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Reliability and validity of the mothers' sensory developmental expectation questionnaire

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**Reliability and validity of the Mothers' Sensory Developmental
Expectation Questionnaire**

Hiley-Young, Janet Ann, M.S.

San Jose State University, 1992

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RELIABILITY AND VALIDITY OF THE MOTHERS' SENSORY
DEVELOPMENTAL EXPECTATION QUESTIONNAIRE

A Thesis
Presented to
The Faculty of the Department of Occupational Therapy
San Jose State University

In Partial Fulfillment
of the Requirements for the Degree
Master of Science

By
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May, 1992

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Abstract

RELIABILITY AND VALIDITY OF THE MOTHERS' SENSORY DEVELOPMENTAL EXPECTATION QUESTIONNAIRE

by Jan Hiley-Young

The reliability and validity of the Mother's Sensory Developmental Expectation Questionnaire (MSDEQ) were examined with 20 first-time mothers as subjects. The MSDEQ is a self-report screening instrument, consisting of two sections (Parts I, & II) used to identify mothers at risk in their ability to provide an adequate sensory environment for their newborns. Reliability was examined by test - retest over a one month interval and validity by comparison with the Neonatal Perception Inventory II (NPI II). Findings suggested that the MSDEQ total scores, Parts I and II were reliable; no significant relationship was demonstrated between MSDEQ and NPI II. A moderate relationship was shown between MSDEQ scores and NPI II scores ≤ 0 . Further research is needed to determine the validity of the MSDEQ. Suggestions for future studies and assessment implications for occupational therapists are discussed.

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CHAPTER 1

INTRODUCTION

Purpose

The purpose of this study was to explore the reliability and validity of the Mother's Sensory Developmental Expectation Questionnaire (MSDEQ) (see Appendix A), developed by Parush and Clark (1988) to measure a mother's knowledge of her infant's sensory development and capacities; her beliefs about the composition of an adequate sensory environment, and her perception of her ability to influence her infant's sensory development. This study examined the reliability of MSDEQ scores using test - retest over a one month interval. Validity was examined by comparison with the Neonatal Perception Inventory (NPI) (see Appendix B) (Broussard, 1979).

Statement of the Problem

Literature in child development, pediatrics and developmental psychology indicates that the newborn period is an opportune time to positively influence the mother-infant relationship (Brazelton, 1981; Carlsson, et al., 1978; Kennell, Voos, & Klaus, 1979; Worobey & Belsky, 1982) and to perform preventative screening. The role of the occupational

therapist in primary prevention is to facilitate optimal growth and development (Llorens, 1973). Infant Screening is a preventative measure.

The Mother's Sensory Developmental Expectation Questionnaire (MSDEQ) was recently published for use in assessing a mother's knowledge of the sensory capacity of her newborn and to measure her perception of her ability to influence her child's development (Parush & Clark, 1988). The MSDEQ is intended for use as a screening tool to identify mothers who are at risk in their ability to provide an adequate sensory environment for their newborns.

There remains a need to conduct further testing of this instrument, and to determine if the scores of the MSDEQ in themselves will be predictive of maternal competence or child development as the authors intended. Parush and Clark (1988) administered the MSDEQ within 3 days postpartum in a hospital setting. Further study is needed to determine if these scores will change over time.

In developing the MSDEQ, Parush and Clark (1988) focused their efforts on two key factors as very important to child development: a) mother's knowledge of child development; and b) the amount and quality of sensory stimulation provided by the mother. This researcher believes that it is important to target a third key factor in the screening process, the affective relationship, which impacts the responsiveness and nature of mother-infant interaction and is measured by the Neonatal Perception Inventory (Broussard, 1979).

Objectives

This study was designed to meet the following objectives: 1) to determine whether MSDEQ scores will show significant change in one month with no intervention as a measure of reliability, and 2) to compare the MSDEQ with the Neonatal Perception Inventory which is predictive of developmental, interactional problems as a measure of validity.

Questions

The research questions for this study were:

1. Will scores achieved by first time mothers on the Mother's Sensory Developmental Expectation Questionnaire show significant change at 4 weeks postpartum (Time B) when compared with baseline scores achieved between the ninth month of pregnancy and 3 days postpartum (Time A)?
2. Will Neonatal Perception Inventory II (NPI II) scores achieved by first time mothers at 4 weeks postpartum (Time B) correlate positively with Mother's Sensory Developmental Expectation Questionnaire (MSDEQ) scores achieved between the ninth month of pregnancy and 3 days postpartum (Time A)?

Definitions

The following definitions were identified for this study.

Interaction: Reciprocal communication and interplay between mother and infant.

Mother's Sensory Developmental Expectations: A mother's knowledge of the sensory capacity of her newborn and her perception of her own ability to influence her child's development, as measured by the Mother's Sensory Developmental Expectation Questionnaire (Appendix A) (Parush & Clark, 1988).

Neonatal Perception: A mother's ratings of her baby when compared to her idea of an "average baby" as measured by the Neonatal Perception Inventory (Appendix B) (Broussard & Hartner,1970).

Neonate: Infant aged 0-30 days.

Postpartum: The period following child birth.

Sensory Integration: "The level, quality or degree of development and integration of somatosensory function, reflected in reflex and sensory status, posture, motor activity and praxis" (Clark & Allen, 1985), and in behavioral stages of arousal level in the infant.

Assumptions

The assumptions for this research were:

1. Screening is an important tool in identification and prevention of developmental problems.

2. The subjects in this study would be honest in self-report.
3. Development is influenced by the quality and nature of mother-infant interactions, as well as genetic and environmental factors.

Limitations

The limitations identified for this study were: 1) post-test MSDEQ scores may be influenced by the mothers' desire to learn more after taking the baseline MSDEQ scores; 2) due to limitations in resources, time, staff and training, as well as population availability, the sample size is limited; 3) direct observational screening of mother-infant interaction was not feasible; and 4) a volunteer sample cannot be considered to accurately reflect the total population.

Delimitation

This study delimits the interaction for assessment specifically to the mother-infant dyad although the implications of this study might apply to parent, father or primary caregiver.

Significance of the Study

In an era of cost-cutting and decreased service provision in the health care system, primary screening procedures must be efficient and comprehensive. The MSDEQ promises to be an effective screening tool but it needs to be thoroughly tested. This study was designed to test the reliability and validity of the MSDEQ by test - retest over a 4 week interval and by comparison with the NPI. The MSDEQ was designed to measure a mother's knowledge of her newborn and her perception of her ability to influence her child's development. The NPI, which is also used to assess a mother's perception of her baby, requires responses concerning interactional factors and possible infant behaviors which could require further evaluation and observation. These interactional factors could have significant and far-reaching effects on the whole of the infant's development as well as the immediate psychosocial well being of mother and baby. It is important to determine whether there is a relationship between the MSDEQ and the NPI since the MSDEQ is a screening tool that does not include the interactive factors indicated in the NPI. If there is no significant relationship, this could indicate the need for the use of both instruments in the evaluation of mother's expectations and perceptions of their neonates.

CHAPTER 2

LITERATURE REVIEW

The purpose of the literature review was twofold. First, it examined factors associated with the mother-infant relationship. Toward this purpose, the review discussed: a) the importance of the mother-infant relationship; b) mother-infant reciprocity and sensory stimulation; and c) factors affecting the mother-infant relationship. Secondly, the usefulness of screening instruments in primary prevention is discussed. Two screening instruments in particular, The Mother's Sensory Developmental Expectation Questionnaire and the Neonatal Perception Inventory are examined closely for their relevance to occupational therapists.

The Importance of the Mother-Infant Relationship

The importance of the mother-infant relationship has been cited in many studies. The quality of this relationship forms the foundation for the optimal development of the infant. Numerous studies (Ainsworth, 1969; Brazelton, 1973, 1984; Broussard & Hartner, 1970, 1971; Condon & Dunn, 1988; Winnicott, 1960) have shown a relationship between the quality of mother-infant interaction and the infant's development. The developmental frame of reference in occupational therapy acknowledges the complexity and inter-

relatedness of infant development and maternal development and recognizes that development is shaped by many influences. Llorens (1973), in outlining a developmental frame of reference, stated that “the role of the occupational therapist in primary prevention is to facilitate growth and development.”

This view includes placing responsibility on therapists for screening, evaluating, and providing intervention for patients or clients who are at risk for disability or dysfunction. The occupational behavior frame of reference is used to view individuals within their environment, accounting for the internal factors and external forces that direct a person’s behavior, and utilizes the concepts of role and role transition (Burke, Clark, Hamilton-Dodd & Kawamoto, 1987). A developmental/ occupational behavior frame of reference with a particular focus on infant-mother attachment and interaction is an appropriate theoretical base for occupational therapy in early intervention. “The occupational behavior of both the child and the parent provides the basis for developmental changes” (Humphry, 1989). There is a growing recognition that mother-infant interaction is a reciprocal process (Bromwich, 1981; Condon & Sander, 1974). Interaction between mother and infant immediately after birth begins a process of attachment that is the foundation for the infant's social, emotional, and sensory development. The ongoing mother-infant interaction determines the quality of mother-infant attachment (Ainsworth, Blehar, Waters, & Wall, 1978). Infants whose mothers are responsive to their cues during the first year of life tend to develop secure attachments. Clarke-Stewart's findings (1973) demonstrated a high correlation between maternal responsiveness and measures of the infant's general competence and motivation. There is considerable evidence

that there are long-term effects suffered from insecure attachments during the first year (Broussard & Hartner, 1971; Matas, Arend, & Sroufe, 1978).

