Child Temperament and the Mother-Toddler Interactional Quality in Relation to the Development of Sociobehavioral Competence in Twelve-Month-Olds

By

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ABSTRACT

TITLE: Child Temperament and the Mother-Toddler Interactional Quality in Relation to the Development of Sociobehavioral Competence in Twelve-Month-Olds

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Research demonstrates that the evolution of psychopathology often has its beginnings in early childhood, during the crucial development of self. This study sought to specifically address variables delineated as having implications for psychiatric risk according to the transactional model of development: the qualities of the child and the caretaking environment. In this study the child's contribution of interest was temperament, and the caretaking environment was examined through the mother-child interaction.

Based on the transactional model of development and the interactionist perspective temperament, the study was guided by the assumptions that a child's inherent temperamental style interacted with the temperamental style of the major caretaker to produce an interaction of significance to the child's social development. An optimal "goodness to fit" would result in the health development of self, evident in an appropriate and adequate self-esteem.

The sample consisted of mother-child pairs (n=98) observed in laboratory setting for evaluation of interaction using the Nursing Child Assessment Scale. Temperament was evaluated by maternal report using the Toddler Temperament Scale an evaluation of the outcome of competence was done using the Adaptive Social Behavior Inventory.

Results indicated that child temperament in and of itself did not adversely affect the mother-child interaction as determined at observation at 12-months. A preditive relationship was found between quality of the mother-child interaction and sociobehavioral competence. The strongest prediction of child competence, however, came from the combination of temperament and interaction, with difficult temperament and poor interactive quality predicting less optimal sociobehavioral competence. These results have serious implications for early intervention with the family and evidences the need to strengthen the mother-chid interactive quality.

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CHAPTER I: INTRODUCTION

The current social climate, with its increase in crises often linked to psychological disorder, has created an impetus for the study of the origins of psychopathology. This study sought to appropriately understand the problem with the hope that it will make clearer the search for the solutions.

Statement of the Problem

Recent studies indicate that the prevalence of emotional and behavioral disorders among adolescents is highly significant. Rates have been found to be between 22-25% (McGee, Feehan, Williams, Partridge, Silva, and Kelly, 1990; Fergusson, Horwood, and Lynskey, 1993). With evidence that the conduct disorders of childhood and adolescence lead directly to externalizing disorders in adulthood (Robins &Price, 1991), it seems important, for the sake of prevention and prompt intervention, to look at the earliest factors that lead to psychopathology.

Research demonstrates that the evolution of psychopathology often has its beginnings in early childhood, during the crucial development of self. A salient period for the development of self is the time of transition into toddlerhood. The healthy development of self is evident in a child's sense of competence and an adequate self-esteem. There are a number of variables that can affect the development of self-esteem in children. This study, however, sought to specifically address a few that have been delineated as having implications for psychiatric risk according to the transactional model of development: The qualities of the child and the caretakeing environment (Sameroff & Chandler, 1975). In this investigation, the child's contribution of interest was temperament, and the caretaking

environment was examined through the mother-child interaction.

Background

Rutter (1987) summarized the historical contributions to the more recent understandings of temperament and development. Among those contributions that he pointed to are Pavlov's 1927 work on the typology of the nervous systems, Sheldon's 1942 study of body types and temperament, and Gessell's early studies of children's behavioral attributes done in 1937. He concluded that these were the pioneering investigations that, coupled with more recent research on temperament, produced a focus on the following themes: 1) individual differences in development rather than normative trends; 2) the child as an active agent who shapes his own environment as well as being influenced by his circumstances; 3) possible neurobiological bases for behavior, including genetic influences; and 4) socioemotional, rather than cognitive, aspects of development.

Thomas and Chess (1977) were impressed by the inadequacy of the dominant concepts in the etiology of behavior disorder. Through their research findings, they were able to demonstrate the link between temperament environmental influences. They arrived at the conclusion that healthy development depended to a great degree on the"goodness of fit" between the child's temperament and the social environment. This view is shared by Sameroff and Chandler (1975) who pointed out that a child's temperament is a significant contributor to psychiatric risk when placed in the context of caretaking environment that is unable to cope with that temperament.

Further impacting these issues are the dynamics of toddlerhood. According to the

Ericksonian stages of development, toddlerhood is the time when autonomy and individuation is a critical task. Self-system proponents emphasize three fundamental psychological needs from infancy to toddlerhood: autonomy, competence, and relatedness (Connell, 1990).

Drawing on some of the afore mentioned works (and others), Houck's (1992) 5-year longitudinal study is currently in process. This work formed the context and most pertinent background for the current study. The longitudinal project on mother-toddler interaction has three specific aims; 1) to describe the nature and quality of mother-child control-salient interactions during the transition to toddlerhood; 2) to examine the relationship of individual maternal and child characteristics to the quality of mother-child control-salient interactions; and 3) to examine the relationship between the quality of mother-child interactional behavior and the child's sociobehavioral competence and sense of control. From this larger study, the present secondary analysis was derived.

Conceptual Framework

The theoretical frame work under which the assumptions of this study were operationalized is the transactional model of development as proposed by Sameroff and Chandler (1975). According to this model, the child is an active participant in his/her own growth and attempts to exert some influence or exercise some control over his environment. The assumption here is that the natural developmental processes of a child encourage adaptation to his/her world. However, some persistent malfunction and/or a series of malfunctions through the child's development can prevent normal adaptation to the

environment and, as such, can place the child at a greater psychiatric risk.

The major influential factor in a child's development is the environment, specifically the caretaking environment. Sameroff and Chandler described the range of deviant outcomes that could be attributed to poor parenting and termed it the 'continuum of caretaking casualty'. From this perspective, the importance of the mother-child interaction becomes abundantly clear, not only to the child's social adaptation but to long-term interactional qualities the child will develop. Given the focus of this study on temperament, it was necessary to consider a similar perspective put forward by Thomas and Chess (1977) which they called an interactionist position. They stressed that temperament is never considered by itself but always in interaction with the individual's abilities and motives as well as the external environmental stresses and opportunities. They asserted that the interactive process "produces certain consequences in behavior, which then interact with recurrent and new features of the environment to reinforce certain previous patterns, or attenuate some, or produce new behavioral characteristics, or all three."

Both perspectives informed the current study. The transactional model provided an understanding of the overall direction of the investigation. The interactionist position brought meaning to the temperament issues and hypothesis of the study.

CHAPTER II: REVIEW OF THE LITERATURE

Overview

The following review of related literature covers the most pertinent concepts related to the study. It is divided into three sections. The first section is toddlerhood. It covers the salient issues of this developmental time period and presents theory on three psychological tasks--autonomy, relatedness and competence. The second section covered the concept of temperament. It is defined and explored using the classic literature as well as more recent work. The categories and constellations of temperament according to Thomas and Chess (1977) are delineated. Finally, the mother-child interaction is addressed with an emphasis on its importance to the transitioning toddler and his/her development of self.

Toddlerhood

At the end of a child's first year, the achievement of locomotion is significant in that it brings with it a degree of emerging individuality and changes the relationship between the child and his/her caretakers (Vaughn & Litt, 1990). The interest in play and exploration is high and the increasing willingness to leave mother's side enables a "taking in" of the environment as well (Harris & Liebert, 1984). Kagan (1981) asserted that, during toddlerhood, children behave as if they are acquiring a new set of functions among which is an awareness of the self's behavioral effectiveness.

According to Connell (1990), there is a development of self-system processes that occurs at this stage for which caretaker-child relationship is of central importance. The relationship referred to here will be explained more fully in a later part of this paper. Self-

systems processes include developmentally salient tasks based on three psychological needs-autonomy, relatedness, and competence.

Autonomy is probably the best known salient issue of toddlerhood and the transition into toddlerhood. Connell (1990) reflected on Mahler's discussion of individuation and Erickson's discussion of autonomy as it fits with his own definition, i.e.,"the need to experience ones self on the locus of initiation, maintenance, and regulation of activity." The child experiences a growing awareness not only of the caretaker's separateness but also of the power to negate the action of others.

In looking at the antecedents of self-regulation, Kopp (1982) takes on a developmental perspective. She points out that the third phase, called control, covers the 9-12 to 18+ months of a child's development of regulating behavior. Self-initiated behavior is demonstrated and is a sign of self-hood and autonomy. Compliance, another aspect to this phase of self-regulation, has been demonstrated to be related to the quality of the mother-child relationship (Stayton et al, 1971).

The relatedness concept stems from the work of attachment theorists such as Bowlby and Ainsworth who, as Connell noted, stressed the importance of relatedness to the experience of infancy and toddlerhood. A depiction of the need for relatedness can be seen in a child's attempts to gain proximity to and contact with his or her caretaker. Based on the responsiveness of the caretaker to this need, the child appraises the caretaker's "availability" (Connell, 1990).

Competence is the third developmentally salient psychological need. Little is researched on this aspect as a developmental need (Connell, 1990). However, according to

Connell, competence is a child's need to effect change in his physical surroundings which is, indeed, exerting influence over the caretaker. It can be understood, then, that this is a measurable reflection of both the aforementioned issues of autonomy and relatedness and is a significant indicator of developing self-esteem (Cotton, 1983; Givelber, 1983).

Temperament

Temperament has been identified as a child characteristic that significantly contributes to the mother-child interaction. Several definitions have evolved over the past few decades along with the increased interest in understanding this concept. Thomas and Chess (1977), best known for their work on the New York Longitudinal Study (NYLS) dealing with temperament, have equated this concept to the term behavioral style which can be considered a broad definition of temperament. Important to note is that both have to do with the *how* of behavior rather than the *what* or the *why* of behavior. More specifically, however, Bates (1980) defined temperament as follows: (a) it has a constitutional basis; (b) it appears in infancy and shows some degree of continuity; (c) it is an objectively definable characteristic of an individual; and (d) it is affected by the environment. This appears to be the best working definition for use in this study.

