers when hungry, but doesn't cry loudly.

16. (a) Hunger cry usually stopped for at least a minute by picking up, pacifier, putting on bib, etc.
   (b) Sometimes can be distracted when hungry.
   (c) Nothing stops hunger cry.

17. (a) After feeding baby smiles and laughs.
   (b) Content but not usually happy (smiles, etc.) or fussy.
   (c) Fussy and wants to be left alone.

18. (a) When full, clamps mouth closed, spits out food or milk, bats at spoon, etc.
   (b) Variable.
   (c) Just turns head away and lets food drool out of mouth.

19. (a) Initial reaction to new foods (solids, juices, vitamins) acceptance. Swallows them without fussing.
   (b) Variable response.
   (c) Usually rejects new foods. Makes face, spits out, etc.

20. (a) Initial reaction to new foods pleasant (smiles, etc.) whether accepts or not.
   (b) Variable or intermediate.
   (c) Response unpleasant (cries, etc.), whether accepts or not.

21. (a) This response is dramatic whether accepting (smacks lips, laughs, squeals) or not (cries).
   (b) Variable.
   (c) This response mild whether accepting or not. Just smiles, makes face or no expression.

22. (a) After several feedings of any new food, accepts it.
   (b) Accepts some, not others.
(c) Continues to reject most new foods after several tries.

23. (a) With changes in amounts, kinds, timing of solids does not seem to mind.

(b) Variable response. Sometimes accepts, sometimes not.

(c) Does not accept these changes readily.

24. (a) Easily notices and reacts to differences in taste and consistency.

(b) Variable.

(c) Seems seldom to notice or react to these differences.

25. (a) If does not get type of solid food desired, keeps crying till gets it.

(b) Variable.

(c) May fuss briefly but soon gives up and takes what offered.

Soiling and Wetting

26. (a) When having bowel movement, generally cries.

(b) Sometimes cries.

(c) Rarely cries though face may become red. Generally happy (smiles, etc.) in spite of having bowel movement (b.m.).

27. (a) Bowel movements generally at same time of day (usually within 1 hour of same time).

(b) Sometimes at same time, sometimes not.

(c) No pattern. Usually not same time.

28. (a) Generally indicates in some way that is soiled with b.m.

(b) Sometimes indicates.

(c) Seldom or never indicates.

29. (a) Usually fusses when diaper soiled with b.m.

(b) Sometimes fusses.

(c) Usually does not fuss.
30. (a) Generally indicates somehow that is wet (no b.m.)
   (b) Sometimes indicates.
   (c) Seldom or never indicates.
31. (a) Usually fusses when diaper wet (no b.m.).
   (b) Sometimes fusses.
   (c) Usually does not fuss.
32. (a) When fussing about diaper, does so loudly. A real cry.
   (b) Variable.
   (c) Usually just a little whimpering.
33. (a) If fussing about diaper can easily be distracted for at least a few minutes by being picked up, etc.
   (b) Variable.
   (c) Nothing distracts baby from fussing.

Diapering and Dressing:
34. (a) Squirms and kicks much at these times.
   (b) Moves some.
   (c) Generally lies still during these procedures.
35. (a) Generally pleasant (smiles, etc.) during diapering and dressing.
   (b) Variable.
   (c) Generally fussy during these times.
36. (a) These feelings usually intense: vigorous laughing or crying.
   (b) Variable.
   (c) Mildly expressed usually. Little smiling or fussing.

Bathing:
37. (a) Usual reaction to bath: smiles or laughs.
   (b) Variable or neutral.
(c) Usually cries or fusses.

38. (a) Like or dislike of bath is intense. Excited.
(b) Variable or intermediate.
(c) Like or dislike is mild. Not excited.

39. (a) Kicks, splashes and wiggles throughout.
(b) Intermediate--moves moderate amount.
(c) Lies quietly or moves little.

40. (a) Reaction to very first tub (or basin) bath. Seemed to accept it right away.
(c) At first protested against bath.

41. (a) If protested at first, accepted it after 2 or 3 times.
(b) Sometimes accepted, sometimes not.
(c) Continued to object even after two weeks.

42. (a) If bath by different person or in different place, readily accepts change first or second time.
(b) May or may not accept.
(c) Objects consistently to such changes.

Procedures--Nail Cutting, Hair Brushing, Washing Face and Hair, Medicines:

43. (a) Initial reaction to any new procedure: generally acceptance.
(b) Variable.
(c) Generally objects; fusses or cries.