It is important for the mother to realize and have confidence in her importance to the baby, and for her to receive support and encouragement in her important role in her baby's life and development. Hospital birthing and postpartum procedures, and attitudes of "professional as expert" can combine to undermine new parents while they are making the transition to their new role. Environmental factors in the hospital/birth setting such as caesarean or vaginal delivery, medication during delivery, the use of anesthesia and pain medications, and separation of mother and infant or "rooming-in," are each capable of influencing the quality of initial parent-infant interaction, the opportunity for parents to become familiar with their infants, parental feelings of confidence and competence, and the amount of stimulation the infant receives.

Mother-Infant Reciprocity and Sensory Stimulation

Ayres (1979), in proposing sensory integration theory and therapy, has described the types of sensory stimulation that the infant experiences after birth as important for optimal development. It is now well known that the infant is born with many previously unrecognized abilities and capacities (Klaus & Klaus, 1985). The infant's mother as the chief provider and regulator of sensory stimulation for the infant needs to recognize these

abilities and provide for their development. (Day, 1982; Parush & Clark, 1988).

The sensory stimulation to which infants are exposed may have greater impact than previously believed (Korner, 1977). Stimulation is important, but to positively influence an infant's growth and development it should vary over time, be mild to moderate in intensity, should capture the baby's attention, be responsive to the individual infant, and promote a response (Korner, 1977; Schaffer, 1977). Infants give cues to their caretakers that indicate their wants and needs (Day, 1982).

Some infants have been found to be at risk for inadequate sensory stimulation and in the movement to compensate for this inadequacy, there has been a popular "the more the better" approach (Schaffer, 1977). Researchers caution against this (Day, 1982). Klaus and Kennell (1982) caution that "infant stimulation may be of concern if parents place greater emphasis on the protocols than their interaction with their babies." Increasingly, professionals involved in maternal-child health care are moving from an emphasis on teaching the mother to teach skills to the infant, to focusing on enhancing the quality of the mother-infant interaction and attachment (Anderson, 1981; Anderson & Hinojosa, 1984; Anderson & Sawin, 1983; Bentovin, 1979; Bromwich, 1976, 1981; Crockenberg, 1981). "The prime-requisite for the infant's optimum development is a mutually satisfying relationship between mother and infant" (Bromwich, 1976) and is the most effective avenue for developmental intervention when possible.

Increasing evidence has pointed to the importance to the infant of responsive interaction based on the infant's individual behavioral cues,

implying that a focus on a specific developmental agenda might inhibit the important reciprocal, responsive individual interactions of the mother-infant dyad (Bromwich, 1981; Koniak-Griffin & Ludington-Hoe, 1987).

Brazelton (1981) has suggested that the key to effective parenting lies in the exchange, the interaction between child and parent, not in what the parent does for the child. Quality of responsiveness is a key factor in the mother's ability to successfully interpret her newborn's cues and receive enjoyable feedback that will enhance mother-infant interactions and stimulation. The mother's role as mediator of the infant's sensory stimulation lies largely in the degree of sensitivity and reciprocity in the infant-mother relationship, in the interaction. By enhancing the maternal-infant relationship, maternal responsiveness and maternal perception through positive intervention, the mother may become a more accurate reader of the baby's cues and provide and regulate stimulation in a more positive way.

Factors Affecting the Mother-Infant Relationship

A number of factors that influence the mother-infant relationship have been studied. Numbering among these are attitudes of the mother, maternal perceptions of the infant, mother's feelings of competence and confidence, difficulty in parental role transition, parent's feelings of attachment, temperament and mood of the baby and the mother, knowledge of child development, previous experience with infants, type of birth, and methods of

feeding. Environmental factors, stress, and amount of social support also influence maternal perception of her infant.

"A mother's perception of her competence in problem-solving issues of infant care is likely to influence how sensitive she is to her infant's cues as well as how well she copes with problems" (Bullock & Pridham, 1988; Lamb, Chase-Lansdale, & Owen, 1979; Lazarus & Folkman, 1984). Confidence concerns a mother's self-concept and information, as well as interventions that either enhance her confidence or add to their uncertainty about her infant's care are very important (Bullock & Pridham, 1988). These same factors may influence her feelings of competence. According to Bullock and Pridham, perception of competence is an aspect of perceived "effectence" which Lamb, et al., 1979) termed a "mother's belief that her caretaking is competent and effective, that her infant enjoys interaction with her, and that these interactions positively effect the child's development." Bullock and Pridham found that the infant's mood was the source most frequently reported for both maternal confidence and uncertainty at 30 and 90 days after birth. They noted that mood may or may not be an accurate measure of maternal care since it may also be based on temperament. Rutter (1979) and Crockenberg (1981) found that infants' temperament affected the mother-infant relationship.

Robert's (1983) identified parents at risk for developing interactional problems and found that these parents had the following characteristics: a) their babies demanded more obligatory behavior (requiring action from the caregiver); b) they had less positive perceptions of their baby on the Neonatal Perception Inventory (Broussard, 1979); c) they showed more

difficulty in reading their babies cues; and d) they had more difficulty in adjusting to their role as parents.

In a blind study, Broussard and Hartner (1971) found a relationship ($\chi^2 = 16.43, p < .001$) between the mother identified as having a negative perception of her baby, as measured by the NPI, and the child's need for psychiatric intervention at age four and a half.

Studies have shown that mother-infant reciprocity, parental knowledge of infant capacities, and accurate reading of infant cues can be positively influenced during the neonatal period by a brief intervention, such as a demonstration of the Brazelton Neonatal Behavioral Assessment Scale (BNBAS) (see Appendix C) (Brazelton, 1984; Myers, 1982; Poley-Stroebel & Beckmann, 1987). Poley-Stroebel and Beckmann's study found evidence that the mother-infant relationship is enhanced by demonstrating to a mother the capabilities of her infant via the BNBAS. Anderson and Sawin (1983) utilized the BNBAS as a teaching technique and found that in mothers that observed the BNBAS demonstrated on their own baby, maternal responsiveness, as measured by the Assessment of Maternal-Infant Sensitivity Scale (AMIS) (Price, 1983) was enhanced significantly.

Interaction, knowledge of infant behavior and abilities, self-confidence and satisfaction scores have all been positively influenced by BNBAS intervention (Myers, 1982; Poley-Stroebel & Beckmann, 1987). Worobey and Belsky (1982) used the BNBAS as an interactive experience and guided mothers in eliciting the responses and behaviors from their babies. They found that compared to control groups, these mothers engaged in more contingent interaction, and displayed more embellished involvement in the

home at one month postpartum. These studies suggest that the BNBAS demonstration would be effective as a standard wellness procedure to sensitize parents to their infant's capabilities and to help them get to know their unique baby.

Screening Instruments in Primary Prevention

Studies in pediatrics, developmental psychology, birth, and parenting have identified the early postpartum period as an opportune time to provide interventions to parents that will positively impact mother-infant or parent-infant interactions (Carlsson et al., 1978; Kennell, Voos, & Klaus, 1979; Klaus et al., 1972; Worolbey & Belsky, 1982). Planned strategies have been implemented to enhance the time spent together and assist parents in becoming acquainted with their babies (Anderson, 1981; Worolbey & Belsky, 1982).

Trause (1981) suggested that the skin-to-skin contact per se in the immediate postpartum period identified by Klaus, et al. (1972) is critical for bonding and may not be as important in positively influencing the developing mother-infant relationship as the "interaction and familiarization that such contact can generate."

Increasingly, since the late 1960's and early 1970's, occupational therapists have increased their commitment and expanded their roles in the areas of primary prevention, and early intervention, including well baby care and community health (Day, 1982; Finn, 1972; Llorens, 1973; Morris,

1978; West, 1969). According to the developmental perspective in occupational therapy, Llorens (1973) has stated that a key purpose of the pediatric occupational therapist is to facilitate and promote optimal growth and development to the maximum, innate capacity for the individual child in physical, social and emotional areas. The therapist employs screening, assessment, activity programming and consultation in early interventions.

Most early intervention programs have been based on an infant-curriculum or a parent education model. Increasingly, therapists have been teaching mothers how and what to teach their infants as research has indicated that programs involving parents are more effective than those that do not (Bricker & Casuso, 1979; Bromwich, 1981; Bronfenbrenner, 1979). However, a growing number of professionals are taking a further step and are seeking not only to understand how the infant's development is affected by the quality of the mother-infant relationship as defined by mother-infant interaction and reciprocity, but they are also studying how their intervention affects that relationship. Day (1982) has stated that one major function of the occupational therapist lies in assisting parents in becoming better acquainted with their babies' characteristics and in helping parents to recognize and respond to their babies' signals. This includes learning to be sensitive to their babies' unique responses and thresholds to various stimuli.

Screening tests are important tools in primary prevention and can be used to prevent or minimize many developmental problems. However, McIroy and Koranyi (1985) reported that most physicians recommend some caution in the use and application of test results. There is evidence that labeling children as having problems, or as being at risk for developing

problems, increases their chance for later dysfunction. This effect has been attributed to a child's expectations as a result of being labeled abnormal and her/his corresponding change in self-image.

