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EFFECTS OF MOTHERS' MOOD AND CHILD HEALTH PROBLEMS
ON THE QUALITY OF MOTHER-CHILD INTERACTIONS
AND SUBSEQUENT CHILD HEALTH

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ANN ELIZABETH WAGNER

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EFFECTS OF MOTHERS' MOOD AND CHILD HEALTH PROBLEMS
ON THE QUALITY OF MOTHER-CHILD INTERACTIONS
AND SUBSEQUENT CHILD HEALTH

By

Ann Elizabeth Wagner

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ABSTRACT

EFFECTS OF MOTHERS' MOOD AND CHILD HEALTH PROBLEMS ON THE QUALITY OF MOTHER-CHILD INTERACTIONS AND SUBSEQUENT CHILD HEALTH

By

Ann Elizabeth Wagner

Surveys of pediatric clinics have shown that their heaviest use is not by children with a specific chronic illness, but rather by children who present repeatedly with a variety of health problems. The present study is concerned with those children who are frequent users of pediatric care facilities because of a high incidence of common childhood illnesses. The study investigates a set of related variables that are hypothesized to contribute to the vulnerability of young children to recurrent illness: maternal depressed mood, mothers' experience of parenting stress, and the quality of the mother-child relationship.

Fifty-six mother-child dyads were recruited from a pediatric clinic at a midwestern university. Children were 29 girls and 27 boys between the ages of 3 and 4 years ($M = 42$ months). Mothers were married, between the ages of 22 and 39 years ($M = 31.5$), and predominantly Caucasian and middle class. Mothers completed self-report measures of depressed mood and stress. Mother-child pairs were videotaped in structured play situations. Child illness was rated from medical records.

A model is presented which links child health, mothers'

depressed mood, maternal stress, and the quality of mother-child interactions at one point in time to child health during the following twelve months. Multiple regression analyses partially supported the model. Analyses revealed a compensatory process by which mothers experiencing higher levels of stress were more positive, supportive, and facilitative in interactions with their children. Only previous child illness predicted health problems during the follow-up year. Post hoc analyses explored the influence of mothers' employment status on variables in the proposed model.

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INTRODUCTION

Surveys of pediatric clinics have shown that their heaviest use is not by children with a specific chronic illness, but rather by children who present repeatedly with a variety of health problems (Starfield et. al., 1985). It has been suggested that since high utilization of pediatric care facilities is not related to specific chronic illnesses, other biological, psychological or social factors might be involved in predisposing certain children to repeated health problems (Starfield et. al., 1985). Alternatively, frequent visits to health professionals might reflect a tendency to overreact to illness on the part of the child or parent, resulting in frequent visits for minor symptoms that other families might ignore (Starfield et. al., 1985). The present study is interested in those children who are frequent users of pediatric care facilities because of a high incidence of common childhood illnesses. The study investigates a set of related variables that are hypothesized to contribute to the vulnerability of young children to recurrent illness: maternal depressed mood, mothers' experience of parenting stress, and the quality of the mother-child relationship.

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have negative effects on children's health is supported by the literature on maternal depression. It has been shown that children of clinically depressed mothers experience more health problems and higher levels of psychosocial stress than children of non-depressed mothers (Billings & Moos, 1985; Weissman et. al., 1986). Moreover, children's psychosocial stress increases the likelihood of even greater frequency and severity of health problems (Meyer et. al., 1966; Boyce et. al., 1977; Chandler, 1985).

The literature on maternal mental health also suggests the possibility of a "vicious cycle" in which repeated illnesses in the child causes increased distress in the mother, which in turn exacerbates the child's vulnerability to further illness. While few investigations of mothers' reactions to children's general health problems have been undertaken, it has been demonstrated that the experience of a high number of stressful events, especially those associated with family life, increases risk for depression in women (Billings & Moos, 1985; Lloyd, 1980; Stewart & Salt, 1981). Child illness could certainly be considered a family-related stressor, and might therefore contribute to mothers' experience of stress and depressed mood (Casey, 1983).