It should also be pointed out that there is a considerable amount of disagreement on the relation of personality to temperament. The theories range from belief that temperament is an early personality trait (Buss & Plomin, 1984) to the understanding that personality and temperament are separate and different phenomenon (Rutter, 1987). Rothbart held the view that personality is inclusive of temperament along with a number of other variables

(Goldsmith et al., 1987). This was the stance taken within the present study, implying that the term temperament should not be misunderstood or generalized to mean personality.

Various theorists have utilized an array of terms to describe the elements of temperament. Goldsmith (1987) confined his to emotionality, Rothbart (Goldsmith et al, 1987) to reactivity and inhibition dimensions, and Buss and Plomin (1984) referred to emotionality, activity and sociability. The categories that were used for this study entailed those provided by Thomas and Chess (1977) that include the following: Activity level, rhythmicity, approach-withdrawal, adaptability, threshold of responsiveness, intensity of reaction, quality of mood, distractibility, attention span and persistence.

Activity level represents the motor component of a child's functioning. It not only includes information on motility during bathing, eating, playing, dressing and handling, but is also reflective of the sleep-wake pattern, reaching, crawling, and walking. The category of rhythmicity refers to the predictability and/or unpredictability of timing in the execution of any function. It is determined in relation to the sleep-wake cycle, hunger, feeding pattern, and elimination schedule. Approach or withdrawal describes the nature of the initial response to a new stimulus. The stimulus could be a new food, toy, or person. The responses are either displayed in mood or activity. Positive mood expression (smiling, positive verbalizations, etc.) or motor activity (swallowing food, reaching for toy, active play, etc.) indicate approach. Withdrawal reactions would be seen in negative mood expressions (crying, fussing, grimacing, etc.) or motor activity (moving away, spitting out food, pushing toy away, etc.).

The category of adaptability is reflective of a child's response to a new or altered

situation. It differs from the previous category of approach/withdrawal in that the concern is not with initial responses but with the ease of modification of initial responses in desired directions. The intensity level necessary to evoke a discernible response, whether it be positive or negative, is captured in the category of threshold of responsiveness. The behaviors considered for this category are those reactions to sensory stimuli, environmental objects, and social contacts. Along the same vein, the energy level of response would indicate the intensity of reaction. The category of quality of mood would specifically refer to the amount of pleasant or positive behavior in contrast to negative behavior. The effectiveness of an extraneous environmental stimuli in distracting a child from an ongoing behavior is represented in the category of distractibility. The final category of attention span and persistence signifies the length of time a particular activity is pursued by a child and the maintenance of the activity in the face of obstacles.

Thomas and Chess (1986) further classified these traits into three constellations that characterized the easy child, the difficult child, and the slow-to-warm-up child. According to their groupings, the easy child was one who displayed regularity, positive approach, high adaptability and mild or moderate intensity. In contrast, the difficult child is irregular in his functions, displays negative withdrawal responses, shows nonadaptability or slow adaptability and their intense mood expressions are frequently negative. The third constellation of slow-to-warm-up temperament differs from the difficult child in that reactions are of a milder intensity and they are less irregular in their biological functions.

There is much research to support the notion that temperament is heavily influenced by environment. In the NYLS, temperament was never considered by itself but was

considered along with the individual traits and abilities of the child as well as in interaction to the environment. Also, the temperament may be influenced by continuities and discontinuities of various psychological characteristics apparent at new age-stage developmental periods of the individual (Thomas & Chess, 1977). This supported Henderson's view of the concept of "goodness of fit" as cited in the NYLS work, which theorized that optimal development occurs when the properties of the environment--along with its expectations and demands--are in accord with the organism's own capacities, characteristics, and style of behaving.

With an understanding of what influenced temperament in infancy, this study examined what it affects. At this developmental stage, temperament primarily affects the mother's responses to the child and ultimately the mother-child interaction (which will be discussed further in the next section of this literature review). Of clinical concern was that a significant outcome to that interaction between temperament and environment is the development of behavior disorder in children (Graham, Rutter, & George, 1973; Thomas & Chess, 1977; Mehregany, 1991), major depression in 11 to 16 year olds (Goodyer, Ashby, Altham, Bize, & Cooper, 1993), and poor adjustment in your adulthood (Tubman, Lerner, Lerner, & von Eye, 1992). The temperamental features of activity level, autonomic reactivity, behavioral inhibition, and sociability have been well demonstrated to have implications for later development and for psychiatric risk (Rutter, 1987).

The stability of temperament over time is an important question to this analysis. Thomas and Chess found it difficult to track the consistency of temperament both due to methodological problems as well as the discontinuity of environmental factors. However,

recent studies have been successful at addressing this issue. Although Rutter (1987) concluded that temperament showed stability only after the preschool years, other research (Matheny, Wilson, & Nuss, 1984) has shown that toddler temperament is stable over ages and across settings. Pedlow, Sanson, Prior and Oberklaid (1993) have demonstrated that stability of a number of temperamental characteristics from infancy to 8 years. Results of their study indicated that approach, irritability, cooperation-manageability, inflexibility, rhythmicity, and persistence factors showed substantial continuity.

Mother-child Interaction

Literature abounds with the importance of the caregiving environment to the development of self. Sroufe (1990) refers to a caregiving matrix which he described as a dyadic organization that exists prior to the emergence of the self. He formulated an organizational perspective on the development of self and asserted, "the self should be conceived as an inner *organization* of attitudes, feelings, expectations, and meanings, which arises itself from an *organized* caregiving matrix which has *organizational* significance for ongoing adaptation and experience."

In the critical months of exploration and growing autonomy the dyadic interaction has been found significant--the child must have affirmation of the caregiver's availability. Sroufe (1990) cited the classic works of Mahler and Ainsworth that refer to the mother (at this period of their child's development) as being "home base" or "secure base". He described the child as exploring the environment and needing the assistance, reassurance, and comforting of the caregiver when feeling fatigued or threatened. Only then can the child return to

organized exploration. Positive affect is also routinely shared with the caregiver. Thus, with the caregiver as context, the child's development of affect, cognition, and social behavior are smoothly coordinated. The emergence of goal-directed behavior suggest the advances in inner organization as well. This is the core of what will become self (Sroufe, 1990).

It is well known in attachment theory that an appropriate dyadic fit results in securely attached children where as the poor fit often results in avoidant children. Observational data has produced evidence that the securely attached infants turn out to be young children who are independent, resourceful, curious, and confident in their approach to the environment. In contrast, those with avoidant histories are lacking self-reliance and seem highly emotional (Sroufe, 1990). Sroufe (1990) suggests that when the caregiver is chronically unavailable, the infant comes to feel unworthy of care and this affects self-esteem.

In Connell's (1990) model of self-system processes mentioned earlier, the same principles are evident and the development of autonomy, relatedness, and competence are described within the context of the child-caretaker relationship. Connell (1990) identified three dimensions of social context for the transitioning toddler: structure, autonomy support, and involvement. Structure reflects the contingent and consistent response of the caregiver to the child's behavior which is generally a bid for relief of distress, proximity and contact, and affective information (Connell, 1990). The autonomy support is also the responsiveness of the caregiver in the regulation of the toddler's ongoing activity. Here also the caregiver should be consistent and contingently interpret the needs and intentions of the child while using minimal control (Connell, 1990). The third dimension of involvement refers to the time spent, by the caregiver, in close and positive emotional proximity with the child, seeking

knowledge about the child's characteristics and capacities (Connell, 1990). In describing these three dimensions, Connell effectively highlights the importance of caregiver (in this study, the mother) responsiveness and sensitivity.

Although the responsibility for structuring and mediating the environment lies with the mother due to the young child's inability to do so, it is necessary to point out that mothers and children jointly create their environment; it is the transactional nature of the ongoing dyadic relationship (Gross, 1989). The contribution of the child's temperament cannot be overlooked as insignificant. This is pointed out by Thomas and Chess(1975) who stated, "The effect of the child's specific temperament on the parent can take many directions depending on the latter's personality structure, goals and expectations for the child, and on socioeconomic opportunities and constraints. The effect of the parents attitudes and practices on the child can also be varied, depending on the latter's specific style of response and adaptation" (p.69). Thomas and Chess (1975) did not provide any statistical data regarding the effect of child temperament on parent. They have, however, provided several illustrations from their famous NYLS that support their thesis of a constantly active and evolving reciprocal process between parent and the child's temperament.

Research exists that supports the theory that maternal perception of child temperament affects the dyadic interaction (Lee & Bates, 1985; Houldin, Fullard, & Heverly, 1985; Gross, Conrad, Fogg, & Wothke, 1994). Houldin et al. (1985) found that a more optimal home environment was provided by a mother who perceived her child as easier than average as opposed to a mother who perceived her child as about average or more difficult than average. The findings of Lee and Bates (1985) were more alarming in that mothers who

perceive their children as difficult at 24 months used intrusive control tactics more often than mothers of easy or average children. The researchers believed that this conflictual interaction represented an empirically based link between difficult infant temperament and the development of problem behavior.

Summary

Based on the transactional model of development and the interactionist perspective of temperament, several assumptions guided the study. First, a child is considered to inherently possess a temperamental style that interacts with the environment in which he/she exists. A major part of that environment is the caretaker whos temperament, along with the child's, produces an interpersonal interaction of significance both to the child's social development as well as later caretaker-child interactional processes. During the transition to toddlerhood, the interaction optimally fosters autonomy as well as relatedness which is developmentally reflected in sociobehavioral competence. An optimal "goodness of fit" between child temperament and environment yields a healthy development of self, evident in an appropriate and adequate self esteem. Based on these assumptions, the purpose of this study was to examine the relationship of child temperament to mother-child interaction and to explore the relationship of the quality of interaction to the child outcome of self-esteem.