A number of screening tools have been developed to identify mothers and infants who are at risk for developmental and interactional problems. Not all of these are easily applicable to the normal population who have not been identified for treatment. Some are too involved, time-consuming or costly to use routinely as primary prevention tools. The Neonatal Perception Inventory (NPI) (Broussard, 1979) has been used alone and in conjunction with other tools such as the Brazelton Neonatal Behavioral Assessment Scale (BNBAS) (see Appendix C) (Brazelton, 1984), and the Assessment of Maternal-Infant Sensitivity (AMIS) (see Appendix C) (Price, 1983) in studies addressing mother-infant reciprocity, quality of attachment, and child-development (Broussard, 1979; Koniak-Griffin & Ludington-Hoe, 1987; Price, 1983; Pridham & Chang, 1985; Roberts, 1983). The Mother's Sensory Developmental Questionnaire has been developed by Parush and Clark (1988) to identify mothers at risk in their ability to provide an adequate sensory environment for their newborns.

The Mother's Sensory Developmental Expectation Questionnaire

The Mother's Sensory Developmental Expectation Questionnaire (MSDEQ) was developed by Parush and Clark (1988) to measure a mother's ability to provide an adequate sensory environment for her newborn child.

The MSDEQ was formulated as an extension of sensory integrative theory and practice into the realm of maternal role preparation. Initial research has achieved positive results for content and construct validity. The initial reliability research indicated that the questionnaire reliably measured: a) a mother's knowledge of the sensory capacity of newborns; and b) a mother's perception of her ability to influence the development of her child. Parush and Clark found a positive correlation ($r = .64, p < .001$) between mothers' knowledge of infant sensory capacity and mothers' perceived influence on development. Further development and testing of this instrument is needed before it can be applied as a screening tool. Parush and Clark focused on two factors of importance to effective mothering: "the mother's cognitive knowledge of child development and the quantity and quality of sensory stimulation provided by the mother." The MSDEQ measures cognitive knowledge and feelings of competence and confidence in the mother. These may exert a strong influence on the mother's attitudes toward mothering and her baby. It is necessary, however, to include the affective component, to secure information about the mother's perception of and feelings toward her infant that would indicate possible interactional problems.

Research Using the Neonatal Perception Inventory

Broussard's Neonatal Perception Inventory (NPI) has been used in studies focusing on the mother-infant relationship (1979). The NPI has been used frequently in conjunction with other tools. Broussard's findings with

the NPI indicate that changes occur in maternal perception of the firstborn during the first month of life, lending support to the theory that the immediate newborn period is a critical time for intervention. Broussard found that perception during the first or second day postpartum (Time I) was not shown to be related to the subsequent development of the child at age four and a half. The mother's perception at one month of age (Time II) *was* predictive; however, and when combined with Time I was even more predictive.

In Broussard's (1979) follow-up study, mothers who had completed NPI I and NPI II were observed through a one-way mirror during a) a period of free-play for mother and infant and b) administration of the Bayley Scale of Mental Development (see Appendix C) with mother present, c) a period of the mother leaving the room with the examiner present, and d) a mother-child reunion. The observers did not know the mothers' NPI ratings. Findings showed that mothers who scored as high-risk on the NPI displayed "inattentiveness or failure to recognize clear cues from the child, excessive delay or failure to respond, an intolerance for age-appropriate limitations in the child's ability, and difficulties in recognizing the child's needs - e.g. fatigue, hunger, discomfort or amount of stimulation." Mothers scoring as low-risk were frequently observed modifying their actions according to changes in their neonate's state during feeding. The high-risk mothers did not seem to shift their actions according to their neonate's cues during feeding.

High-risk and low-risk infants also presented differing clinical pictures in the areas of a) affective expression, b) ability to engage in explorative

play, c) ability to cope with stress, and d) body management. Interviews of mothers who scored "at risk" on the NPI a) were found to have low self-esteem and lack confidence in their role as mothers, b) perceived their environmental support systems as being less helpful than the low-risk mothers, c) reported more difficulty in caring for their baby in the areas of feeding, crying cessation, sleeping, colic and elimination, and d) frequently appeared depressed and anxious.

In another study, Roberts (1983) found a positive relationship between the mother's role competence and perceptions of the infant as measured by the NPI ($r = .28, p < .013$) and between mother's role competence and ease of transition into parenthood ($r = .29, p < .010$). Roberts found that obligatory infant behavior affected parental ease of transition ($r = -.32, p < .004$) and perception of the infant on the NPI ($r = -.30, p < .007$).

Koniak-Griffin and Ludington-Hoe (1987), in a controlled study comparing modes of stimulation, found a positive correlation between quantity of multi-modal stimulation and favorable maternal perception measured by the NPI.

Summary

A number of studies have examined the effect of early intervention upon the quality of the mother-infant relationship with regard to its influence upon infant development. Several mother-infant relationship factors influencing development have been observed, including maternal attitude and

attachment, maternal sense of competence and confidence, maternal knowledge and experience, role transition, and the affective state of mother and child. Interventions such as that demonstrated by the BNBAS with a mother's own neonate have been shown to positively influence mother-infant reciprocity, knowledge of infant capacities, accurate reading of infant cues, as well as self-confidence and satisfaction scores. Primary prevention programs aimed at facilitating infant development and mother-infant interaction have utilized inventories for identifying "at-risk" mothers and infants. Two of these inventories, the MSDEQ and the NPI, when administered together, hold promise for sharpening assessment and indicating needs for further evaluation and intervention.

CHAPTER 3

RESEARCH PROCEDURES

Survey methodology was used to gather data to explore the reliability and validity of the Mother's Sensory Developmental Expectation Questionnaire (MSDEQ) (Parush & Clark, 1988). Reliability was examined by test - retest over a 4 week interval. The first administration was given between the ninth month of pregnancy and the first three days postpartum (Time A) The second administration was given at 4 weeks postpartum (Time B). Validity was measured by comparing MSDEQ scores with scores on the Neonatal Perception Inventory (NPI) (Broussard, 1979).

Questions

The research questions generated for this study were:

1. Will scores achieved by first time mothers on the Mother's Sensory Developmental Expectation Questionnaire show significant change at 4 weeks postpartum (Time B) when compared with baseline scores achieved during the period of the ninth month of pregnancy and 3 days postpartum (Time A)?
2. Will Neonatal Perception Inventory II (NPI II) scores achieved by first time mothers at 4 weeks postpartum (Time B) correlate positively

with Mother's Sensory Developmental Expectation Questionnaire (MSDEQ) scores achieved during the period of the ninth month of pregnancy and 3 days postpartum (Time A)?

Subjects

The subjects were selected on the basis of the following criteria:

1. First time mothers who volunteered, prior to giving birth, to participate in the study in response to a flyer or ad (Appendix D), or who were contacted via their midwifery clinic or childbirth educator.
2. Both infant and mother in good health as self-reported.
3. Mothers who were able to read and write in English.
4. At the time of first administration, mothers who were in the ninth month of pregnancy or with infants who were full-term and between 2 and 3 days postpartum.

Research Procedures

The researcher contacted midwives, childbirth educators and childbirth assistants via ads (see Appendix D) in a local mothering magazine and by phone. Flyers (see Appendix D) were posted in public places such as libraries and in midwifery clinics, obstetricians' offices, and were also distributed in childbirth education classes. Participating caregivers or

educators agreed to distribute consent forms and MSDEQ Time A questionnaires directly to the mothers.

After providing consent forms (see Appendix E) and a brief letter (see Appendix F) containing instructions and requesting demographic information, the MSDEQ was administered to first-time mothers at Time A (between the ninth month of a normal, low risk pregnancy and 3 days postpartum after a full term pregnancy). The MSDEQ for Time A, consent forms, and letter of instructions were administered to the volunteer subject by the researcher, midwife, childbirth assistant, or childbirth educator, in person. However, if the subject responded to a flyer or ad, the consent form and MSDEQ (Time A) was self-administered by the subject and returned to the researcher by mail.

If the MSDEQ (Time A) was completed during the ninth month of pregnancy, a short phone call was made by the researcher or the subject to confirm the exact date of birth. At 3-1/2 weeks postpartum, a follow-up packet consisting of a brief letter of instructions (see Appendix F), the MSDEQ and NPI II was mailed to all subjects with a self-addressed stamped envelope. These instruments were expected to be completed at Time B (4 weeks postpartum). The follow-up packet of the MSDEQ (Time B) and NPI II were self-administered. Two days after the follow-up mailing was initiated, "reminder #1" postcards were mailed (see Appendix G). At 4 weeks postpartum, "reminder #2" postcards were mailed (see Appendix G). If necessary, one phone call (see Appendix H) was made at 5 weeks postpartum, at which point any subjects failing to respond were attributed to attrition. To maintain anonymity, instruments were not scored until both

Time A and Time B instruments were matched, at which time identifying information (name, address and telephone number) were detached, leaving only demographic data (age, ethnicity, education level and years of education) attached to the complete set of instruments. Consent forms were also detached and stored separately. After the name and address had been used to address envelopes containing the letter of disclosure to each subject, that information was destroyed. After data collection was completed, subjects were sent a letter of full disclosure debriefing them on specific research objectives and the official titles of the instruments used (see Appendix I). The researcher scored the instruments and rechecked and recalculated each one to assure accuracy.