Further support for this inference comes from the chronic illness literature that has demonstrated increased levels of stress, anxiety and depression in mothers of

children with severe chronic illnesses (Browne et. al., 1960; Lawler et. al., 1966; Gayton et. al., 1977; Binger et. al., 1979; Meijer, 1980-81; Bywater, 1981; Klein & Nimorwicz, 1982; Kupst et. al., 1984). Similar but less dramatic effects might be associated with repeated illnesses of a more routine nature.

The present study hypothesizes that the presumed link between maternal depression and child health problems which has been reported is actually an indirect one. The proposed model suggests that both mothers' depressed mood and child health problems contribute to the mother's experience of her role as a parent as stressful, and that it is a high degree of maternal stress that subsequently contributes to an even greater incidence of child health problems.

While recognizing that maternal stress may impact on the child in many ways, the present study is primarily concerned with disruptions in the quality of the mother-child relationship that may result from the child's illness and the mothers' experience of stress and depressed mood. Studies on depression in women support the idea that mothers' distress impacts negatively on their feelings about their children and on mother-child interactions (Weissman et. al., 1972; Susman et. al., 1984; French, 1983).

While most investigations of the effects of mothers' mood on mother-child relationships have been with clinical populations, an important study by Belle (1982) and her

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colleagues found similar effects of stress and depressed mood in a non-clinical population of low-income mothers.

It has been demonstrated that parents who are well-adjusted and are warm and responsive to their children's needs are best able to buffer the effects of stressful life events (Chandler, 1985). A secure, reciprocal relationship between mother and child is the primary means by which a child learns a sense of security and mastery over his or her environment (Belsky, 1984; Bretherton, 1985). The lack of reciprocity, warmth and consistency inherent in the interaction styles described above may leave the child vulnerable to routine or unusual stressful events, and hence susceptible to more frequent or severe illnesses.

The present study tests a model which links child health, mothers' depressed mood, maternal stress, and the quality of mother-child interactions at one point in time to child health during the following twelve months.

Chapter 1

Review of the Literature

Maternal mental health and child health problems

The idea that psychological distress of mothers can have negative effects on children's health is supported by the literature on maternal depression. Depression is the most commonly reported psychological problem in women, and it is estimated that 20% to 30% of all women experience depressive episodes at some point in their lives (Carmen et.al., 1981). Married women with preschool-aged children constitute the group with the highest risk for depression (Bernard, 1976; Radloff & Rae, 1981; Myers et.al., 1984; Weissman et.al., 1986). In most cases, women's experience of depression does not become debilitating enough to require hospitalization, and may not even reach the attention of professionals (Levitt et.al., 1981), but constitutes what one author has called the "garden variety" of depression (Carmen et. al., 1981).

Anthony (1983) conceptualizes a "depressive spectrum" that ranges from transient feelings of sadness, weepiness, and emotional lability to schizodepressive reactions. He points out that with the exception of delusions, it is generally the intensity and frequency of symptoms that distinguish neurotically from psychotically depressed individuals. The kinds of symptoms most commonly associated with depression (sad faces, stooped posture, slow speech,

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depressed mood, feelings of hopelessness, conscious guilt, feelings of inadequacy, somatic preoccupations, suicidal wishes, indecisiveness, loss of motivation and interest, fatigability and sleep disturbance, constipation, and loss of appetite) can be experienced in various combinations and with varying degrees of intensity.

The deleterious effects of maternal depression on children is well-documented when the mother is clinically depressed (Morrison, 1983; Billings & Moos, 1983; Billings & Moos, 1985; Weissman et. al., 1986; Kaplan et. al., 1987). The full range of child behavior problems has been linked to maternal depression: fighting, depressed mood, sad feelings, suicidal thoughts, unexplained headaches, and apathy (Reid & Morrison, 1983); peer problems and withdrawal (Cohler et. al., 1983); depression and conduct problems (Hammen et. al., 1987); academic difficulties and attention deficits (Billings & Moos, 1983; Weissman et. al., 1986) are among the most frequently reported. Maternal depression has also been linked to children's physical health problems (Billings & Moos, 1985; Weissman et. al., 1986).