Research Questions and Hypotheses

The research questions addressed by this study were:

1. What is the relationship of child temperament to the mother-child interaction?

2. What is the relationship of the mother-child interaction to the developmental outcome of self-esteem?

For the purpose of analysis, hypotheses derived form the review of literature gave direction to these research questions and have been formulated as follows:

1. Difficult temperament affects the quality of the mother-child interaction in a negative way.

2. A good quality mother-child interaction will result in a positive (or high) self-esteem as evidenced in level of competence.

CHAPTER III: METHODS

The purpose of this investigation was to examine the relationship between child temperament and the mother-child interaction as well as the relationship between the quality of the interaction to the child outcome of self-esteem. This analysis is part of a larger 5-year longitudinal study being conducted by Houck (1992) which is currently in process. The design of the larger study is aimed at describing mother-child interactions that contribute to the child's development self-esteem during the transition to toddlerhood.

The 12-month child evaluation for this study included measurement of temperament and measurement of sociobehavioral competence (reflective of child self-esteem). The assessment of temperament and sociobehavioral competence were in the form of measurement tools rated by the mother. The dyadic interaction was measured, at laboratory visits, by observation of a teaching situation. The teaching situation was part of a sequence of assessments conducted by the investigator of the larger study.

Subjects

Ninety-eight mother-child dyads were obtained from the larger study's sample of one hundred fifty. This sample size was selected as a size with sufficient power to render adequate results for the relationships being studied. The dyads were recruited through the Oregon Health Sciences University Family Practice Clinic. This general medicine clinic is a family oriented health promotion and health maintenance facility, providing services to a middle-and lower-socioeconomic population from a three-county area. For the larger study, the children were seen at eight months for intake and then at 12, 24, 36 months for

observation. This study utilized the data collected at the targeted date of 12 months. The mothers in this study tended to be older. Information on both child and maternal ages can be found in Table 1 below.

Table 1

Child and Maternal Ages

Variable	Mean	Std. Dev	Max.	Min.	N
Child Age	11.4	.25	11.0	13.0	98
Maternal Age	28.63	7.61	17.0	47.0	98

Due to circumcision services provided there, an overrepresentation of males was found (71%). The larger study was careful to ensure a fair gender distribution of subjects through oversampling of the female population. However, in the sample selected for this study, the gender ratio was found to be identical to that found in the clinic, that is, there were 70 boys and 28 girls (n=98).

In her proposal for the larger study, Houck (1992) also points out that the minority representation at the clinic was also higher than that of the general population in Oregon. In order to avoid the confounding of ethnicity, only Caucasian and African-American dyads were recruited. In the larger study the diversity of these two groups are examined and African-American subjects were more actively recruited to maintain a balance in the numbers. In this present analysis, these two groups were treated as a whole as it was believed

that differences would not be crucial for the application of the findings. Thus, according to the inclusion criteria, the following ethnic mix was found within the group: 16 were of African American heritage, 79 were of white Caucasian descent, and there were also 2 of Native American background.

The intake sheet solicited information regarding the highest educational levels attained by the parents. Table 2 shows educational information, in terms of frequency, for mothers of this sample. This is a fairly, well-educated sample with all but 2 subjects having completed high school and half the sample having some college education.

Table 2

Highest Educational Level of the Mothers

Education Level	Frequency
Grade School	2
High School	46
College	44
Postgraduate	5
Business or Trade School	1

Another important aspect of demographic information obtained on intake was the marital status of the participating mothers. Table 3 reflects this data.

Table 3

Marital Status of the Mothers

Marital Status	Frequency
Never Married	19
Currently Married	62
Currently Separated	2
Divorced	2
Widowed	0
Common Law Marriage/Living Together	13

Most of the mothers were married or cohabitating; 20% were single mothers. Of this sample, 25 mothers reported previous marriages; 22 were married once before, 2 were married twice before, and 1 was married three times prior to the current reported status. 13 subject did not report this information.

At the time of intake, 52 mothers reported employment while the remaining 46 reported no employment outside the home. Table 4 depicts the percentage of time the working mothers are employed. Although there are two missing data, the table reveals that approximately 1/3 of the mothers work half time or more.

Table 4

Percent Time of Maternal Employment

Percent Time	Frequency
3	1
5	2
15	1
17	1
20	2
25	2
30	4
40	2
50	6
60	4
63	1
65	1
85	1
100	22
Missing	2

Mothers were also asked to provide information regarding the income of their

households. Table 5 shows the gross annual incomes for the subjects. According to the table, 13.3% of the households made less than 5, 000 annually while 16.3% grossed more than 42,000. 51% of the sample made less than 18,000 per annum.

Table 5

Gross Annual Income of the Household

Gross Annual Income	Frequency
less than 5,000	13
5,000-8,999	9
9,000-11,999	6
12,000-14,999	11
15,000-17,999	11
18,000-20,999	10
21,000-23,999	1
24,000-26,999	5
27,000-29,999	5
30,000-32,999	3
33,000-35,999	5
36,000-38,999	1
39,000-41,999	2
42,000+	16

There were a number factors, that should be mentioned here, which precluded exclusion of mother-infant dyads from the sample in the larger study and, therefore, from this analysis as well. Dyads were not included if the child had been diagnosed with a physical handicap or mental retardation. Although limiting the generalizability of the results, the risk of not being able to detect the effects of maternal and dyadic behavior on the child's adaptation made these pairs inappropriate as subjects. As mentioned earlier, minority groups other than African-Americans were excluded due to the differences in child-rearing and nonverbal behavior. The variation in cultural practices and norms would have led to unsuitable conclusions. Also, mothers for whom English was a second language were not included as this variance was not appropriate for analysis within the project.

Therefore, in summary, the sample studied consisted of ninety-eight mother-child pairs recruited from a family practice clinic. The children were all roughly 12 months of age. The mothers in the sample were primarily older, white, married women with high school or college education and who fell within the lower-middle income bracket.

Procedures

From the OHSU Family Practice Clinic rosters, a research assistant of the larger project identified mothers with infants up to 9 months of age, using the exclusion criteria as a method of screening. The research assistant contacted the mothers when they arrived for a clinic appointment and provided them with a letter from the principle investigator describing the purpose of the study, the amount and nature of the involvement required of participants in

the study, and the monetary incentives for participating. If the mother expressed interest in the study, the research assistant pursued intake into the project by providing a follow-up telephone call and/or letter.

The intake assessment took place at the Oregon Health Sciences University School of Nursing. Project staff obtained informed consent and demographic data, and, as part of the larger study, mothers completed questionnaires to assess depression, parenting control orientation, conceptualization of development, and perception of infant temperament. The mothers were then familiarized with the observational setting and procedures to be used in their future visits for the study.

Prior to the 12-month observation, the Toddler Temperament Scale and Adaptive Social Behavior Inventory measures were sent to the mothers along with the other questionnaires of the larger study which were similar to the intake questionnaires. The questionnaires were mailed in advance to provide mothers with the opportunity to complete them prior to the laboratory visit to avoid extending the visit. However, time was provided as needed for those unable to complete their forms prior to arrival.

The laboratory visit consisted of a series of observations as indicated in the larger study (Houck, 1992). One of the observations in the sequence was the teaching episode which consisted of giving each mother-child pair an age challenging task for the 12-month age group the task that the mother was to teach the child was stacking small blocks. According to procedure the mother had no prior knowledge of the task until instructed by the investigator or research assistant. Five minutes were allowed for the assessment of the interaction. The episode was recorded by videotape, to be later coded by trained observers.

In order to minimize attrition, the investigator of the larger study communicated to participating mothers the importance of their role in the understanding of what it is like to raise a young child. In order to further maximize retention of subjects, the participants of the study were provided monetary compensation for their time and effort - $10 for the intake assessment and $30 for each laboratory visit. Additionally, child care was provided for siblings during the laboratory data collection, follow-up thank you notes were sent to participants, reminders to laboratory visits were provided, and observations were scheduled at convenient times to facilitate parking and transportation.

Measures

Three of the instruments that were used in the larger study were employed for this analysis. They were selected according to their appropriateness to the variable and/or phenomenon under examination. They are described, along with the available psychometrics, below.

Toddler Temperament Scale - Child Temperament was measured using the Toddler Temperament Scale (TTS) developed by Fullard, Carey, and MccDevitt (1984). According to their report, the 97-item questionnaire was based on the conceptualization of Thomas, Chess and associates in the NYLS and utilizes their nine components of temperament as basis for the scale. The nine variables are activity level, rhythmicity of body functions, approach, adaptability, intensity, mood, persistence, distractibility, and sensory threshold. Based on the scoring of the scales the children can be classified into difficult, easy, and slow-to-warm-up, as well as intermediate high (toward the "difficult" group) and the intermediate low (toward

the "easy" group) (Fullard, MccDevitt, & Carey, 1984).

The tool was standardized on 309 children in two pediatric practices, primarily made up of white middle and upper-middle class families (Fullard et al, 1984). The researchers, that is, Fullard et al. (1984) provided information regarding the reliability of this tool. According to their research, the KR 20 applied to the one-year-old sample produced alpha coefficients for the nine categories ranging from .59 to .86 (median=.72). They also said that the test-retest reliability produced a median of .81. In the present study, the following reliability coefficients were obtained for the subscales: activity was .62, rythmicity was .74, approach/withdrawal was .81, adaptability was .55, intensity was .30, mood was .61, persistence was .62, distractibility was .65 and threshold was .32. The median of alpha coefficient values for this study was .62. As with other temperament questionnaires, they point out, investigation of the external validity of the TTS has remained difficult because of no existing standardized comprehensive observational technique against which to compare them. Fullard et al. cite the work of Carey that has produced evidence that validity studies, relying on rather brief professional ratings have demonstrated significant validity . Three studies testing the concurrent validity showed significant agreement (Fullard et al., 1984). According to the researchers, the predictive validity was established against the Infant Temperament Questionnaire which is one of the intake tools in the larger study, and a major consideration in selection of this instrument.