Statistical Procedures

Descriptive and correlational statistics were used to analyze the data for this study. The statistical analysis was aimed at exploring the relationship between MSDEQ scores over time and the MSDEQ scores and NPI II scores in relationship to each other. Frequencies, means, medians and standard deviations were calculated and graphed on all MSDEQ and NPI scores. A spread sheet was made to demonstrate variance. T-tests were performed on baseline (Time A) and 4-week (Time B) MSDEQ scores to describe changes. Pearson product-moment correlations were calculated for MSDEQ and between MSDEQ and NPI II scores to describe their relationship. For a finer grained analysis of the MSDEQ, six categories were computed

separately (MSDEQ IA [Part I, Time A], MSDEQ IB [Part I, Time B], MSDEQ IIA [Part II, Time A], MSDEQ IIB [Part II, Time B), MSDEQ Total A [Part I + Part II, Time A] and MSDEQ Total B [Part I + Part II, Time B]). Frequencies of scores, descriptive statistics (high, low, median, mean, variance, and standard deviations) and Pearson Product Moment Correlations were calculated for each of the six MSDEQ categories. T-tests were run on each of the six MSDEQ categories to determine if significant change occurred from Time A to Time B (where the value of the 't' statistic derived from standard t distribution tables was $t [19df]$ at .05 level = ± 2.093). Descriptive statistics of high, low, median, mean, variance, standard deviations and frequencies, were calculated for NPI II scores. Pearson Product Moment Correlations were calculated for NPI II scores in relation to the six categories of MSDEQ scores. Because NPI II scores ≤ 0 have been found to be associated with later psychosocial problems (Broussard, 1979), Pearson Product Moment Correlations were calculated for the MSDEQ categories and a subset of the sample ($n = 6$), whose scores suggested such potential problems. These scores were analyzed and compared to the remaining NPI II scores > 0 ($n=14$).

CHAPTER 4

DATA ANALYSIS AND RESULTS

The purpose of this study was to explore the reliability and validity of the Mother's Sensory Developmental Expectation Questionnaire developed by Parush and Clark (1988) to measure a mother's knowledge of her infant's sensory development and capacities, her beliefs about the composition of an adequate sensory environment, and her perception of her ability to influence her infant's sensory development. This study examined the reliability of MSDEQ scores using test - retest over a one month interval. Validity was examined by comparison with the Neonatal Perception Inventory (NPI) developed by Broussard (1979).

Demographic Data

Thirty-two subjects, all first-time mothers, participated in the study. Questionnaires which were completed incorrectly, were returned at the wrong time, or that were received too late to be included in the study were eliminated from data analysis. Demographic data for the remaining twenty subjects were used. The mean age of the sample was 28.7 years. Nineteen (95%) of the subjects were Caucasian. One subject (5%) was Pacific

Islander. Nineteen (95%) of the subjects had some college education. Eight (40%) of the subjects were contacted through midwifery clinics, one (5%) through a lay midwife, and four (20%) through childbirth education classes, indicating that they had extensive prenatal care and education. "Word of mouth" and response to posted flyers and an advertisement in a local "mothering" magazine accounted for the remaining seven (35%) of the sample. Frequency distributions of the demographic variables have been listed in Table 1; descriptive statistics for these demographic variables have been listed in Table 2.

Research Question 1

Will scores achieved by first time mothers on the Mother's Sensory Developmental Expectation Questionnaire (MSDEQ) show significant change at 4 weeks postpartum (Time B) when compared to baseline scores achieved at the ninth month of pregnancy or 3 days postpartum (Time A)?

Frequencies of MSDEQ scores have been reported in Tables 3 and 4. Descriptive statistics of MSDEQ scores have been summarized in Table 5. The respective mean scores for MSDEQ IA and IB were 25.7 and 26.5; for MSDEQ IIA and IIB, 27.6 and 27.0; and for MSDEQ Total A and Total B, 53.2 and 53.5.

Pearson Product Moment Correlations for each of the six categories of the MSDEQ have been listed in Table 6. All categories of the MSDEQ showed a positive correlation from Time A to Time B. Results indicated:

Table 1

Frequency Distribution of Demographic Variables for Sample (N = 20)

Age Range	<u>n</u>	Education Level	<u>n</u>
20 - 24 yrs	4	College	14
25 - 29 yrs	9	Jr. College	5
30 - 34 yrs	<u>3</u>	High School	<u>1</u>
	20		20

Ethnicity	<u>n</u>	Education	<u>n</u>
Caucasian	19	8 - 12 yrs	1
Pacific Islander	<u>1</u>	13 - 16 yrs	10
	20	17 - 20 yrs	<u>9</u>
			20

Table 2

Descriptive Statistics of Demographic Variables (N = 20)

Variable	High	Low	Median	Mean	Variance	Standard Deviation
Age	36	21	28	28.7	16.5	4.1
Ethnicity	2	1	1	1.1	0.1	0.2
Educ Level	3	1	1	1.4	0.3	0.6
Educ in Years	19	12	16	16.0	4.2	2.1

Coding of Nominal Variables:

Ethnicity 1 = Caucasian
 2 = Pacific Islander

 Education Level 1 = College
 2 = Junior College
 3 = High School

Table 3

Frequency of Scores for MSDEQ IA, IB, IIA, IIB

Score	MSDEQ IA	MSDEQ IB
20	0	0
21	1	0
22	0	0
23	3	3
24	3	1
25	2	3
26	3	1
27	2	4
28	4	4
29	2	4
Score Range	MSDEQ IIA	MSDEQ IIB
6 - 10	0	1
11 - 15	2	1
16 - 20	3	4
21 - 25	1	3
26 - 30	6	3
31 - 35	6	3
36 - 40	2	5

Table 4

Frequency of Scores for MSDEQ Total A, Total B

Score Range	MSDEQ Total A	MSDEQ Total B
26 - 30	0	1
31 - 35	1	0
36 - 40	1	0
41 - 45	3	3
46 - 50	2	5
47 - 55	4	3
56 - 60	6	0
61 - 65	1	6
66 - 70	2	2

Table 5

Descriptive Statistics of MSDEQ and NPI II Scores (N = 20)

Variable	High	Low	Median	Mean	Variance	Standard Deviation
MSDEQ IA	29	21	26	25.7	5.3	2.3
MSDEQ IB	29	23	27	26.5	4.5	2.1
MSDEQ IIA	39	13	28	27.6	54.8	7.4
MSDEQ IIB	39	7	26	27.0	84.2	9.2
MSDEQ Total A	67	34	52	53.2	82.8	9.1
MSDEQ Total B	68	30	51	53.5	104.7	10.2
NPI II	8	- 5	2	2.6	11.3	3.4

Table 6

Pearson Product Moment Correlations for MSDEQ, Time A and Time B

Between	And	<u>R</u> =	Conclusion
MSDEQ IA	MSDEQ IB	0.43	Moderate positive correlation
MSDEQ IIA	MSDEQ IIB	0.81	Strong positive correlation
MSDEQ Total A	MSDEQ Total B	0.81	Strong positive correlation

Note. n = 20.

1) a strong positive correlation ($r = 0.81$) between MSDEQ Total Time A scores and MSDEQ Total Time B scores, and 2) a strong positive correlation between MSDEQ II Time A and Time B scores ($r = 0.81$). The correlation for MSDEQ I Times A and B scores was moderate ($r = 0.43$).

T-tests (see Table 7) indicated that no significant change occurred from Time A to Time B on MSDEQ Part I, Part II, for Total Time scores.

Research Question 2

Will Neonatal Perception Inventory II (NPI II) scores achieved by first time mothers correlate positively with Mother's Sensory Developmental Expectation Questionnaire scores achieved at the ninth month of pregnancy or 3 days postpartum (Time A) and at 4 weeks postpartum (Time B)?

Descriptive statistics for the NPI II have been summarized in Table 5 and showed that scores ranged from - 5 to + 8. Frequencies of NPI II scores have been reported in Table 8. Pearson Product Moment Correlations between the MSDEQ and NPI II are summarized in Table 9. A bar graph comparing MSDEQ Total A and MSDEQ Total B scores and NPI II scores has been presented in Figure 1. Results showed that no significant positive correlations were found between MSDEQ scores and NPI II scores. All correlations were found to have a negative direction. Comparative Pearson Product Moment Correlations between NPI II scores ≤ 0 and NPI II scores > 0 have been summarized in Table 10. In the subset ($n = 6$), there was a

Table 7

T - Tests for MSDEQ Total A, Total B, IA, IB, IIA, IIB

MSDEQ	MSDEQ		MSDEQ	MSDEQ		MSDEQ	MSDEQ	
Total A	Total B	d	IA	IB	d	IIA	IIB	d
43	48	- 5	23	23	0	20	25	- 5
52	47	5	25	27	- 2	27	20	7
45	43	2	26	26	0	29	27	2
58	62	- 4	24	25	- 1	34	37	- 3
37	30	7	26	23	3	13	7	6
62	51	11	28	24	4	34	27	7
34	44	- 10	21	29	- 8	13	15	- 2
67	64	3	28	28	0	39	36	3
50	49	1	25	27	- 2	25	22	3
52	49	3	23	23	0	29	26	3
60	51	9	26	28	- 2	4	23	11
66	68	- 2	29	29	0	37	39	- 2
60	63	- 3	29	29	0	31	34	- 3
44	46	- 2	24	27	- 3	20	19	1
60	61	- 1	27	27	0	33	34	- 1
57	65	- 8	28	28	0	29	37	- 8
50	44	6	24	25	- 1	26	19	7
51	53	- 2	23	25	- 2	28	28	0
55	64	- 9	28	29	- 1	27	35	- 8
60	67	- 7	27	28	- 1	33	39	- 6
Avg d - 0.30			Avg d - 0.80			Avg d 0.60		
Std Dev d 6.03			Std Dev d 2.35			Std Dev d 5.35		
T = - 0.22			T = - 1.52			T = 0.50		

Note. t (19df) at .05 level = ± 2.093

Table 8

Frequency of Scores for NPI II

Score	NPI II
- 5	1
- 4	0
- 3	0
- 2	1
- 1	1
0	3
1	2
2	3
3	0
4	2
5	1
6	5
7	0
8	1

Table 9

Pearson Product Moment Correlations for MSDEQ and NPI II (N = 20)

Between	And	<u>R</u> =	Conclusion
MSDEQ IA	NPI II	- 0.25	No correlation
MSDEQ IIA	NPI II	- 0.22	No correlation
MSDEQ Total A	NPI II	- 0.24	No correlation
MSDEQ IB	NPI II	- 0.10	No correlation
MSDEQ IIB	NPI II	- 0.21	No correlation
MSDEQ Total B	NPI II	- 0.21	No correlation

Figure 1. Comparative Scores ($\bar{n} = 20$) for MSDEQ Total Time A, MSDEQ Total Time B, and NPI II.