Billings & Moos (1983) conducted a longitudinal study with families in which one parent had entered treatment in a psychiatric facility, and had a diagnosis of minor or major depression. At the start of treatment, patients and family members were assessed on a variety of dimensions, including both parents' reports of their children's psychological,

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behavioral and health problems over the previous month. When compared with a control group of children of nondepressed parents, the children in the clinical group were reported to have had a greater number of physical health problems (e.g., allergies, asthma, frequent colds or coughs, headaches, indigestion) during the month preceding their parents' seeking help. Their parents also reported more psychological and behavioral problems in their children. In order to rule out a negative reporting bias on the part of the depressed parent, comparisons of both parents' reports were made, but no significant differences were found.

Among the group of families in which the parent's depression had remitted at follow-up, the children's health, psychological, and behavior problems had improved. However, these families and children continued to have significantly more problems than control families in which neither parent had ever been depressed. What may be occurring is a two-way interaction between family problems and maternal depression, where each exacerbates the other. Causal modelling and longitudinal designs would be useful for investigating such an interaction.

Weissman and her colleagues (1986) investigated the health, social, and psychiatric difficulties of 220 children from families with a depressed parent and matched non-depressed control families. In addition to being more

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likely to be diagnosed with a psychiatric disorder, children with depressed parents were reported to have had more traumatic perinatal events, more developmental delays, and more convulsions, head injuries, and operations.

There is, then, support for the hypothesis that there is an association between maternal mental health and child physical health. However, investigations thus far have been primarily with a clinical sample of depressed parents and their children. There is a need for similar investigations using nonclinical samples of women, and using indicators of psychological distress other than depression. There is also a need for more objective and comprehensive measures of child health problems. Finally, the nature of the relationship between maternal mental health and child physical health should be explored.

Effects of mothers' psychological distress on the mother-child relationship

One of the implications of the above literature is that depressed mothers somehow relate differently to their children, and that some dysfunction in parenting is contributing to difficulties in their children. Attributional and cognitive models of depression suggest ways in which depressed mood might influence mothers' perceptions of their children and their abilities as a parent, which in turn may influence their parenting behavior.

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Abramson's reformulation of the learned helplessness theory of depression (Abramson et. al., 1978) proposes that depression is the result of attributing negative outcomes or events to internal, global, stable factors. Accordingly, a depressed mother would attribute problems with her child or within the family to characteristics within herself, and would feel that she is unable to change either herself or the difficult situation.

Similarly, Beck's cognitive model of depression (Beck et. al., 1979) suggests that the depressed person has a negative self-concept and a sense of helplessness and hopelessness about current experiences and future events. The depressed person sees life as lacking pleasure, has few hopeful expectations, and little motivation to act. The depressed parent, then, would feel helpless in the face of difficult situations, would feel inadequate as a parent, and would be less likely to take an active role in handling day to day routines and activities. Furthermore, this model proposes that the depressed individual is likely to distort actual events to fit the hopeless thought patterns described above, thereby maintaining the depressive cognitive style. The depressed mother might therefore be likely to interpret her children's behavior in a more negative light, which would impact both her perceptions of her child and her feelings about the parent role.

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children, one possibility that has to be considered is that children of depressed mothers are not more problematic than other children, but that the mothers' affective state makes her less tolerant of children's behavior, or that she is more likely to view her child's behavior in a negative light. As previously mentioned, Billings & Moos (1983) reported good agreement between the depressed parent's and the nondepressed parent's reports of their children's psychological, behavioral, and physical health problems. However, a family systems perspective would predict that spouses' perceptions of their children would be influenced by each others' perceptions as well as by the child's actual behavior. A more objective report of child behavior might be from someone outside of the home who knows the child well. An alternative might be direct observations of child behavior in natural settings or in analogue situations in the laboratory.