Nursing Child Assessment Teaching Scale - Quality of the mother-child interaction was assessed using a clinical/research tool called the Nursing Child Assessment Teaching Scale (NCATS). This scale has various applications and its child subscale is used in the

larger study as a measure of child competency.

This tool was developed by Barnard and a research team at the University of Washington's School of Nursing with the goal of determining early predictors that could identify children at risk for later developmental problems (NCAST Manual, 1994). The scale is based on The Barnard Model of caregiver-child interaction which assumes that caregiver and infants have certain responsibilities to keep the interaction going. The infant's responsibility is to produce clear cues and to respond to the caregiver. The caregiver is responsible for responding to the infant's cues, alleviating the infant's distress, and providing opportunities for growth and learning (Nursing Child Assessment Satellite Training (NCAST Manual, 1994). A theory assessed by the scale is identified in the NCAST manual "During interaction both caregiver and infant reciprocally influence the behavior of the other in a way that is potentially rewarding for both of them. Through a process of social interaction and bidirectional influences, the caregiver and infant learn to adapt, modify and change their behaviors in response to the other. The achievement of heightened positive affect, increased alertness, extended episodes of mutual attention provide the infant with a framework in which to build future social experience" (p.7). This indicates that the scale can be used for the purpose of determining the quality of the mother-child interaction.

The Actual scale consists of 73 binary items organized into six subscales based on the concepts of contingency, positioning, verbalness, sensitivity, affect and engagement/disengagement (NCAST Manual, 1994). Four of the subscales describe the caregiver's behavior (sensitivity to cues, response to the child's distress, social-emotional growth fostering, cognitive growth fostering) and two describe the child's behavior (clarity of

cues, responsiveness to caregiver).

The NCAST database contains approximately 2100 teaching cases with an ethnic representation of 54% Caucasian, 26.8% African-American and 19.2% Hispanic. Cronbach's alpha calculated on the database Teaching Scales showed high reliability, for example, the parent total was .87, the child total was .81 and the overall total score was .87 (NCAST Manual, 1994). Test-retest reliability was .85 of the parent total and .55 of the infant total. The content, criterion and construct validity of this tool has been investigated and extensively described in the 1994 NCAST Manual.

Interobserver reliability assessment was carried out for video tapes. Both coders had been previously trained to a level of 85% or higher accuracy with NCAST training tapes. In the present study, 29 tapes were coded for interrater reliability. Reliability ranged form .73 to .93 with a mean .84 interrater agreement.

Adaptive Social Behavior Inventory - the last item to be measured is child competence. In this study the tool used is the Adaptive Social Behavior Inventory (ASBI) Information on the development of the inventory has not been obtained. The inventory itself consists of 30 items which describe positive and negative social behaviors. The questionnaire was completed by mothers who score the items on a 3-step scale, from rarely/never to almost always. Internal consistency for this measure was adequate for the present study with an alpha coefficient of .767 obtained for this sample (N=98). Endorsement of items indicating social initiative and engagement, self-confidence, and empathy in addition to compliance with social norms, obtains a high score. A high score, which is reflective of sociobehavioral competence, cannot be obtained by endorsing compliance items alone.

Data Analysis

The data obtained on the measures were statistically analyzed using the SPSS computer program. Correlation coefficients were determined for each individual temperament category and the NCATS totals to research the hypotheses that difficult temperament affects the quality of the dyadic interaction. In order to test the second hypothesis that a high quality interaction will result in a high self-esteem, correlation coefficients were also run between the ASBI totals and the NCAST.

Multiple regression analyses were also run for the ASBI total, temperament and NCATS, as well as the NCATS and temperament scores.

CHAPTER IV: RESULTS

In the following section, the descriptive statistics of the measures for this study are reported. The relationship between temperament, quality of the interaction and sociobehavioral competence is then demonstrated through the results of correlation coefficients and multiple regression.

Descriptive Statistics of the Measures

Statistics were obtained that described the characteristics of the sample based on the individual measures used, specifically in terms of their range, mean and standard deviation. Correlations between the subscales were also calculated and are presented in this section.

Toddler Temperament Scale - The TTS consisted of nine subscales. The subscale of activity yielded scores ranging form 2.08 to 5.58 (M=4.07, SD=.65) while rhythmicity scores ranged form 1.18 to 5.09 (M=2.91, SD=.75). Scores on the subscale of approach/withdrawal ranged form 1.00 to 5.25, with a mean of 3.15 and a standard deviation of .83. Adaptability scores ranged form 1.75 to 5.00 (M=3.3, SD=.70). The range of scores for intensity was from 2.70 to 5.30 (M=3.92, SD=.52). The subscale scores for mood ranged form 1.92 to 4.85 (M=3.24, SD=.60). Persistence/attention span scores ranged form 2.55 to 5.73 (M=3.91, SD=.64). For distractibility, the range was 2.8 to 5.7 (M=4.25, SD m=.63) while for threshold, the range was from 1.63 to 4.88, with a mean of 3.41 and a standard deviation of .68. The significant correlations between the subscales are presented in Table 6.

Table 6

Correlations of Temperament Subscales

	ACTIVITY	RHYTHM	APPROAC	ADAPT	INTENSE	MOOD	PERIST	DISTRAC T	THRESH
ACTIVITY	1.OO								
RHYTHM		1.00							
APPROAC			1.00						
ADAPT	.47***		.27**	1.00					
INTENSE	.26**			.27**	1.00				
MOOD	.26**		.36***	.38***		1.00			
PERIST	.17T						1.00		
DISTRAC		-.18t						1.00	
T	-.32**		.24*			-.20*	-.30**		1.00
THRESH									

t=or<.10
*=or<.05
**=or<.01
***=or<.001

Nursing Child Assessment Teaching Scale - This measure had several subscales. There were five caregiver subscales and three infant subscales which produced a caregiver-infant total. The ranges for the caregiver subscales were as follows: caregiver sensitivity ranged from 7 to 11 (M=9.37, SD=.87); caregiver responsiveness ranged from 5 to 11 (M=9.0, SD=1.37); caregiver social-emotional growth fostering ranged from 5 to 14 (M=7.36, SD=1.38); and caregiver cognitive growth fostering ranged from 3 to 15 (M=10.63, SD=2.6); and caregiver total ranged from 25 to 47 (M=36.3, SD=4.5). The ranges for the infant subscales were as follows: clarity of cues ranged from 6 to 10 (M=8.46, SD=.99); responsiveness ranged from 4 to 13 (M=9.88, SD=2.25); and infant total scores ranged from 11 to 23 (M=18.34, SD=2.98). The caregiver -infant total scores for this measure, which

reflect the quality of the dyadic relationship, ranged from 38 to 70 with a mean of 54.97 and a standard deviation of 6.08.

Many of the subscales were significantly correlated as depicted in Table 7.

Table 7

Correlations between the NCATS subscales

	CGENS	CGRESP	CGSEGF	CGOOGF	CGTOT	INFCLAR	INPRESP	INFTOT	CGINFTO
CGSENS	1.00								
CGRESP	.28**	1.00							
CGSEGF	.33***	.23*	1.00						
CGOOGF	.39***	.30**	.39***	1.00					
CGTOT	.60***	.60***	.67***	.86***	1.00				
INFCLAR				.19t	.17t	1.00			
INPRESP		.31**	.20*	.23*	.31*	.64***	1.00		
INFTOT		.28**	.17t	.23*	.29**	.82***	.97***	1.00	
CGINFTO	.49***	.58***	.58***	.75***	.88***	.53***	.70***	.71***	1.00

t=or<.10
*=or<.05
**=or<.01
***=or<.001

Adaptive Social Behavior Inventory - This measure had no subscales. Statistics revealed a range of scores frrm 44 to 84, with a mean of 61.72 and a standard deviation of 7.67.

Relationships Between the Variables

Relationships between the variables of the study were assessed. The findings are reported below.

Relationship between temperament and the quality of the interaction - the temperament subscale of persistence was negatively related to the caregiver-infant total

which represented the general quality of the interaction (r=-.20, p<.05); The more difficult a child was with respect to persistence, the poorer was the quality of the interaction. Other significant correlations were found between various subscales of temperament and the NCATS subscales. Optimal activity scores positively related to caregiver sensitivity (r=.20, p<.05), as did optimal distractibility scores (r=.19, p=.05). Difficult persistence was negatively linked to caregiver responsiveness with r=-.23 and p<.05.

Trends for the relatioships included those between mood and caregiver cognitive growth fostering (r=-.18, p<.10); the relationships between persistence and caregiver total (r=-.17, p<.10) and infant responsiveness (r=-.16, p=.10), as well as the relationship between the temperament subscale of distractibility and the caregiver-infant total score (r=.16, p=.10). Generally, a more difficult temperament (higher scores) was linked to poorer interactive quality.

The completed multiple regression equation yielded no significant prediction between temperament and caregiver aspects of the interaction. Also, there was no significant prediction for the infants aspects of the interaction from infant temperament, nor was the overall quality of the interaction predicted by temperament variables.

Relationship between the quality of the interaction of sociobehavioral competence - Significant correlation was found between the caregiver-infant total scores and the ASBI scores (r=.27, p<.01). Other relationships of significance were: caregiver sensitivity and higher ASBI scores (r=.21, P<.05), caregiver cognitive growth fostering and higher social competency (r=.24, p=.01), and the caregiver total score reflected in a higher ASBI score (r=.25, p=.01). Trends for relationships found between the infant interactive quality on the

NCATS and infant social competence on the ASBI were: infant responsiveness (r=.17, p<.10) and infant total (r=.16, p=.10), both positively linked to ASBI scores.

The subscales of caregiver total and infant total were both examined in relation to the ASBI total score in a multiple regression equation, yielding R for regression significantly different form zero, F (2,95)=3.76, p≤.03. The caregiver total significantly contributed to the prediction with β=.38 (t=2.18, p≤.03). Most importantly, the total quality of the interaction as evidenced in the caregiver-infant total score yielded high significance in relation to the ASBI scores, F(1,96=7.45, p≤.008).