44. (a) If initial objection, accepts after 2 or 3 times.
(b) Variable acceptance. Sometimes does, sometimes does not.
(c) Continues to object even after several times.

45. (a) Generally pleasant during procedures once established--smiles, etc.
(b) Neutral or variable.
(c) Generally fussy or crying during procedures.
46. (a) If fussy with procedures, easily distracted by game, toy, singing, etc., and stops fussing.
   (b) Variable response to distractions.
   (c) Not distracted. Goes on fussing.

Visits to Doctor:

47. (a) With physical exam, when well, generally friendly and smiles.
   (b) Both smiles and fusses: variable.
   (c) Fusses most of time.

48. (a) With shots cries loudly for several minutes or more.
   (b) Variable.
   (c) Cry over in less than a minute.

49. (a) When crying from shot, easily distracted by milk, pacifier, etc.
   (b) Sometimes distracted, sometimes not.
   (c) Goes right on crying no matter what is done.

Response to Illness

50. (a) With any kind of illness, much crying and fussing.
   (b) Variable.
   (c) Not much crying with illness. Just whimpering sometimes. Generally his usual self.

Sensory-Reactions to Sounds, Light, Touch

51. (a) Reacts little or not at all to unusual loud sound or bright light.
   (b) Intermediate or variable.
   (c) Reacts to almost any change in sound or light.

52. (a) This reaction to light or sound is intense--startles or cries loudly.
   (b) Intermediate--sometimes does, sometimes not.
   (c) Mild reaction--little or no crying.
53. (a) On repeated exposure to these same lights or sounds, does not react so much any more.

(b) Variable.

(c) No change from initial negative reaction.

54. (a) If already crying about something else, light or sound makes crying stop briefly at least.

(b) Variable response.

(c) Makes no difference.

Responses to People

55. (a) Definitely notices and reacts to differences in people: age, sex, glasses, hats, other physical differences.

(b) Variable reaction to differences.

(c) Similar reactions to most people unless strangers.

56. (a) Initial reaction to approach by strangers positive, friendly (smiles, etc.).

(b) Variable reaction.

(c) Initial rejection or withdrawal.

57. (a) This initial reaction to strangers is intense: crying or laughing.

(b) Variable.

(c) Mild--frown or smile.

58. (a) General reaction to familiar people is friendly--smiles, laughs.

(b) Variable reaction.

(c) Generally glum or unfriendly. Little smiling.

59. (a) This reaction to familiar people is intense--crying or laughing.

(b) Variable.

(c) Mild--frown or smile.
Reaction to New Places and Situations:

60. (a) Initial reaction acceptance--tolerates or enjoys them within a few minutes.

(b) Variable.

(c) Initial reaction rejection--does not tolerate or enjoy them within a few minutes.

61. (a) After continued exposure (several minutes) accepts these changes easily.

(b) Variable.

(c) Even after continued exposure, accepts changes poorly.

Play:

62. (a) In crib or play pen can amuse self for half hour or more looking at mobile, hands, etc.

(b) Amuses self for variable length of time.

(c) Indicates need for attention or new occupation after several minutes.

63. (a) Takes new toy right away and plays with it.

(b) Variable.

(c) Rejects new toy when first presented.

64. (a) If rejects at first, after short while (several minutes) accepts new toy.

(b) Variable.

(c) Adjusts slowly to new toy.

65. (a) Play activity involves much movement--kicking, waving arms, etc. Much exploring.

(b) Intermediate.

(c) Generally lies quietly while playing. Explores little.

66. (a) If reaching for toy out of reach, keeps trying for 2 minutes or more.

(b) Variable.

(c) Stops trying on less than 1/2 minute.
67. (a) When given a toy, plays with it for many minutes.
   (b) Variable.
   (c) Plays with one toy for only short time (only 1-2 minutes).

68. (a) When playing with one toy, easily distracted by another.
   (b) Variable.
   (c) Not easily distracted by another toy.

69. (a) Play usually accompanied by laughing, smiling, etc.
   (b) Variable or intermediate.
   (c) Generally fussy during play.

70. (a) Play is intense; much activity, vocalization or laughing.
   (b) Variable or intermediate.
   (c) Plays quietly and calmly.
The dissertation submitted by Margery Salter has been read and approved by the following Committee:

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Associate Professor, Psychology, Loyola

Dr. Jill Nagy
Assistant Professor, Psychology, Loyola

Dr. Eugene Kennedy
Professor, Psychology, Loyola

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Date: Dec 9, 1981

Director's Signature