Schaughency & Lahey (1985) compared mothers', fathers' and teachers' reports of child behavior using a standardized behavior rating scale. Mothers' and fathers' ratings of their children's behavior were significantly correlated. However, mothers' ratings of the children's behavior were significantly correlated with teachers' ratings while fathers' ratings were not.

To assess the relative influence of maternal depression and child behavior on mothers' ratings of their children's

behaviors, multiple regression analyses were conducted, using teacher ratings of child behavior and mothers' scores on the Beck Depression Inventory as predictor variables. While both variables were strongly correlated with mothers' child behavior ratings, teacher ratings predicted the greatest amount of variance. These results seem to suggest that although mothers' depression does affect their perceptions of their child's behavior, they remain relatively consistent with those of an independent observer. Alternatively, the authors point out that the causal relationship may be in the other direction, with child deviance contributing to the experience of depression in these mothers.

Similarly, Brody and Forehand (1986) found that an interaction between high maternal depression and high levels of child noncompliance predicted mothers' perceptions of more child maladjustment. Sixty clinic-referred mother-child dyads were observed over four 40-minute interaction periods. Observer ratings of child noncompliance were derived from these interactions. Mothers' level of depression was measured by self-report using the Beck Depression Inventory. Mothers' perceptions of child maladjustment were derived from their scores on a standardized Behavior Rating Scale. A 2 X 2 analysis of variance revealed that the group characterized by high maternal depression and high levels of child noncompliant

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behavior was associated with more perceived child maladjustment than were the other three groups (high maternal depression/low child noncompliance, low maternal depression/low child noncompliance, and low maternal depression/high child noncompliance).

While the relationship between mothers' psychological distress and their perceptions of their children may not be a simple one, it is clear that any research which attempts to investigate the effects of mothers' mental health on their children must take into account possible biases in the mothers' reports of their child's functioning associated with level of depression.

Depressed mothers also report differences in their attitudes about parenting and their behaviors toward their children. An investigation of child-rearing environments conducted by the National Institute of Mental Health (Susman et. al., 1985) compared the parental attitudes, self-reported behaviors, and goals of depressed, abusive, and normal control mothers. Differences between depressed and control mothers were primarily in the areas of discipline/control and expression of affect. Depressed mothers reported more inconsistency in discipline and control, and were more overprotective of their children than were non-depressed control mothers. They were also less emotionally expressive themselves, and were less likely to encourage their children to express their feelings.

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Only a few reports of direct observations of depressed mothers and their children have been published. Kochanska and others (1987) reported that in control situations, depressed mothers were less likely to compromise with their children and were more likely to avoid confrontations when compared with well mothers. They speculated that low compromise reflected the mothers' inability to encourage autonomy and independence, and that the avoidance of confrontations was due to their inability to cope with emotionally intense situations.

Hops and his colleagues (1987) demonstrated that depressed mothers' behavior has an effect on the behavior of family members, and that this effect is reciprocal. They observed the interactions between depressed women and their families in their homes. They observed that the mother's expression of dysphoria was followed by a suppression of aggressive affect in family members. Conversely, aggressive affect seemed to suppress dysphoric affect on the part of the mother. The authors hypothesize a negative interaction cycle by which family members try to manipulate each other with aversive behaviors which actually serve to reinforce the very behaviors they are trying to suppress.

While most investigations of mothers' mental health and the effects on mother-child relationships have been with clinically depressed mothers, Belle (1982) and her colleagues conducted an important investigation of a



non-clinical population of low income mothers' experience of stress and depression. They demonstrated that the women's experience of parenting-related stress and depression affects their feelings about being a parent and their interactions with their children.

Women who reported high levels of stress and depressed mood reported that they made more demands for assistance with household chores on their children, were less likely to assist in these tasks, and were more likely to punish attention-getting behavior, when compared with mothers who reported less distress. They also reported higher expectations of immediate compliance, but said that they were less consistent about following through with consequences for noncompliance (Zelkowitz, 1982).