Relationship between temperament and sociobehavioral competence - The calculated Pearson's r between the TTS subscales and the ASBI scores revealed a significant negative coorelation between mood and the ASBI (r=-.32, p=.001). More negative mood was related to less social competence. In addition, significant inverse relationships were found between the subscale of approach and the ASBI (r=-.23, p<.05) and the subscale of adaptability and the ASBI (r=-.21, p<.05). A trend for relationship was found to exist between intensity scores and the ASBI total (r=.17, p<.10). Again, more difficult temperament was related to diminished social competence.

Multiple regression showed that there was a regression significantly different from zero, F (9,88)=2.35, p≤.02. Of the nine TTS subscales 2 contributed significantly to prediction of sociobehavioral competence: intensity (β=3.7; t=2.46, p≤.02) and mood (β=-2.88; t=-1.9, p≤ .06).

Joint relationship between the quality of the interaction, temperament and sociobehavioral competence - Using the multiple regression equation, a strong relationship

was found between the nine TTS subscales and the NCATS subscales of caregiver total and infant total, $F(10,87)=3.8$, $p\leq.001$. These calculations, with the ASBI scores being the dependent variable, consistently showed that the most significant temperament subscales were mood ($\beta=-2.58$; $t=-1.86$, $p\leq.07$) and intensity ($\beta=4.17$; $t=2.95$, $p\leq.004$). This reflected that both mood and intensity can affect the child outcome of social competence, confirming findings of the Pearson's correlations between these dimensions. Also significant when partialed out were the scores reflecting the interactive quality of both caregiver and infant with the highest significance being found in the interaction's total score ($\beta=.45$; $t=3.7$, $p\leq.001$).

CHAPTER V: DISCUSSION

The purpose of this study was twofold: 1) to examine the relationship of child temperament to the mother-child interaction, and 2) to explore the relationship of the quality of interaction to the child outcome of self-esteem (as manifesting in competence). The following section will review the findings of the study in the context of this purpose.

The Sample

The scores obtained on the nine temperament subscales of the Toddler Temperament Scale revealed some characteristics of the toddler sample used for the study. Means of the subscales were compared to the measurement tool's profile sheet. The results revealed that this sample, as a whole, fit into the diagnostic cluster of 'Intermediate Low'. This classification indicated that, for this gourp, three out of the five difficult/easy diagnostic categories scored above the mean, leaning toward more difficulty. They were not considered 'Intermediate High' only because their scores did not vary greater than 1 standard deviation above the mean on the profile sheet.

The statistics for the Nursing Child Assessment Teaching Scale also revealed some notable characteristics of the mothers and the infants who participated in this study. With approximately 80% of the mothers being Caucasian, the scores obtained were compared to the scoring profiles for white mothers as provided in the NCAST Manual (1994). Of concern is the fact that the mothers in the sample, as a group, were consistently lower than the mean, scoring more than 1 standard deviation below the mean on the subscales of social-emotional growth fostering and cognitive growth fostering. Both the caregiver total and the caregiver

contingency scores were also more than 1 standard deviation below the mean. Interestingly, the children in this group scored above the mean on all their subscales which appeared to compensate for the caregiver-infant total score.

This information about the sample is of immense concern because it depicts a high level of risk for the mother-child dyads in this population. With the child temperaments leaning more toward difficult than easy, there is the potential for increased caregiver strain which can negatively impact child development. Also, with the consistently low caregiver scores on the NCATS, there is evidence that these mothers are not adequately providing an atmosphere of growth and are not very responsible to their children in teaching situation, alerting to the possibility of decreased maternal empathy that would negatively affect child competence (Givelber, 1983).

Relationship between Temperament and the Quality of the Interaction

Based on the established fact that the caregiver-infant total score on the NCATS reflects the quality of the dyadic interaction (NCAST, 1994), the findings in this section revealed a negative correlation between the quality of the interaction and the temperament category of persistence. This means that the more persistent a child, the poorer the quality of the interaction. Persistence also yielded other significant negative correlations with subscales of caregiver responsiveness and contingent scores, as well as infant responsiveness. This indicated the areas that contributed to the overall diminished quality of the interaction, implying that child persistence is a temperamental quality of a child that, in this study, led to a decreased responsiveness in both parent and child in the teaching interaction.

There were no other significant correlations between other temperament categories and the quality of the interaction which indicates that temperament alone is not related to the interactive quality. The result obtained by multiple regression also revealed that temperament in and of itself was not predictive of the quality of the mother-child interaction.

Relationship between Temperament and Sociobehavioral Competence

The temperament categories of approach/withdrawal, adaptability and mood were inversely related to the child's ASBI scores. This indicates that a diminished social competence would be seen in cases of greater withdrawal, poorer adaptability or more negative mood. It is important to note that these categories are three of five categories used to define easy/difficult temperament clusters and are specifically those categories that were above the mean in this sample. This suggests that the higher the difficulty index, the lower the competence score. A positive trend was also found between intensity and social competence.

These findings were supported by the results of the multiple regression calculations. Beta values in those calculations, however, revealed that the most important variables in the prediction were mood and intensity. This suggests that there is predictive value in these two temperament categories; that is, a negative mood predicts a deceased competence and lower intensity leads to greater social competence.

Relationship between the Quality of the Interaction and Sociobehavioral Competence

The strong correlation between the caregiver-infant total and the ASBI scores

reflected the positive relationship between quality of the interaction and sociobehavioral competence. Although, most of the interactive subscales correlated with ASBI scores, the significant relationship between caregiver responsiveness and competence speaks to the work of Givelber (1983) who asserted that real competence emerges from the empathic relating of a mother who responds to the child's emotional and physiological needs.

Results of multiple regression analysis supported the correlational findings and reinforced the predictive dimension of the interaction to the development of competence. The importance of the variable of caregiver total in that equation further stressed the importance of the role of the caregiver to the child development of sociobehavioral competence.

Joint Relationship between Temperament, the Interaction and Sociobehavioral Competence

As discussed earlier, significant relationships were found between temperament and competence as well as the interaction and competence. The joint effect of temperament and the quality of the interaction on the outcome of sociobehavioral competence was assessed using multiple regression. The results revealed that temperament in conjunction with the quality of the interaction was predictive of the outcome of sociobehavioral competence. Of the temperament categories, the significant beta values were mood and intensity. The subscales of caregiver total score and infant total score, as well as the full caregiver-infant total score, were also significant variables in the equation.

Multiple regression equations calculating temperament and interaction separately revealed significance but the strongest prediction of social competence came from the combination of temperament data and the interaction data, that is, from both report and observation.

Research Questions and Hypotheses

Based on the findings as explained, the research questions and hypotheses will be examined. The first research question queried the relationship between child temperament and the mother-child interaction. The findings revealed no concrete evidence that child temperament, as a diagnostic cluster, affected the interaction. This supports other findings on temperament and interactive effects in a teaching situation (Coffman, Levitt, Guacci & Silver, 1992). Therefore, in this study, temperament was not predictive of poorer maternal or dyadic function. Although the first hypothesis, that difficult temperament adversely, affects the mother-child interaction, must be rejected, these results may, in fact, be pointing to the transactional role of the interaction as indicated by Sameroff and Chandler (1975). It should be noted that persistence, as a temperament category, does affect the quality of the interaction between mother and child in an adverse way.

The second research question explored the relationship between the quality of the interaction to child competence, based on the knowledge that competence reflected self-esteem (Cotton, 1983). The hypothesis related to this question stated that an interaction of good quality results in high competence. The findings suggested a strong relation between these two variables. Since correlation does not reflect causality (Polit & Hungler, 1995), the findings were verified using multiple regression which did reveal that the quality of the interaction was predictive of the development of competence. The hypothesis was, therefore, accepted.

A significant relationship that was not hypothesized at the initiation of this project should be mentioned. The greatest predictive strength of sociobehavioral competence in a

child came from the joint effects temperament and the quality of the mother-child interaction.

Limitations

The limitations to this study begin with the limited generalizability of the results. The sample, although inclusive of the African-American ethnic group, did not include ethnic groups such as Asians, Hispanics, Native Americans (only one subject in the study) and other minority groups. The methods did not accommodate for the variability likely to be found by the inclusion of these groups. Therefore, the accepted hypothesis cannot be assumed to hold true to these other ethnic cultures.

Another limitation was the type of measure used to determine child temperament. Although the Toddler Temperament Scale has sufficient support for its reliability and validity, it is a parent-report measure. It resembles a self-report measure which carries the weakness of social desirability and, hence, the quality of not knowing whether to fully trust the data obtained (Polit & Hungler, 1995). This particular measure is also lengthy and it is possible that the informant lose interest in the accuracy of the report.

The possibility of observer bias cannot be ruled out as a limitation as well. Even though all coders for the observational data were certified as reliable, it is possible that observer bias could still be present just by virtue of the fact that total objectivity is difficult to achieve (Polit & Hungler, 1995).

Recommendations

There is need for further study in this area. Some future recommendations are:

1) A study that researches the same or similar questions but basis the measurement of the quality of interaction on greater observation than the teaching interaction alone. It would enhance the study to account for more of the environmental variables found in other interactions, supporting the transactional and interactional theories.

2) Replication of this analysis, using fresh data in order to verify the relationships found.

3) A longitudinal study that will reflect the long-term outcomes of child temperament and the mother-child interaction, as well as the stability of temperament in such a context.

4) Temperament studies that reflect the impact of the specific diagnostic constellations of temperament on the quality of the mother-child interaction.

5) A temperament and interactional study that has accommodated for the inclusion of a wider and more diversified sample.

6) A temperament study that looks at both maternal and child temperaments and then examines the goodness of fit.