Table 10

Pearson Product Moment Correlations with MSDEQ for Cases where NPI II Scores are Less Than or Equal to 0 and for Cases where NPI II scores are Greater Than 0

For Cases where NPI II Scores ≤ 0 ($n = 6$)			
Between	And	$R =$	Conclusion
MSDEQ IA	NPI II	- 0.64	Moderate negative correlation
MSDEQ IIA	NPI II	- 0.38	Moderate negative correlation
MSDEQ Total A	NPI II	- 0.46	Moderate negative correlation
MSDEQ IB	NPI II	0.56	Moderate positive correlation
MSDEQ IIB	NPI II	- 0.04	No correlation
MSDEQ Total B	NPI II	0.07	No correlation
For Cases where NPI II Scores > 0 ($n = 14$)			
Between	And	$R =$	Conclusion
MSDEQ IA	NPI II	- 0.49	Moderate negative correlation
MSDEQ IIA	NPI II	- 0.11	No correlation
MSDEQ Total A	NPI II	- 0.20	No correlation
MSDEQ IB	NPI II	- 0.27	No correlation
MSDEQ IIB	NPI II	- 0.24	No correlation
MSDEQ Total B	NPI II	- 0.26	No correlation

moderate negative correlation ($r = -0.64$) between MSDEQ IA and NPI II, and a moderate positive correlation ($r = 0.56$) between MSDEQ IB and NPI II. MSDEQ IIA and MSDEQ Total A both had a moderate negative correlation with NPI II. In the other subset ($n = 14$) whose NPI II scores > 0 , MSDEQ IA and NPI II showed a moderate negative correlation ($r = -0.49$).

Conclusion

In order to be consistent with the study sample of Parush and Clark (1988), only first time mothers were included in this study. Administered twice, the MSDEQ was found to be reliable over a one month interval, as scores from Time A and Time B showed a strong positive correlation. More specifically, MSDEQ I A and B demonstrated a moderate level of reliability; MSDEQ II A and B, and MSDEQ Total A and B Scores shared the highest level of reliability.

T-tests on the six categories of the MSDEQ showed no significant change in the mean scores from Time A to Time B corroborating the Pearson Product Moment Correlations data which supports the reliability of the MSDEQ from Time A to Time B.

No correlation between the MSDEQ and NPI II was found, suggesting that the MSDEQ does not have concurrent validity with the NPI II. However, all correlation values were found to be in a negative direction. The subset of cases where $NPI \leq 0$ (scores which in Broussard's research (1979) have been shown to be predictive of clinically important psychosocial

problems involving mother and child) demonstrated an even stronger negative correlation with the MSDEQ and warrants further examination.

Some caution must be applied in reviewing the results of this study. First, there were several sampling biases: a) all the subjects were well educated; b) the age range of the subjects was limited (median age of 28 and mean of 28.7); c) all but one of the subjects were Caucasian; d). most received personal and extensive prenatal care from a midwife and therefore would not generally be considered "at risk;" e) subjects were volunteers; and f) the size of the sample was small. Secondly, the NPI II did not replicate the protocol administered by Broussard (1979) in that the instrument was mailed to the subjects and not administered directly by the researcher.

CHAPTER 5

IMPLICATIONS, RECOMMENDATIONS, AND SUMMARY

The Mother's Sensory Developmental Expectations Questionnaire (MSDEQ) was developed by Parush and Clark (1988) to measure a mother's knowledge of her infant's sensory development and capacities; her beliefs about the composition of an adequate sensory environment, and her perception of her ability to influence her infant's sensory development. The MSDEQ was intended for use by occupational therapists as a screening tool to identify mothers who are at risk in their ability to provide an adequate sensory environment for their newborns. This study examined the reliability of the MSDEQ and its concurrent validity with the Neonatal Perception Inventory. This final chapter reports the implications of the findings, recommendations for further research, and a summation of the study.

Implications Regarding Reliability

The findings of this study indicated that the MSDEQ was reliable from Time A to Time B. Results indicated a moderate positive correlation between MSDEQ I Time A and B scores and a strong positive correlation between MSDEQ II Time A and B scores. The different levels of reliability of MSDEQ IA and IB, and MSDEQ IIA and IIB may reflect their format

and content differences. For example, the format of the MSDEQ I is multiple choice, with only one "correct" answer, whereas the format of the MSDEQ II records attitudes on a Likert scale. In addition, the content of MSDEQ I, described as "cognitive" by Parush and Clark (1988), addresses a mother's knowledge and ideas about an infant's specific capacities and developmental needs, whereas the content of MSDEQ II addresses a mother's attitudes about her perceived ability to influence her child's development. A third factor contributing to the change in MSDEQ IB scores from MSDEQ IA scores may suggest that the experience of getting to know her baby over a four-week period influences a mother's attitudes and knowledge in this area.

Although this study's findings demonstrated reliability over a one month interval, such findings will not be useful unless future studies show this instrument, or hopefully a more completely developed version of it, to be predictive of later infant/child developmental outcomes. There remains a need to conduct further testing of this instrument, and to determine if the scores of the MSDEQ in themselves will be predictive of maternal competence or child development as the authors intended. At this time therapists still cannot consider MSDEQ scores to be predictive of risk without further research.

Implications Regarding Validity

The MSDEQ did not demonstrate concurrent validity with the NPI II. The relationship was consistent in a negative direction. The Neonatal Perception Inventory (NPI), which is also used to assess a mother's perception of her baby, requires responses concerning interactional factors and possible infant behaviors which could indicate the need for further evaluation and observation. These interactional factors could have significant and far-reaching effects on the infant's development as well as the immediate psychosocial well being of mother and baby. Clarke-Stewart's (1973) findings demonstrated a high correlation between maternal responsiveness and measures of the infant's general competence and motivation. The mother's role as mediator of the infant's sensory stimulation lies largely in the degree of sensitivity and reciprocity in the infant-mother relationship, that is, in the interaction. Nurturance, emotional attachment, stimulation, state of arousal, behavior, temperament, reciprocity, and development are all interwoven for the infant. The infant's world and well-being is primarily in relationship with the mother as primary caregiver. The comparison of MSDEQ and NPI II scores raises the possibility that the MSDEQ does not adequately address affective, interactive factors. A specific strength of the NPI is that it measures a mother's positive or negative rating of her particular baby. This attribute, which asks a mother to compare her baby to her idea of an average baby may contribute to the predictive validity of the NPI.

It may be that a more developed version of the MSDEQ could be used in conjunction with other instruments, such as the NPI, to improve its scope and validity. Such a tool would be of important clinical value to pediatric occupational therapists who work with infants and their parents from a sensory integrative and developmental viewpoint. Therapists must be sure that any such screening tool would be sensitive to affective/relations factors between mother and infant as they are critical to the infant's ability to fulfill emotional, sensorimotor and mental developmental tasks and to receive appropriate sensory developmental stimulation.

Recommendations

The MSDEQ requires revision to increase its sensitivity to the factors of the maternal/infant relationship. The specific addition of items sensitive to the mother-infant interactional relationship has been suggested. Further content, item and format analysis are needed of the MSDEQ. Careful consideration is warranted to explore the questionnaire items needed to give necessary and crucial information to a therapist with a well researched focus on items that have been shown to be predictive of infant development, family health, and parent-child attachment. The test format, particularly of Part I of the MSDEQ has been critiqued. A re-examination of the value of focusing on very specific developmental agenda items has been suggested. These recommended changes in the content and format of the MSDEQ will require further concurrent validity studies with the NPI and other inventories

that measure the status of mother and infant such as the Assessment of Maternal-Infant Sensitivity (Price, 1983). Future studies are necessary to see if this study's findings could be replicated in a larger, more diverse population. Given the support found for the influence of age and education on MSDEQ scores (Parush and Clark, 1988), inclusion of broader age range and educational levels would enhance future reliability and validity studies.

It remains unknown what predictive value MSDEQ scores have. In addition, future longitudinal studies that track and compare the cognitive, sensory-motor, affective, and psychosocial development of infants with their mother's MSDEQ scores are needed.

Finally, further refinement and development of questions and content of the MSDEQ are required. More specifically, several MSDEQ questions suggest a need for greater content validity. For example, the MSDEQ Part II, question # 6 states, "By feeding my child and changing his diapers, I will provide his basic needs" followed by a Likert scale ranging from strongly agree to strongly disagree. It is unclear as to whether the authors are 1) stating that feeding and diaper changing are two of a range of basic needs, or whether 2) the statement implies that those two actions in themselves sufficiently provide for the infants basic needs without the need for anything else.