In home observations, the mothers with higher stress and depression scores were observed to be less responsive to children's dependency needs and less likely to initiate nurturant interactions with their children. Depressed mood was additionally associated with more hostile and dominating interaction styles, and with fewer demonstrations of warmth, affection and positive affect (Longfellow et. al., 1982).

The literature suggests that mothers who experience high levels of depressed mood and stress do interact differently with their children. The differences seem to be primarily related to the regulation and expression of affect, and to difficulties in balancing appropriate control

over their children's behavior while encouraging the development of autonomy and independence. It is suggested that disturbances in the parent-child relationship may cause emotional, behavioral, and physical health problems in these children. There is need for longitudinal research that uses direct observations of mother-child interactions to confirm the direction of effects, and to clarify the exact nature of these relationships.

The present study investigates the relationship between mothers' experience of depressed mood and parenting stress, and the quality of their interactions with their children. Depressed mood is expected to have both direct and indirect effects on the mother-child interactions. Because depressed people appear to have difficulty with interpersonal relationships in general, it is anticipated that higher levels of depressed mood in mothers will be associated with less responsive and facilitative interactions with their children. Additionally, it is predicted that the global "depressive" attributes and cognitions will be associated with higher levels of parenting stress, as mothers with high levels of depressed mood will feel less confident and rewarded by their role as parent. This is likely to translate into less consistency, warmth, and facilitation in the mother-child interactions.

The effect of child health problems on mothers' mood

As has been pointed out by Shaughency and Lahey (1985), correlational studies which find associations between mothers' mental health and child difficulties leave unanswered the question of direction of effects. Such findings often are interpreted as evidence that disturbances in mothers' mood contribute to child dysfunction. But an alternative hypothesis might be that child dysfunction contributes to the experience of depressed mood and stress in the mothers.

The present study is concerned with the contribution of recurrent child health problems to mothers' mood and the quality of mother-child interactions. Virtually all of the research on mothers' adjustment to child illness has looked at reactions to severe, life-threatening diseases or major developmental disorders such as congenital heart disease, childhood cancer, cystic fibrosis, asthma, diabetes, and mental retardation (e.g., Solnit & Stark, 1961; Olshansky, 1962; Sterky, 1962; Chodoff et.al., 1964; McCollum & Gibson, 1970; Falkman, 1977; Boll et. al., 1978; Paquay-Weinstock et.al., 1979; Parker & Lipscombe, 1979; Schulman & Kupst, 1980; Venters, 1981). While there is little evidence of increased incidence of major depressive episodes in these mothers, higher than normal occurrences of depressed mood, sadness, guilt, low confidence in parenting skills, low self-esteem, helplessness, unmet dependency needs, sleep



disturbances, and anxiety have been reported (Browne et. al., 1969; Lawler et.al., 1966; Meijer, 1976; Gayton et.al., 1977; Binger et.al., 1979; Bywater, 1981; Klein & Nimorwicz, 1982; Kupst et.al., 1984). Although comparable research has not been done with mothers of children with less severe chronic illnesses, one might expect similar though less dramatic results.

Many studies have found a correlation between life stressors and depression (Lloyd, 1980; Billings & Moos, 1982; Billings & Moos, 1983; Billings & Moos, 1985; Hammen et.al., 1987), and family-related stressors seem to be particularly relevant to depression in mothers (Stewart & Salt, 1981; Billings & Moos, 1983). Chronic childhood illness would certainly be considered a family-related stressor. According to the cognitive and attributional models of depression, the imminent or threatened death of the child, the financial strain and daily hassles associated with management of the illness, behavioral or developmental disturbances associated with the illness, and changes in family members' lifestyles could cause depressive symptomatology in parents who are predisposed to negative cognitive or attributional sets.