Implications

The findings of this study have definite implications for clinicians dealing with children and their families. Some of the implications specifically for the discipline of nursing are outlined below. This study pointed out the importance of the various temperamental categories on the development of competence. Those categories, according to this study, are approach/withdrawal, adaptability, mood, and intensity. Assessed early, parents with children who have a more difficult temperament can be targeted for intervention. Carey (1985)

describes three levels at which clinicians can intervene to foster the parent-child relationship using temperament data. First, general education that increases parental awareness and understanding of individual differences. Second, knowledge of the temperament profile can clarify parental perceptions and help parents create their own shifts to their interaction patterns. At the third level, clinicians may need to suggest alternative methods of parental management in order to reduce the stress of a dissonant interaction. This lends support to the concept of anticipatory guidance programs for parents (Cameron & Rice, 1986). Through determining child temperament as early as possible, parents can be guided as to how to create the optimal environmental fit for their child. As this study shows, a good quality of mother-child interaction can result in improved child competence and self-esteem, reducing psychiatric risk.

It has also been demonstrated that there is a need for the strengthening of the mother-child interactive quality. The sample utilized was considered a "normal" population. Within this population there were serious deficiencies in the maternal aspect of the interaction. The lack of maternal responsiveness and empathy leads to the need of direct intervention to prevent development of poor self-esteem. Education, modeling, respite care and other support services can be provided through public health or mental health nurses and/or other disciplines.

Some specific areas of education for parents, to enhance the development of social competence and self-esteem, are outlined by Sieving and Zirbel-Donisch (1990). Parental expectations of the child should be assessed and realistic developmental milestones reviewed. Communications can be promoted through encouraging parents to effectively listen (in this

population that refers to both verbal and nonverbal cues) as well as provide feedback. Parents can be guided through effective methods of limit-setting as well. A crucial area of education for parent is in teaching methods to promote autonomy in their children.

Incorporating some of these measurement tools as assessment tools for evaluating families already experiencing difficulty, will also assist the advanced nurse practitioner in planning intervention strategies.

Most importantly, having achieved these results, education of to-be-parents can be initiated as a prevention strategy. The results serve as validation to both the parents and clinicians of the importance of teaching parenting techniques that will enhance the quality of the interaction, regardless of the temperament of the child.

SUMMARY

This study looked at the problem of growing psychiatric disorder among adolescents leading to psychopathology in adults and determined that research traced beginnings of disorder back to childhood, during the crucial development of self which takes place during the transition to toddlerhood. Healthy development of self is evident in a child's sense of competence and an adequate self-esteem. According to the transactional model of development (Sameroff & Chandler, 1975), two variables have been delineated as having implications for psychiatric risk: the qualities of the child and the caretaking environment. In this investigation, the child's, contribution of interest was temperament, and the caretaking environment was examined through the mother-child interaction.

The theory of transactional development according to Sameroff and Chandler (1975) along with the interactionist position of Thomas and Chess (1977) formed the conceptual framework of this study. The background of the analysis comes form historical and recent understandings of the dynamics of temperament and the concept of "goodness of fit" postulated by Thomas and Chess (1977). According to this concept, the link between environmental variables and the child's temperaments is crucial.

The research questions addressed by this study were:

1. What is the relationship of child temperament to the mother-child interaction?

2. What is the relationship of the mother-child interaction to the developmental outcome of self-esteem?

Literature was reviewed on the issues of toddlerhood, temperament and the mother-child interaction. Toddlerhood was shown to be salient for the development of self-system

processes. According to Connell (1990), the three main needs of this period are autonomy, relatedness and competence. The working definition of temperament for this study was the one put forward by Bates (1980) which defines temperament as follows: (a) it has a constitutional basis; (b) it appears in infancy and shows some degree of continuity; (c) it is an objectively definable characteristic of an individual; and (d) it is affected by the environment. The nine categories of temperament, which are activity level, rhythmicity, approach-withdrawal, adaptability, threshold of responsiveness, intensity of reaction, quality of mood, distractibitlity, attention span and persistence (Thomas & Chess, 1977), were outlined in the review. The stability of temperament over time was demonstrated by Pedlow et al (1993). The work of Sroufe (1990) regarding the importance of the mother-child interaction to the development of self in the child, supports the assertions of Connell (1990) that highlights attachment as a need in the self-system process.

Some of these works, and others, were used in Houck's (1992) 5-year longitudinal study on mother-toddler interactions which is currently in process. The larger study is the most immediate context for this analysis and utilized data collected for the longitudinal project.

The sample consisted of ninety-eight (n=98) mother-infant pairs recruited from a family practice clinic. The infant age was 12 months. Only white Caucasian and African American races were recruited in order to prevent the confounding of ethnic differences. The mothers reported the child's temperament and competency using the Toddler Temperament Questionnaire and the Adaptive Social Behavior Inventory respectively. The quality of the dyadic interaction was assessed by laboratory observation and using the Nursing Child

Assessment Scale. Data were analyzed using Pearson's r correlations and multiple regression between the variables.

Data analysis revealed the following:

1. Within this "normal sample", mother-child dyads showed a high level of risk. The child temperaments leaned more toward difficult than easy and mothers showed a less than adequate atmosphere of growth and responsiveness to the children.

2. Except for the temperament category of persistence, no significant relationships were found between temperament and the quality of the dyadic interaction.

3. Temperament categories of approach/withdrawal, adaptability, and mood were inversely related to competence scores, while a positive trend was found between intensity and competence. Mood and intensity were specifically found to be predictive of social competence.

4. A strong correlation as well as predictive relationship was found between quality of the interaction and the outcome of sociobehavioral competence.

5. The strongest prediction of sociobehavioral competence came from the combination of temperament data and the interaction data.

From these findings, the following general conclusions were drawn:

1.The importance of temperament comes from its joint influence with the quality of the interaction, on the development of sociobehavioral competence and, hence, on developing self-esteem.

2. The relationship between the more difficult temperament categories and social

competence suggests that the "at-risk" child is one with a difficult temperament. A poor quality mother-child interaction would heighten the risk for such a child.

3. A child at lower risk would be a child with an easy temperament. The risk would diminish even further the quality if the interaction was positive. The easy temperament and positive interaction quality of the dyad is essentially the optimal situation for the best self-esteem outcome.

The implications for such conclusions were many. Temperament data obtained on children can be used by clinicians to foster parent-child relationships on three levels. First, through clarification of parental, perceptions in order that parents may create their own shifts in interactional patterns. If needed, the clinician may then suggest alternative methods of parental management. Also demonstrated was the need for strengthening the mother-child interactive quality through promotion of maternal responsiveness and empathy. This study also supports the use of the measurement tools used here as assessment tools for advanced practitioners. Teaching of parenting techniques at the earliest time possible is one of the strongest implications from the findings.

The limitation of restricted generalizability of findings, leads to the recommendation that future studies include a more diversified sample. Future studies may also want to utilize observational measures for assessing child temperament to avoid the limitation of utilizing parent-report data. Another recommendation would be that broader interactional situations be used for assessing mother-child interactive quality. A longitudinal study which examines both maternal and child tempreaments, is encouraged to be conducted in order to learn of long-term outcomes for children and more accurately determine psychiatric risk.

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APPENDIX A

Subject #_____
Child's Age _____

TODDLER TEMPERAMENT SCALE

For 12 month old children

BY

William Fullard, PhD., Sean C. McDevitt, PhD., and William B. Carey, MD.

RATING INFORMATION

1. Please base your rating on the child's recent and current behavior (the last four to six weeks).
2. Consider only your own impressions and observations of the child.
3. Rate each question independently. Do not purposely attempt to present a consistent picture of the child.
4. Use extreme ratings where appropriate. Avoid rating only near the middle of the scale.
5. Rate each item quickly. If you cannot decide, skip the item and come back to it later.
6. Rate every item. Circle the number of any item that you are unable to answer due to lack of information or any item that does not apply to your child.

TODDLER TEMPERAMENT

Using the following scale, please circle the number that indicates how often the child's recent and current behavior has been like that described by each item.

	Almost Never	Rarely	Variable Usually Does Not	Variable Usually Does	Frequently	Almost Always
1. The child gets sleepy at about the same time each evening *(within 1/2 hour)*..	1	2	3	4	5	6
2. The child fidgets during quiet activities *(story telling, looking at pictures)*..	1	2	3	4	5	6
3. The child takes feedings quietly with mild expression of likes and dislikes.	1	2	3	4	5	6
4. The child is pleasant *(smiles, laughs)* when first arriving in unfamiliar places..	1	2	3	4	5	6
5. The child's initial reaction to seeing the doctor is acceptance..	1	2	3	4	5	6
6. The child pays attention to game with parent for only a minute of so.	1	2	3	4	5	6
7. The child's bowel movements come at different times from day to day *(over one hour difference)*.	1	2	3	4	5	6
8. The child is fussy on waking up *(frowns, complains, cries)*..	1	2	3	4	5	6
9. The child's initial reaction to a new baby sitter is rejection *(crying, clinging to mother, etc.)*.	1	2	3	4	5	6
10. The child reacts to a disliked food even if it is mixed with a preferred one.	1	2	3	4	5	6
11. The child accepts delays *(for several minutes)* for desired objects or activities *(snacks, treats, gifts)*.	1	2	3	4	5	6
12. The child moves little *(stays still)* when being dressed.	1	2	3	4	5	6
13. The child continues an activity in spite of noises in the same room.	1	2	3	4	5	6
14. The child shows strong reactions *(cries, stamps feet)* to failure.	1	2	3	4	5	6
15. The child plays continuously for more than 10 minutes at a time with a favorite toy.	1	2	3	4	5	6

TODDLER TEMPERAMENT

Using the following scale, please circle the number that indicates how often the infant's recent and current behavior has been like that described by each item.