Another characteristic of the MSDEQ is that it reads like a test, especially in Part I, where there are definite right and wrong answers. The researcher questions the desirability of such an apparent "right/wrong" format. Respondents could be vulnerable to self-criticism or fears of inadequacy, or may anticipate judgment or criticism if they do not "test"

well. First time mothers may be particularly sensitive to an instrument that conveys a knowledge base that they might interpret as something they “should” know, when, indeed, some items are more technical than necessary. Part I, question # 19, “Do you think that a newborn can tell the difference between straight and curved lines?”, or question # 20, “At a distance of 10 inches, do you think that the 1- month - old infant can see 1/8 - inch wide stripes?”, may be more technical and specific than is necessary or useful.

Part I, question #18 states: “I will show my baby pictures: a. With one color, b. With many colors, or c. I don’t know”. “I don’t know” may imply that a mother has not specifically thought about that exact item. Important stimulation may occur because an infant is naturally included in family life, or because the mother-infant relationship is very responsive, and not because a mother has planned in advance whether or not she will have a specific agenda for providing her infant with stimulation as questions like the one above (#18) imply. Klaus and Kennell (1982) caution that “infant stimulation may be of concern if parents place greater emphasis on the protocols than their interaction with their babies.” Increasingly, professionals involved in maternal-child health care are moving from an emphasis on teaching the mother to teach skills to the infant, to focusing on enhancing the quality of the mother-infant interaction and attachment (Anderson, 1981; Anderson & Hinojosa, 1984; Anderson & Sawin, 1983; Bentovin, 1979; Bromwich, 1976, 1981; Crockenberg, 1981). “The prime-requisite for the infant's optimum development is a mutually satisfying relationship between mother and infant” (Bromwich, 1976) and is the most effective avenue for developmental intervention when possible. The

mother's role as mediator of the infant's sensory stimulation lies largely in the degree of sensitivity and reciprocity in the infant-mother relationship, in the interaction. Inclusion of variables that are sensitive to these influences may enhance the MSDEQ, and would be consistent with the other studies that have shown a relationship between the quality of mother-infant interaction and the infant's development (Ainsworth, 1969; Brazelton, 1973, 1984; Broussard & Hartner, 1970, 1971; Condon & Dunn, 1988; and Winnicott, 1960).

It would seem more pertinent to find out whether a new mother has positive regard for her infant, as the NPI is designed to measure, whether she believes her infant is intelligent and able to respond, and in need of her attention, love, interaction, and inclusion in family life. These general but critical prerequisites for healthy attachment as well as healthy sensory-motor development have been indicated in the literature review as being essential for therapists to address. The MSDEQ questions need to be reviewed, revised and supplemented with that in mind. Currently there seems to be too much emphasis on specific facts, with a need for coverage of the affective domain that the NPI provides. It is recommended that occupational therapists incorporate the NPI into their primary prevention screening and continue to explore its usefulness. Parents are also sensitive to being identified as "at-risk" or inadequate. Occupational therapists need to be very careful in discussing results of screening tests with parents. The therapist must also be careful to instill confidence and offer encouragement to parents and not to undermine the parent's self-esteem, confidence or role as the "experts" on their baby. New postpartum parents may already be

experiencing normal feelings of being overwhelmed or inadequately prepared for parenting and are vulnerable in the midst of this new and major life event. It becomes important not to confuse initial symptoms of being new in the parenting role with more long-standing problems, and parents may need support and reassurance that some of these feelings are normal.

It is very important to realize that the screening itself implies an intervention. While the initial screening tool may not in itself be comprehensive, it is crucial that it cover the important aspects that accurately signal a need for further assessment. If the initial screening tool omits critical screening factors that would determine the need for more in-depth assessment, then it must be used in conjunction with another inventory. In the case of the infant, one cannot effectively isolate components for developmental screening, although each discipline may be more expert and emphasize a different area in treatment. Nurturance, emotional attachment, stimulation, state of arousal, behavior, temperament, reciprocity, and development are all interwoven for the infant. The infant's world and well-being are primarily focused in the relationship with the mother as primary caregiver.

Because the NPI has been shown to be predictive of later psychosocial problems, and has also been linked to possible problems in parent-infant attachment, and because these are factors critical to the infant and child's ability to achieve developmental tasks, further examination of the NPI's usefulness to occupational therapists is warranted.

When administering screening tools to a normal population, the therapist is not screening someone "in treatment" but is using a wellness

model. The screening procedure must be brief, time and cost-efficient, and effective enough to earmark important areas for further testing if indicated. Increasingly, professionals are coming to realize that the screening must be non-invasive and not interfere with the mother-infant relationship.

It remains to be seen if the findings of this study would be replicated in a larger, more diverse population. Subjects' age and years of education have been found to influence MSDEQ scores (Parush and Clark, 1988). The inclusion of a broad range of subjects by age, years of education, and educational levels would enhance future reliability and validity studies. Any redevelopment and revision of the MSDEQ would need to be followed by extensive validity and reliability studies. It is recommended that thorough revision of the MSDEQ be undertaken and that the content, scope and format be improved before further studies are conducted. After pursuant reliability and validity testing, such a tool would then require thorough testing for predictive value by tracking infant and child development with appropriate physical, cognitive, sensorimotor and psychosocial developmental measures.

Summary

A reliability and validity study of the Mother's Sensory Developmental Expectation Questionnaire (MSDEQ) was conducted with 20 first-time mothers using survey methodology. A self-report screening instrument, consisting of two sections (Part I, II), the MSDEQ was developed to identify mothers at risk in their ability to provide an adequate sensory environment

for their newborns. Reliability was examined across a one month interval and validity by comparison to the Neonatal Perception Inventory (NPI II).

Findings indicated that the MSDEQ Part I, Part II, and MSDEQ total scores (Part I plus Part II) were each reliable from Time A to Time B. Results indicated a strong positive correlation ($r = 0.81$) between MSDEQ Total Time A scores and MSDEQ Total Time B scores, a moderate positive correlation between MSDEQ I Times A and B, and a strong positive correlation between MSDEQ II Time A and Time B scores ($r = 0.81$). T-tests indicated that no significant change occurred from Time A to Time B on MSDEQ Part I, Part II, nor Total Time scores. No significant relationship was demonstrated between MSDEQ and NPI II for the total sample; all correlations were found to have a negative direction. However, low NPI II scores ($< \text{or} = 0$) showed a moderate relationship with MSDEQ scores.

The author considers this study to be a preliminary test of MSDEQ reliability and recommends that the instrument not be considered reliable until it is tested on a larger, and more diverse sample. Because of the limitations identified and discussed in this study, the MSDEQ remains inadequate as an independent screening tool for practicing pediatric occupational therapists. The author strongly recommends that content validity be further explored with a particular emphasis on predictive value, and on including measures sensitive to the affective relationship of mother and infant. The author concludes that the MSDEQ cannot be used by occupational therapists without extensive revision and the scope broadened followed by reliability, validity and predictive testing. Further exploration is

needed to determine the validity, scope and predictive value of the MSDEQ compared to the NPI. Further exploration of the usefulness of the NPI to pediatric occupational therapists is warranted.

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APPENDIX A

**SAMPLE MOTHER'S SENSORY DEVELOPMENTAL
EXPECTATIONS QUESTIONNAIRE**

PART I:

1. What things did you prepare in advance for your baby?
 - a. Furniture
 - b. Clothing
 - c. Both a and b
 - d. Toys
 - e. Both c and d
2. At what age does a baby begin to see?
 - a. From birth on
 - b. After 30 days
 - c. After 40 days
 - d. I don't know
3. At what age does a baby begin to hear?
 - a. From birth on
 - b. 3 weeks after birth
 - c. 4 weeks after birth
 - d. I don't know
4. A baby cries because:
 - a. The baby is hungry
 - b. The baby is in pain
 - c. The baby is bored
 - d. Both a and b
 - e. All of the above
5. When would you hang a mobile over your child's bed for him to look at?
 - a. When he is born
 - b. When he reaches 2 months
 - c. When he reaches 6 months
 - d. When he is 1 year old
6. At what age can the child hear music?
 - a. As soon as he is born
 - b. From 3 weeks on
 - c. From 4 weeks on
 - d. Does not matter
7. When should a mother cuddle her child?
 - a. When he cries
 - b. When she is handling him (feeding/diapering)
 - c. At every opportunity
 - d. At set times during the day

8. When should a mother begin to speak to her child?
 - a. From birth on
 - b. When the child is 3 months old
 - c. When he begins to understand what is being said
 - d. Does not matter
9. Is it important for a 2-month-old baby to be played with as often as a 1-year-old child?
 - a. Yes
 - b. No
 - c. I don't know
10. Are infants aware of their environment?
 - a. Yes
 - b. No
 - c. I don't know
11. Can too much cuddling spoil a baby?
 - a. Yes
 - b. No
 - c. I don't know
12. Will you sing to your baby?
 - a. Yes
 - b. No, I don't have a good voice
 - c. No, it is not important
 - d. I don't know
13. Do babies like to be rocked?
 - a. Yes
 - b. No
 - c. I don't know
14. What will you do when your healthy baby cries after being fed and having his diaper changed?
 - a. Feed him again
 - b. Let him cry
 - c. Play with him
 - d. I don't know
15. Do you think it is important for babies to be rocked?
 - a. Yes
 - b. No
 - c. I don't know