Because this sample is relatively healthy (i.e. they do not have severe chronic illnesses) and because maternal depressed mood is also influenced by other family stressors (e.g., marital relationship, financial status) (Shaughency &

Lahey, 1985) and cognitive set (Abramson et. al., 1978; Beck et. al., 1979) not investigated in this study, the health status of children in this study is not expected to contribute directly to mothers' depressed mood. However, it has been demonstrated that young children with common illnesses and fevers are more clingy, whiny and dependent while ill and while recuperating from the illness (Mattson & Weisberg, 1970). Mothers of children with recurrent otitis media, one of the most common childhood illnesses, have described their children as more moody and inattentive (Feagans et. al., 1987; Casey, 1983) than children without ROM. It could be expected, then, that child illness may indirectly contribute to mothers' depressed mood via increased levels of stress. While this bidirectional relationship between child illness, parenting stress, and maternal depression seems plausible, the recursive nature of the proposed path model does not allow for testing this idea.

A stronger relationship is hypothesized to exist between child health problems and mothers' experience of their parenting role as stressful. Casey (1983) found that mothers of children with severe or recurrent serous otitis media (SOM) reported higher levels of parenting stress, as measured by the Parenting Stress Index (Abidin, 1986), than did mothers of children with little or no experience with SOM. Specifically, these mothers experienced their children

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as more demanding and less adaptable. These mothers reported lower levels of acceptance and less attachment to their children.

The above study needs replication, but it nevertheless gives supportive evidence to the hypothesis that common but recurrent childhood illnesses can contribute to mothers' experience of parenting stress. The proposed model predicts that child health problems will directly influence mothers' experience of parenting stress, both in terms of their feelings about themselves as mothers (parent domain) and their experience of their child as stressful (child domain). These predictions are based on the assumption that repeated illnesses, even minor or "routine" ones can undermine parents' confidence in their ability to protect their children, and the increased need for caretaking a frequently ill child can increase mothers' feelings of restriction and isolation in the role of parent. Additionally, the difficult child behavior associated with illnesses is expected to cause mothers to experience their sick children as causing them stress. Child domain stress, therefore, is predicted both by mothers' experience of parent domain stress (and indirectly by maternal depressed mood) and by child illness.

Chapter 2

Summary and Hypotheses

The Family Factors in Children's Health Study is an ongoing research project relating family characteristics to children's health problems. The purpose of the present study is to investigate the effects of mothers' depressed mood and stress on preschool children's health problems in 56 mother-child dyads who are participating in the larger study.

The proposed model (see Figure 1) predicts a reiterative process, in which recurrent health problems in the child, and depressed mood and stress in the mother, negatively effect the quality of the parent-child interactions. In turn, poor interactions and parenting stress are expected to be related to further health problems in the child. To test this model, the following hypotheses will be addressed:

Hypothesis I

Mothers' experience of their parent role as stressful will be predicted by a) their level of depressed mood, and b) the extent of their child's health problems prior to their participation in the study. It is expected that level of depressed mood and child health problems will both be positively associated with mothers' reports of parent-domain stress.