	Almost Never	Rarely	Variable Usually Does Not	Variable Usually Does	Frequently	Almost Always
16. The child ignores the temperature of food, whether hot or cold.	1	2	3	4	5	6
17. The child varies from day to day in wanting a bottle or snack before bedtime at night.	1	2	3	4	5	6
18. The child sits still while waiting for food.	1	2	3	4	5	6
19. The child is easily excited by praise *(laughs, yells, jumps).*	1	2	3	4	5	6
20. The child cries after a fall or bump.	1	2	3	4	5	6
21. The child approaches and plays with unfamiliar pets *(small dogs, cats).*	1	2	3	4	5	6
22. The child stops eating and looks up when a person walks by	1	2	3	4	5	6
23. The child seems unaware of differences in taste of familiar liquids *(type of milk, different juices).*	1	2	3	4	5	6
24. The child moves about actively when he/she explores new places *(runs, climbs or jumps).*	1	2	3	4	5	6
25. The child fusses or whines when bottom cleaned after bowel movement.	1	2	3	4	5	6
26. The child smiles when played with by unfamiliar adults.	1	2	3	4	5	6
27. The child looks up from play when mother enters the room.	1	2	3	4	5	6
28. The child spends over an hour reading a book or looking at the pictures.	1	2	3	4	5	6
29. The child responds intensely *(screams, yells)* to frustration	1	2	3	4	5	6
30. The child eats about the same amount of solid food at meals from day to day.	1	2	3	4	5	6

TODDLER TEMPERAMENT

Using the following scale, please circle the number that indicates how often the infant's recent and current behavior has been like that described by each item.

	Almost Never	Rarely	Variable Usually Does Not	Variable Usually Does	Frequently	Almost Always
31. The child remains pleasant when hungry and waiting for food to be prepared	1	2	3	4	5	6
32. The child allows face washing without protest *(squirming, turning away)*	1	2	3	4	5	6
33. The amount of milk or juice the child takes at mealtime is unpredictable from meal to meal *(over 2 oz. difference)*	1	2	3	4	5	6
34. The child practices physical activities *(climbing, jumping, pushing objects)* for under 5 minutes	1	2	3	4	5	6
35. The child vigorously resists additional food or milk when full *(spits out, clamps mouth closed, bats at spoon, etc.)*	1	2	3	4	5	6
36. The child plays actively *(bangs, throws, runs)* with toys indoors	1	2	3	4	5	6
37. The child ignores voices when playing with a favorite toy	1	2	3	4	5	6
38. The child approaches *(moves toward)* new visitors at home	1	2	3	4	5	6
39. The child plays outside on hot or cold days without seeming to notice differences in temperature	1	2	3	4	5	6
40. The child continues playing with other children for under five minutes and then goes elsewhere	1	2	3	4	5	6
41. The child continues to look at a picture book in spite of distracting noises *(car horns, doorbell)*	1	2	3	4	5	6
42. The child wants a snack at a different time each day *(over one hour difference)*	1	2	3	4	5	6
43. The child is pleasant *(smiles)* when put down for nap or at night	1	2	3	4	5	6
44. The child takes several days to get used to *(show usual behavior in)* new situations away from parent *(play group, day care center, sitter.)*	1	2	3	4	5	6
45. The child speaks *(or vocalizes)* right away to unfamiliar adults	1	2	3	4	5	6

TODDLER TEMPERAMENT

Using the following scale, please circle the number that indicates how often the infant's recent and current behavior has been like that described by each item.

	Almost Never	Rarely	Variable Usually Does Not	Variable Usually Does	Frequently	Almost Always
46. The child reacts strongly *(cries or screams)* when unable to complete a play activity	1	2	3	4	5	6
47. The child enjoys games with running and jumping over games done sitting down	1	2	3	4	5	6
48. The child notices wet clothing, and wants to be changed right away	1	2	3	4	5	6
49. The child is fussy or moody throughout a cold or an intestinal virus	1	2	3	4	5	6
50. The child ignores parent's first call while watching a favorite T.V. program	1	2	3	4	5	6
51. The child loses interest in a new toy or game within an hour	1	2	3	4	5	6
52. The child runs to get where he/she wants to go	1	2	3	4	5	6
53. For the first few minutes in a new place *(store, home or vacation place)* the child is wary *(clings to mother, holds back)*	1	2	3	4	5	6
54. The child takes daytime naps at differing times *(over 1/2 hour difference)* from day to day	1	2	3	4	5	6
55. The child reacts mildly *(frown or smile)* when his/her play is interrupted by parent	1	2	3	4	5	6
56. The child accepts being dressed and undressed without protest	1	2	3	4	5	6
57. The child is outgoing with adult strangers outside the home	1	2	3	4	5	6
58. The child runs ahead when walking with the parent	1	2	3	4	5	6
59. The child's period of greatest physical activity comes at the same time of day	1	2	3	4	5	6
60. The child can be coaxed out of a forbidden activity	1	2	3	4	5	6

TODDLER TEMPERAMENT

Using the following scale, please circle the number that indicates how often the infant's recent and current behavior has been like that described by each item.

	Almost Never	Rarely	Variable Usually Does Not	Variable Usually Does	Frequently	Almost Always
61. The child stops play and watches when someone walks by.	1	2	3	4	5	6
62. The child goes back to the same activity after brief interruption *(snack, trip to toilet)*	1	2	3	4	5	6
63. The child laughs or smiles when meeting other children	1	2	3	4	5	6
64. The child sits still while watching T.V. or listening to music	1	2	3	4	5	6
65. The child will avoid repetition of misbehavior if punished firmly once or twice	1	2	3	4	5	6
66. The child continues to play with a toy in spite of sudden noises from outdoors *(car horn, siren, etc.)*	1	2	3	4	5	6
67. The child ignores dirt on himself/herself	1	2	3	4	5	6
68. The child's time of waking in the morning varies greatly *(by 1 hours or more)* from day to day.	1	2	3	4	5	6
69. The child has moody or "off" days when he/she is fussy all day.	1	2	3	4	5	6
70. The child reacts mildly *(frowns or smiles)* when another child takes his/her toy	1	2	3	4	5	6
71. The child stays with a routine task *(dressing, picking up toys)* for 5 minutes or more.	1	2	3	4	5	6
72. The child stops eating and looks when he/she hears an unusual noise *(telephone, doorbell)*.	1	2	3	4	5	6
73. The child sits still *(moves little)* during procedures like hair brushing or nail cutting.	1	2	3	4	5	6
74. The child shows much bodily movement *(stomps, writhes, swings arms)* when upset or crying	1	2	3	4	5	6
75. The child is pleasant *(smiles, laughs)* during face washing	1	2	3	4	5	6

TODDLER TEMPERAMENT

Using the following scale, please circle the number that indicates how often the infant's recent and current behavior has been like that described by each item.

	Almost Never	Rarely	Variable Usually Does Not	Variable Usually Does	Frequently	Almost Always
76. The child's initial reaction at home to approach by strangers is acceptance *(looks at, reaches out)*.	1	2	3	4	5	6
77. The child is hungry at dinner time.	1	2	3	4	5	6
78. The child continues to get into forbidden areas or objects in spite of parents' repeated warnings.	1	2	3	4	5	6
79. The child stops to examine new objects thoroughly *(5 minutes or more)*.	1	2	3	4	5	6
80. The child ignores odors *(cooking, smoke, perfume)* whether pleasant or not.	1	2	3	4	5	6
81. The child looks up from an activity when he/she hears the sounds of children playing.	1	2	3	4	5	6
82. The child falls asleep at about the same length of time after being put to bed.	1	2	3	4	5	6
83. The child greets babysitter loudly with much expression of feeling whether positive or negative.	1	2	3	4	5	6
84. The child is moody for more than a few minutes when corrected or disciplined.	1	2	3	4	5	6
85. The child sits still *(little squirming)* when traveling in car or stroller	1	2	3	4	5	6
86. The child watches T.V. for under 10 minutes, then turns to another activity.	1	2	3	4	5	6
87. The child is shy *(turns away or clings to mother)* on meeting another child for the first time.	1	2	3	4	5	6
88. The child is still wary of strangers after 15 minutes.	1	2	3	4	5	6
89. The child frets or cries when first learning a new task *(dressing self, picking up toys)*.	1	2	3	4	5	6
90. The child sits quietly in the bath.	1	2	3	4	5	6

TODDLER TEMPERAMENT

Using the following scale, please circle the number that indicates how often the infant's recent and current behavior has been like that described by each item.

	Almost Never	Rarely	Variable Usually Does Not	Variable Usually Does	Frequently	Almost Always
91. The child practices a new skill *(throwing, piling, drawing)* for 10 minutes or more.	1	2	3	4	5	6
92. The child ignores differences in taste or consistency of familiar foods.	1	2	3	4	5	6
93. The child sleeps poorly *(restless, wakeful)* in new places for first 2 or 3 times.	1	2	3	4	5	6
94. The child is fearful of being put down in an unfamiliar place *(supermarket cart, new stroller, playpen)* with parent present	1	2	3	4	5	6
95. The child frowns or complains when left to play by self.	1	2	3	4	5	6
96. The child accepts within 10 minutes *(feels at home, at ease)* new surroundings *(home, store, play area)*.	1	2	3	4	5	6
97. The child looks up from play when the telephone or doorbell rings	1	2	3	4	5	6

APPENDIX B

UNIVERSITY OF WASHINGTON
SCHOOL OF NURSING
NURSING CHILD ASSESSMENT TRAINING

TEACHING SCALE

(BIRTH TO THREE YEARS)