16. When will you begin to talk to your child?
 - a. From birth on
 - b. When the child is 3 months old
 - c. When the child begins to understand what is being said
 - d. At 6 months
17. Is the newborn able to use his mouth to find an object that is touching him near the lips?
 - a. Yes
 - b. No
 - c. I don't know
18. I will show my baby pictures:
 - a. With one color
 - b. With many colors
 - c. I don't know
19. Do you think that a newborn can tell the difference between straight and curved lines?
 - a. Yes
 - b. No
 - c. I don't know
20. At a distance of 10 inches, do you think that the 1-month-old infant can see 1/8" wide stripes?
 - a. Yes
 - b. No
 - c. I don't know
21. Do you think that a 4-day-old infant would look longer at a picture of a real face rather than other pictures?
 - a. Yes
 - b. No
 - c. I don't know
22. Can the infant tell the difference between a human voice and any other sound?
 - a. Yes
 - b. No
 - c. I don't know
23. Will the infant suck differently when given sweet fluid rather than any other fluid?
 - a. Yes
 - b. No
 - c. I don't know

24. Can an infant tell the difference between his/her mother's smell and the smell of another woman?
- a. Yes
 - b. No
 - c. I don't know
25. Do you think that mothers should use baby words, for example, "goo-goo," with their infants?
- a. Yes
 - b. No
 - c. I don't know
 - d. It doesn't matter
26. Do babies like to be touched?
- a. Yes
 - b. No
 - c. I don't know
27. Can your child become spoiled by picking him up and holding him too much?
- a. Yes
 - b. No
 - c. I don't know
28. Nursing a child is important because:
- a. Mother's milk is very nutritious
 - b. The child receives sensory experience
 - c. Many doctors recommend it
 - d. Both a and b
29. The newborn is most sensitive to touch,
- a. On his hands
 - b. In his mouth
 - c. On the soles of his feet
 - d. On his stomach
30. A newborn holds his hands in a fist during the first 6 weeks of his life because:
- a. He is cold
 - b. He is hungry
 - c. It is a reflex
 - d. I don't know

PART II

Circle the answer that most closely matches your opinion.
There are no right or wrong answers.

1. There are right ways and wrong ways of stimulating the senses of the newborn:
 - a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
2. Seeing, hearing, touching, smelling, tasting, and moving is important for the development of intelligence:
 - a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
3. Seeing, hearing, touching, smelling, tasting, and moving is important for physical development:
 - a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
4. Seeing, hearing, touching, smelling, tasting, and moving is important for emotional development:
 - a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
5. Many children are successful because they are lucky:
 - a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
6. By feeding my child and changing his diapers, I will provide his basic needs:
 - a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree

7. Children who are good students were born smart:
- a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
8. I feel that I have little influence on my child's growth:
- a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
9. I feel that I have a lot of influence on my child's development:
- a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
10. Children become good students as a result of environmental experiences:
- a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
11. Being a successful parent depends on luck and a well-natured child:
- a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
12. Being a successful parent depends on his^{her} knowledge of child development and how to raise children:
- a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree

13. I intend to take time to think about the way that I can rearrange my child's environment:
- a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
14. The infant's ability to reach for objects depends upon the kinds of experiences that he gets during the first 3 months of his life:
- a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
15. I believe that rocking the child is important for the development of his nervous system:
- a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
16. I intend to take time to rock my child in my arms or by other means: (other means may include: cradle, rocking chair for example)
- a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
17. By providing my child with pictures, mobiles, and colored sheets, I will be influencing his development:
- a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
18. By providing my child with toys that he can touch and bring to his mouth, I will be helping him to learn about the world:
- a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree

19. My child's development is not affected by my selection of toys:
 - a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
20. The amount of movement my child gets will not affect his future development:
 - a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
21. My child's future development will not be affected by the amount and type of movement he receives as an infant:
 - a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
22. My child's life was determined at birth:
 - a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
23. My child's language development is not affected by hearing people talk:
 - a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree

MOTHER'S SENSORY DEVELOPMENTAL EXPECTATION
QUESTIONNAIRE (M.S.D.E.Q.)

ANSWER KEY

PART I - Cognitive Subscale
Score one point for each correct response.

1. e	11. b	21. a
2. a	12. a	22. a
3. a	13. a	23. a
4. e	14. c	24. a
5. a	15. a	25. b
6. a	16. a	26. a
7. c	17. a	27. b
8. a	18. b	28. d
9. a	19. a	29. b
10. a	20. a	30. c

PART II - Affective Subscale

A. For questions keyed as "nurture", the rating is as follows:

- a) strongly agree + 2
- b) agree + 1
- c) neutral 0
- d) disagree - 1
- e) strongly disagree - 2

B. For questions keyed as "nature", the rating is as follows:

- a) strongly agree - 2
- b) agree - 1
- c) neutral 0
- d) disagree + 1
- e) strongly disagree + 2

Add individual item scores to obtain total subscale score.

1. Nurture	6. Nature	11. Nature	16. Nurture	21. Nature
2. Nurture	7. Nature	12. Nurture	17. Nurture	22. Nature
3. Nurture	8. Nature	13. Nurture	18. Nurture	23. Nature
4. Nurture	9. Nurture	14. Nurture	19. Nature	
5. Nature	10. Nurture	15. Nurture	20. Nature	

APPENDIX B

SAMPLE NEONATAL PERCEPTION INVENTORY I AND NEONATAL PERCEPTION INVENTORY II WITH PROTOCOL

TABLE 1
Administering the NPI

1. The mother is told "We are interested in learning more about the experiences of mothers and their babies during the first few weeks after delivery. The more we can learn about mothers and their babies, the better we will be able to help other mothers with their babies. We would appreciate it if you would help other mothers by answering a few questions."
2. The mother is given the "average baby" form.
3. The individual administering the inventory says: "Although this is your first baby, you probably have some ideas of what most little babies are like. Please check the blank you *think* best describes what most little babies are like."
4. The examiner remains with the mother during the entire procedure. When the mother has completed the average baby form, the examiner takes it from the mother and gives the mother the your baby form.
5. At Time I (first or second day postpartum) the tester instructs the mother as follows: "While it is not possible to know for certain what your baby will be like, you probably have some ideas of what your baby will be like. Please check the blank that you *think* best describes what your baby will be like."
6. At Time II (1 month of age) the tester gives the following instructions: "You have had a chance to live with your baby for one month. Please check the blank you think best describes your baby."

TABLE 2
Scoring the NPI

1. Each behavioral item is scored on a 5 point scale ranging from "a great deal" (5 points) to "none" (1 point).
2. NPI scores are obtained by adding the numerical scores for each item and subtracting the total score of the "your baby" inventory from the total score of the "average baby" inventory. The difference between the two scores represents the NPI score.
3. A positive score indicates a favorable perception of the infant; a negative score indicates a less favorable perception.
4. An infant with minus or zero scores is at risk for subsequent developmental problems. An infant with a plus score has been rated as better than the average baby and is at low risk.

Note: Based on the original study involving 318 primiparas delivering normal, full-term, single births, total scores range from 7 to 23 out of a possible score of 6 to 30, and differences between the scores range from +9 to -9. In addition, both inventories have shown both construct and criterion validity.

(Broussard, 1978)

AVERAGE BABY

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

How much crying do you think the average baby does?

a great deal a good bit moderate amount very little none

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

a great deal a good bit moderate amount very little none

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

a great deal a good bit moderate amount very little none

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

a great deal a good bit moderate amount very little none

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

a great deal a good bit moderate amount very little none

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

a great deal a good bit moderate amount very little none

Form A₁

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YOUR BABY

While it is not possible to know for certain what your baby will be like, you probably have some ideas of what your baby will be like. Please check the blank that you think best describes what your baby will be like.

How much crying do you think your baby will do?

a great deal a good bit moderate amount very little none

How much trouble do you think your baby will have feeding?

a great deal a good bit moderate amount very little none

How much spitting up or vomiting do you think your baby will do?

a great deal a good bit moderate amount very little none

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

a great deal a good bit moderate amount very little none

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

a great deal a good bit moderate amount very little none

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

a great deal a good bit moderate amount very little none

Form B₁

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AVERAGE BABY

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

How much crying do you think the average baby does?

<u>a great deal</u>	<u>a good bit</u>	<u>moderate amount</u>	<u>very little</u>	<u>none</u>
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How much trouble do you think the average baby has in feeding?

<u>a great deal</u>	<u>a good bit</u>	<u>moderate amount</u>	<u>very little</u>	<u>none</u>
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How much spitting up or vomiting do you think the average baby does?

<u>a great deal</u>	<u>a good bit</u>	<u>moderate amount</u>	<u>very little</u>	<u>none</u>
---------------------	-------------------	------------------------	--------------------	-------------

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

<u>a great deal</u>	<u>a good bit</u>	<u>moderate amount</u>	<u>very little</u>	<u>none</u>
---------------------	-------------------	------------------------	--------------------	-------------

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

<u>a great deal</u>	<u>a good bit</u>	<u>moderate amount</u>	<u>very little</u>	<u>none</u>
---------------------	-------------------	------------------------	--------------------	-------------

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

<u>a great deal</u>	<u>a good bit</u>	<u>moderate amount</u>	<u>very little</u>	<u>none</u>
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Form A₂

© 1964, Elsie R. Broussard, M.D.

YOUR BABY

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

How much crying has your baby done?

<u>a great deal</u>	<u>a good bit</u>	<u>moderate amount</u>	<u>very little</u>	<u>none</u>
---------------------	-------------------	------------------------	--------------------	-------------

How much trouble has your baby had feeding?

<u>a great deal</u>	<u>a good bit</u>	<u>moderate amount</u>	<u>very little</u>	<u>none</u>
---------------------	-------------------	------------------------	--------------------	-------------

How much spitting up or vomiting has your baby done?