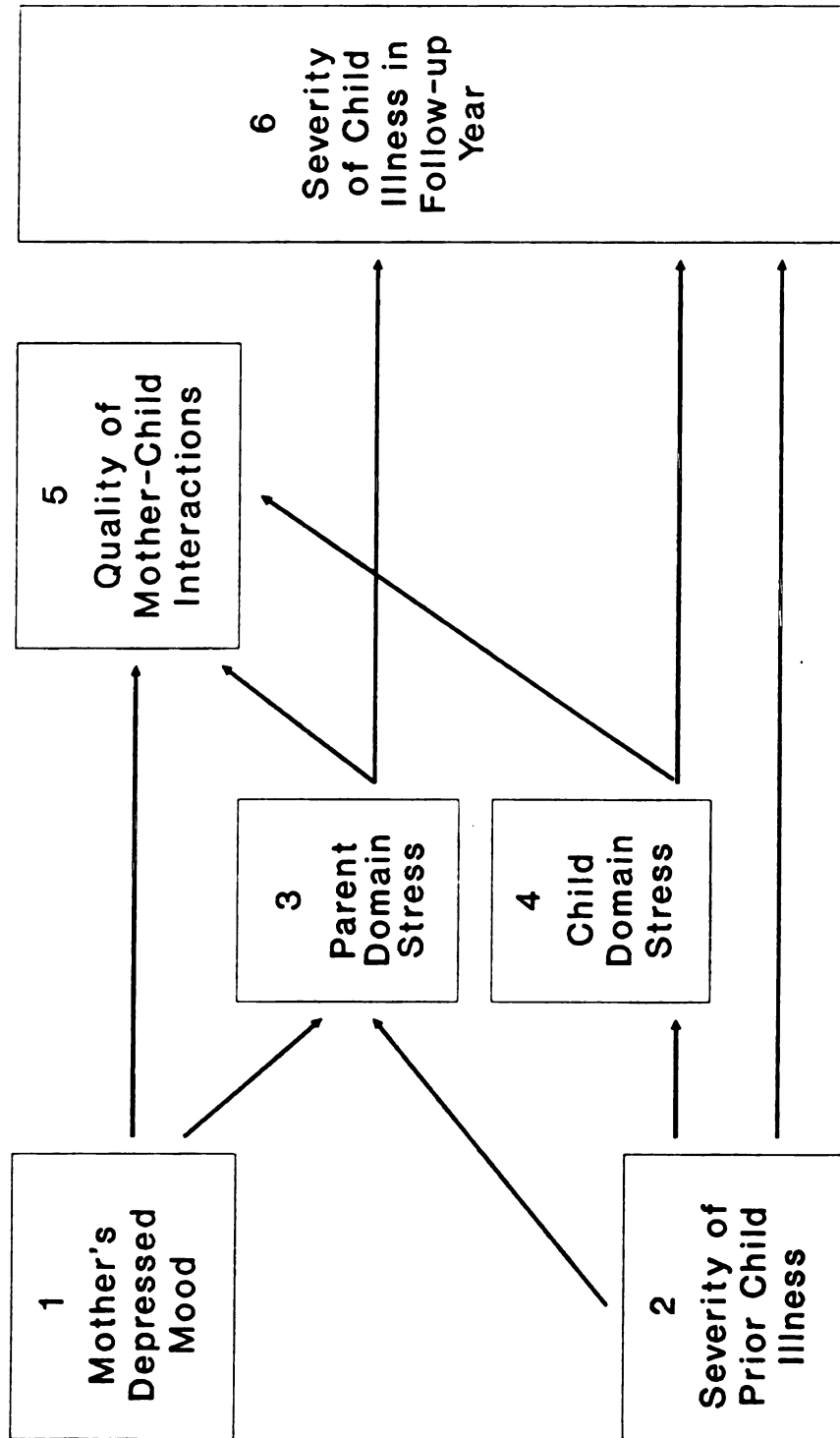


Figure 1. Proposed Model Predicting Quality of Mother-Child Interactions and Subsequent Child Illness.

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Hypothesis II

Mothers' experience of their children as stressful will be predicted by a) their experience of their parent role as stressful, and b) the extent of their child's health problems prior to the study. It is expected that both parent-domain stress and prior health problems will be positively associated with child-domain stress.

Hypothesis III

The quality of mother-child interactions will be predicted by a) level of mothers' depressed mood, b) mothers' experience of stress in their role of parent, and c) mothers' experience of their children as stressful. It is expected that depressed mood, parent-domain stress, and child-domain stress will each be negatively associated with the quality of mother-child interactions.

Hypothesis IV

Greater extent of child health problems in the year after completion of the study will be predicted by a) more health problems prior to the study, b) mothers' reported feelings of stress related to the parent role, c) mothers' reported feelings of stress related to their child, and d) the quality of interactions between the mother and child in the taped dyadic interactions. It is expected that prior health problems, role-related stress, and child-related stress will be positively associated with health problems during follow-up, whereas the quality of parent-child

interactions will be negatively associated with future health problems.

Chapter 3

Method

Participants

Subjects are 56 mother-child dyads who participated in the Family Factors and Children's Health Study, which is an ongoing research project investigating characteristics of families associated with children's health problems. The present study included mother-child dyads in which the children had a range of common childhood illnesses. Children were excluded if they had a history of life-threatening or serious chronic illness. The children (29 girls, 27 boys) were 3 and 4 years of age ($M = 42$ months). To avoid confounding effects of child health with other major family stressors, families were included only if both parents were living in the home, both parents had at least a high school education, and there were not more than four children in the family. Sixty-eight percent of the eligible families agreed to participate.