RECORDER'S NAME _____

DATE _____

RSON OBSERVED IN INTERACTION (CIRCLE)
MOTHER FATHER OTHER

JOR CAREGIVER (CIRCLE)
YES NO

ACHING TASK _____

NGTH OF TEACHING (CIRCLE) MIN.
1 or LESS 2 3 4 5 6 OR MORE

TTING (CIRCLE)
HOME CLINIC OTHER

CHILD'S FIRST NAME _____

CHILD'S AGE (IN MONTHS) _____

CHILD'S SEX _____

MOTHER'S RACE _____

PARITY _____

MOTHER'S EDUCATION (CIRCLE)
6 YRS. OR LESS 7-8-9-10-11-12-13-14-15-16-17-18-19-20+

MARITAL STATUS (CIRCLE)
MARRIED NOT MARRIED

MOTHER'S AGE (AT BIRTH OF CHILD) _____

	YES	NO
SENSITIVITY TO CUES		
1. PARENT POSITIONS CHILD SO CHILD IS SAFELY SUPPORTED.		
2. PARENT POSITIONS CHILD SO THAT CHILD CAN REACH AND MANIPULATE MATERIALS.		
3. PARENT GETS THE CHILD'S ATTENTION BEFORE BEGINNING THE TASK, AT THE OUTSET OF THE TEACHING INTERACTION.		
4. IN NEARLY ALL CASES PARENT GIVES INSTRUCTIONS ONLY WHEN THE CHILD IS ATTENTIVE (90%).		
5. PARENT ALLOWS CHILD TO EXPLORE THE TASK MATERIALS FOR AT LEAST 5 SECONDS BEFORE GIVING THE FIRST TASK RELATED INSTRUCTION.		
6. PARENT POSITIONS CHILD SO THAT IT IS POSSIBLE FOR THEM TO HAVE EYE-TO-EYE CONTACT WITH ONE ANOTHER DURING THE TEACHING EPISODE.		
7. PARENT PAUSES WHEN CHILD INITIATES BEHAVIORS DURING THE TEACHING EPISODE.		
8. PARENT PRAISES CHILD'S SUCCESSES OR PARTIAL SUCCESSES.		
9. PARENT ASKS FOR NO MORE THAN THREE PERFORMANCES WHEN CHILD IS SUCCESSFUL AT COMPLETING THE TASK.		
0. PARENT CHANGES POSITION OF CHILD AND/OR MATERIALS AFTER UNSUCCESSFUL ATTEMPT BY THE CHILD TO DO THE TASK.		
1. PARENT DOES NOT PHYSICALLY FORCE THE CHILD TO COMPLETE THE TASK.		
SUBSCALE TOTAL (NO. OF YES ANSWERS)		
ESPONSE TO DISTRESS: (INDICATE WHETHER DISTRESS OCCURRED OR NOT)		
12. STOPS THE TEACHING EPISODE.		
13. MAKES POSITIVE, SYMPATHETIC, OR SOOTHING VERBALIZATION.		
14. CHANGES VOICE VOLUME TO SOFTER OR HIGHER PITCH (DOES NOT YELL).		
15. REARRANGES THE CHILD'S POSITION AND/OR TASK MATERIALS.		
16. MAKES SOOTHING NON-VERBAL RESPONSE, E.G. PAT, TOUCH, ROCK, CARESS, KISS.		
17. DIVERTS CHILD'S ATTENTION BY PLAYING GAMES, INTRODUCES NEW TOY.		
18. DOES NOT MAKE NEGATIVE COMMENTS TO THE CHILD.		
19. DOES NOT YELL AT THE CHILD.		
20. DOES NOT USE ABRUPT MOVEMENTS OR ROUGH HANDLING.		
21. DOES NOT SLAP, HIT OR SPANK.		
22. DOES NOT MAKE NEGATIVE COMMENTS TO HOME VISITOR ABOUT THE CHILD.		
SUBSCALE TOTAL (NO. OF YES ANSWERS)		
SOCIAL-EMOTIONAL GROWTH FOSTERING		
23. PARENT'S BODY POSTURE IS RELAXED DURING THE TEACHING EPISODE (AT LEAST HALF THE TIME).		
24. PARENT IS IN THE FACE-TO-FACE POSITION WITH THE CHILD DURING THE TEACHING INTERACTION (AT LEAST HALF THE TIME).		
25. PARENT LAUGHS OR SMILES AT CHILD DURING THE TEACHING.		
26. PARENT GENTLY PATS, CARESSES, STROKES, HUGS, OR KISSES CHILD DURING EPISODE.		
27. PARENT SMILES, OR TOUCHES CHILD WITHIN 5 SECONDS WHEN CHILD SMILES OR VOCALIZES.		
28. PARENT PRAISES CHILD'S EFFORTS OR BEHAVIORS BROADLY (IN GENERAL) AT LEAST ONCE DURING THE EPISODE.		
29. PARENT MAKES CONSTRUCTIVE OR ENCOURAGING STATEMENT TO THE CHILD DURING THE TEACHING INTERACTION.		
30. PARENT DOES NOT VOCALIZE TO THE CHILD AT THE SAME TIME THE CHILD IS VOCALIZING.		
31. PARENT DOES NOT MAKE GENERAL NEGATIVE OR UNCOMPLIMENTARY REMARKS ABOUT THE CHILD.		
32. PARENT DOES NOT YELL AT THE CHILD DURING THE EPISODE.		
33. PARENT DOES NOT MAKE CRITICAL, NEGATIVE COMMENTS ABOUT THE CHILD'S TASK PERFORMANCE.		
SUBSCALE TOTAL (NO. OF YES ANSWERS)		
IV. COGNITIVE GROWTH FOSTERING		
34. PARENT PROVIDES AN IMMEDIATE ENVIRONMENT WHICH IS FREE FROM DISTRACTIONS FROM ANIMATE SOURCES (SIBS, PETS, ETC.).		
35. PARENT FOCUSES ATTENTION AND CHILD'S ATTENTION ON THE TASK DURING MOST OF THE TEACHING (60% OF THE TIME).		
36. AFTER PARENT GIVES INSTRUCTIONS, AT LEAST 5 SECONDS IS ALLOWED FOR THE CHILD TO ATTEMPT THE TASK BEFORE PARENT INTERVENES AGAIN.		
37. PARENT ALLOWS NON-TASK MANIPULATION OF THE TASK MATERIALS AFTER THE ORIGINAL PRESENTATION.		
38. PARENT DESCRIBES PERCEPTUAL QUALITIES OF THE TASK MATERIALS TO THE CHILD.		
39. PARENT USES AT LEAST TWO DIFFERENT SENTENCES OR PHRASES TO DESCRIBE THE TASK TO THE CHILD.		
40. PARENT USES EXPLANATORY VERBAL STYLE MORE THAN IMPERATIVE STYLE IN TEACHING THE CHILD.		
41. PARENT'S DIRECTIONS ARE STATED IN CLEAR, UNAMBIGUOUS LANGUAGE (I.E. AMBIGUOUS = "TURN," "REACH;" UNAMBIGUOUS = "TURN THE KNOB TOWARD ME.")		
42. PARENT USES BOTH VERBAL DESCRIPTION AND MODELING SIMULTANEOUSLY IN TEACHING ANY PART OF THE TASK.		
43. PARENT ENCOURAGES AND/OR ALLOWS THE CHILD TO PERFORM THE TASK BEFORE INTRUDING IN ON THE USE OF TASK MATERIALS.		
44. PARENT VERBALLY PRAISES CHILD AFTER CHILD HAS PERFORMED BETTER OR MORE SUCCESSFULLY THAN THE LAST ATTEMPT.		
45. PARENT SMILES AND/OR NODS AFTER CHILD PERFORMS BETTER OR MORE SUCCESSFULLY THAN THE LAST ATTEMPT.		
46. PARENT RESPONDS TO THE CHILD'S VOCALIZATIONS WITH VERBAL RESPONSE.		
47. PARENT USES BOTH VERBAL AND NONVERBAL INSTRUCTIONS IN TEACHING THE CHILD.		
48. PARENT USES TEACHING LOOPS IN INSTRUCTING CHILD (75% OF THE TIME).		
49. PARENT SIGNALS COMPLETION OF TASK TO CHILD VERBALLY OR NONVERBALLY.		
50. PARENT SPENDS NOT MORE THAN 5 MINUTES AND NOT LESS THAN ONE MINUTE IN TEACHING THE CHILD THE TASK.		
SUBSCALE TOTAL (NO. OF YES ANSWERS)		

APPENDIX C

Subject #_____

THE ADAPTIVE SOCIAL BEHAVIOR INVENTORY

12 months

Please circle the number/response that best describes your child.

Rarely or Never	Sometimes	Almost Always	
1	2	3	1. Understands others' feelings, like when they are happy, sad or mad.
1	2	3	2. Is helpful to other children.
1	2	3	3. Is obedient and compliant.
1	2	3	4. When you give him/her an idea for playing, he/she frowns, shrugs shoulders, pouts or stamps foot.
1	2	3	5. Follows rules in games.
1	2	3	6. Gets upset when you don't pay enough attention.
1	2	3	7. Is sympathetic toward other children's distress, tries to comfort others when they are upset.
1	2	3	8. Waits her/his turn in games or other activities.
1	2	3	9. Is open and direct about what he/she wants.
1	2	3	10. Cooperates with your requests.
1	2	3	11. Can easily get other children to pay attention to him/her.
1	2	3	12. Says nice or friendly things to others.
1	2	3	13. Will join a group of children playing.
1	2	3	14. In social activities, tends to just watch others.
1	2	3	15. Follows household or family rules.
1	2	3	16. Says "please" and "thank you" when reminded.
1	2	3	17. Asks or wants to go play with other children.
1	2	3	18. Is calm and easy-going.
1	2	3	19. Plays games and talks with other children.
1	2	3	20. Shares toys or possessions.
1	2	3	21. Teases other children, calls them names.
1	2	3	22. Is confident with other people.
1	2	3	23. Prevents other children from carrying out routines.
1	2	3	24. Tends to be proud of things she/he does.
1	2	3	25. Accepts changes without fighting against them or becoming upset.
1	2	3	26. Bullies other children.
1	2	3	27. Is interested in many and different things.
1	2	3	28. Is worried about not getting enough.
1	2	3	29. Is bossy, needs to have his/her way.
1	2	3	30. Enjoys talking with you.