<u>a great deal</u>	<u>a good bit</u>	<u>moderate amount</u>	<u>very little</u>	<u>none</u>
---------------------	-------------------	------------------------	--------------------	-------------

How much difficulty has your baby had in sleeping?

<u>a great deal</u>	<u>a good bit</u>	<u>moderate amount</u>	<u>very little</u>	<u>none</u>
---------------------	-------------------	------------------------	--------------------	-------------

How much difficulty has your baby had with bowel movements?

<u>a great deal</u>	<u>a good bit</u>	<u>moderate amount</u>	<u>very little</u>	<u>none</u>
---------------------	-------------------	------------------------	--------------------	-------------

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

<u>a great deal</u>	<u>a good bit</u>	<u>moderate amount</u>	<u>very little</u>	<u>none</u>
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© 1964, Elsie R. Broussard, M.D.

Form B₂

APPENDIX C

DESCRIPTIONS OF
BRAZELTON NEONATAL BEHAVIORAL ASSESSMENT SCALE
NEONATAL PERCEPTION INVENTORY
BAYLEY SCALE OF MENTAL DEVELOPMENT
ASSESSMENT OF MOTHER-INFANT SENSITIVITY

Brazelton Neonatal Behavioral Assessment Scale--BNBAS: A commonly used measure of social-interactive responses in the neonate (Brazelton, 1973). This scale is designed to look at both the neurological and interactional functioning of a neonate during the first month of life (Clark, Allen, Coley, & Schanzenbacher, 1985).

Neonatal Perception Inventory--NPI: A 12-item questionnaire, containing one section evaluating the mother's beliefs about the difficultness of her "Own Baby" in comparison to an "Average Baby" in the areas of crying, feeding, sleeping, spitting up, elimination, and a section on predictability of behavior pattern (Broussard & Hartner, 1970).

Bayley Scale of Mental Development: A subtest of the Bayley Scales of Infant Development, developed by N. Bayley (1969), that establishes an infant's current status in relation to others of the same age. The test was standardized on children, aged 2-30 months.

Assessment of Mother-Infant Sensitivity--AMIS: A scale measuring the quality of early mother-infant interactions by observing maternal-infant interactive behavior during a feeding session within the first quarter year postpartum (Price, 1983).

APPENDIX D

TEXTS FOR FLYER AND AD

Text for flyers.:

EXPECTING YOUR FIRST BABY SOON ???

First time mothers wanted to participate in a study about mothers' attitudes and perceptions. Participation involves completing two brief questionnaires. Results will be used to contribute toward improvement in maternal/infant health care. Your participation is valued and appreciated. For more information, call Jan 429-8940.

Text for ad appearing in THE DOULA, a local mothering magazine:

**Attention Childbirth Educators, Childbirth Assistants, Midwives,
& Expectant Mothers:**

I am doing a study about first time mother's perceptions and expectations, and am seeking participants. Women expecting their first child are asked to complete two brief questionnaires. Results will be used to contribute toward improving maternal/infant healthcare. Your participation is valued and appreciated. For more info, please call Jan Hiley-Young, (408) 429-8940.

APPENDIX E

INFORMED CONSENT LETTER

A campus of The California State University

School of Applied Arts and Sciences • Department of Occupational Therapy
One Washington Square • San Jose, California 95192-0059 • Main Office: 408/924-3070 • Fieldwork Office: 408/924-3078

AGREEMENT TO PARTICIPATE IN RESEARCH SAN JOSE STATE UNIVERSITY

RESPONSIBLE INVESTIGATOR: Jan Hiley-Young

TITLE OF PROTOCOL: MOTHERS' ATTITUDES REGARDING NEWBORNS AND CHILDREARING

I have been asked to participate in a research study that is investigating first-time mothers' attitudes. The results of this study should help healthcare givers in their work with mothers and infants.

I understand that

- 1) I will be asked to complete 3 questionnaires regarding my attitudes on infants and childrearing. The first questionnaire will be given to me to complete now and second and third questionnaires will be mailed to me to complete 4-6 weeks after my child's birth. The second and third questionnaires will be sent to me with pre-addressed, postage-paid envelopes to make them easy to return. Filling out the first and second questionnaires will take approximately 10-15 minutes each. The third questionnaire will take approximately 5 minutes to complete.
- 2) The results from this study may be published, but any information that can be identified with me will remain confidential and will be disclosed only with my permission or as required by law. All responses will remain anonymous and will be processed anonymously.
- 3) Any questions about my participation in this study will be answered by Jan Hiley-Young at 408-429-8940. Complaints about the procedures may be presented to Lela Llorens, Ph.D., graduate advisor, Department Chair, Department of Occupational Therapy, at 408-924-3070. For questions or complaints about research subjects' rights contact Serena Stanford, Ph.D., Graduate Studies (Associate Academic Vice-President for Graduate Studies), at 408-924-2480.
- 4) My consent is given voluntarily without being coerced; I may refuse to participate in this study, or in any part of this study, and I may withdraw at any time, without prejudice to my relations with San Jose State University or my healthcare provider.
- 5) I have received a copy of this consent form for my file.

I HAVE MADE A DECISION WHETHER OR NOT TO PARTICIPATE. MY SIGNATURE INDICATES THAT I HAVE READ THE INFORMATION PROVIDED ABOVE AND THAT I HAVE DECIDED TO PARTICIPATE.

DATE

SUBJECT'S SIGNATURE

INVESTIGATOR'S SIGNATURE

APPENDIX F

LETTERS TO MOTHERS

TIME A AND TIME B

Dear First Time Mother:

Your assistance in completing the attached questionnaire in which we ask you to tell us what you know and what you think about newborn infants is greatly appreciated. This questionnaire will take you approximately 10 -15 minutes to complete.

For each of the questions, please mark the one response that is most close to your opinion. Please answer all questions. All of your responses will be kept confidential. Your participation is most helpful.

The following information will be used only to determine the type of subjects who are participating in this study. Your name, address and phone number will be used only for the purpose of giving you the follow-up questionnaire when your baby is 4 weeks old. All information received is strictly confidential. All forms will be coded and processed anonymously. You are free to withhold any, or all information you feel necessary.

Name:

Age:

Address:

Phone:

Ethnic background

____Hispanic-American ____Asian ____Black
____Caucasian ____Other:_____

Circle highest level of education:

Grade School

High School

Business college or trade school

Junior college

College or University

Professional or graduate school

Years of education:

Dear _____,

Enclosed is the 2nd questionnaire of the first time mothers' study that I am conducting. Please complete it when your baby is 4 weeks old and return it as promptly as you can in the enclosed postage paid envelope. This questionnaire will take you approximately 10-15 minutes to complete.

Thank you very much for participating in this study. It couldn't be done without mothers like yourself who are willing to share your perceptions and opinions. Please feel free to include any comments on this questionnaire on the back of the last page. If you have any questions I can be reached at (408) 429-8940. I hope you and your baby are doing well.

Sincerely,

Jan Hiley-Young

APPENDIX G

POSTCARDS TO MOTHERS

Reminder #1

Dear _____

Thank you for your participation in the study of Mother's Attitudes regarding child rearing and parenting. Your participation will contribute to efforts to benefit infants and mothers. By now I hope you have received the follow-up questionnaire in the mail. This is a reminder to return the forms. To be included in this study we need to receive your questionnaire as soon as possible. If you need a replacement questionnaire or if you have any questions or concerns, feel free to call me at 408-429-8940. If you have already sent your questionnaire, please disregard this reminder.

Thank you,

Jan Hiley-Young

Reminder #2

Dear _____

Your response to the Mother's attitudes questionnaire has not been received. We would very much like to include your response in the study. We have reached our deadline, and your forms are needed as soon as possible. If I can help you in any way, please call me at 408-429-8940. Thank you for your participation.

Sincerely,

Jan Hiley-Young

APPENDIX H

SCRIPT OF TELEPHONE CALL

Reminder #3

Phone Call

Hi. This is Jan Hiley-Young. I am the graduate student who is conducting the study on mother's attitudes that you participated in after the birth of your baby. I am calling because I have not received your 4 week follow-up questionnaire. Can I send you a new one ?

APPENDIX I

LETTER OF DISCLOSURE TO MOTHERS

A campus of The California State University

School of Applied Arts and Sciences • Department of Occupational Therapy
One Washington Square • San José, California 95192-0059 • Main Office: 408/924-3070 • Fieldwork Office: 408/924-3078

Dear

I would like to take this opportunity to thank you once again for taking the time at such a precious and busy time in your life to participate in the First Time Mothers Study. I value your contribution and welcome any comments/feedback you might have regarding the questionnaires.

In order to refrain from influencing questionnaire results I was not able to fully disclose the specific objective of this study, although I was able to share the general topic and goal. Now that the data collecting is completed I am able to share full details of the study with participants.

The questionnaires you completed are named the Mother's Sensory Developmental Expectation Questionnaire (MSDEQ) (Parush and Clark, 1988) and the Neonatal Perception Inventory (NPI) (Broussard, 1979). The MSDEQ is a new screening tool in need of further testing. This study is designed to learn if scores at 1 month postpartum will differ from scores at 3 days postpartum. MSDEQ scores will be compared to NPI scores.

The underlying purpose of this study is to contribute to improvements in maternal/infant healthcare by developing good screening tools and by promoting an approach to healthcare that values, supports, and facilitates a positive mother/infant relationship as an essential basis for optimal infant development.

You may contact me at (408) 429-8940 if you would like further information about the results when this study is concluded. I wish you and your baby well.

Sincerely,

Jan Hiley-Young