Mothers ranged in age from 22 to 39 years, with a mean age of 31.5 years. They had been married an average of 7.25 years, with years of marriage ranging from 3 to 10 years. The sample was predominantly Caucasian (48 White, 6 Black, 2 Hispanic). Education level of the mothers ranged from high school to graduate level education. Eighteen percent of the subjects had never attended college; fifteen percent had



M.A. or Ph.D. degrees. Seventy percent of the mothers in this sample were working outside of the home at the time of their participation in the study. Forty-two percent of the working mothers were working full time. Average yearly income for the participating families was between \$35,000 and \$40,000.

Procedure

Names of families with three-year-old children were identified from the medical records at the Pediatric Clinic at the Michigan State University Clinical Center. Families who agreed to participate were interviewed in their homes on two occasions, filled out questionnaires between home visits, and participated in videotaped parent-child interactions at the MSU Psychological Clinic. Medical records were obtained from all physicians and medical care facilities who treated the child from birth through the one-year follow-up period. The study utilized data from questionnaires filled out by parents and videotaped interactions at the beginning of the study, and health and medical data collected both initially and one year following the family contacts.

Instruments

Child Health. The children's health histories were gathered from medical records from the MSU Clinical Center and other health care agencies identified by the mothers as having treated the child. Severity of Illness scores were



computed by summing illness severity scores coded for each illness diagnosed at each physician contact. Scores for each visit were based on Horwitz (1983; Horwitz et. al., 1988) and range from 0 (assigned to health maintenance visits or "follow up" visits for a prior, resolved illness) to 3 (usually assigned to illnesses requiring hospitalization). A pediatrician coded the medical records. A second pediatrician who was not involved with the study, and was unaware of the hypothesized relationships, coded 10 of the 56 medical records. Interrater reliability for the double-coded records was .93.

The model tested includes two variables derived from the Illness Severity scores. Severity of Illness in the Previous Year (PRE-ILL) was derived by summing illness severity codes over the 12 months prior to the family's participation in the study. Severity of Illness During the Follow-Up Year (FU-ILL) was derived by summing illness severity scores over the 12 months following the collection of questionnaire data and the family's participation in the videotaped interactions. Loglinear transformations of the variables were used to reduce skewness in these scores.

Beck Depression Inventory. The BDI is a 21-item self-report questionnaire designed to assess current cognitive, affective, and somatic symptoms of depression. (See Appendix A) Each item consists of four alternative statements describing symptoms of depression ranging in

severity from 0 to 3. A total depression score is computed by adding the severity ratings of each alternative chosen. A score of 0 to 9 indicates no or minimal depression; 10 - 18 indicates mild to moderate depression; 19 - 29 indicates moderate to severe depression; and 30 - 63 indicates severe depression (Beck, et. al., 1988).

Beck et. al. (1988) conducted meta-analyses based on reliability and validity studies of the BDI from 1961 through June, 1986. Internal consistency estimates yield a mean coefficient alpha of .86 for psychiatric populations and .81 for nonpsychiatric populations. Concurrent validity has been assessed by comparing BDI scores to those of other tests of depression and to clinicians' ratings of depression. Mean correlations with clinicians' ratings with psychiatric and nonpsychiatric subjects were .72 and .60, respectively. Mean correlations of the BDI with other tests of depression were .73 for psychiatric populations and .74 for nonpsychiatric subjects. The BDI is also reported to discriminate well between depression and anxiety (Beck & Beck, 1972; Beck et. al., 1988).

The proposed model includes one variable, Severity of mothers' depressed mood (DEPRESS) was derived from the total depression score of the BDI (Beck & Beck, 1972). In this study's sample, 67.9% ($N = 38$) of the mothers reported no or minimal depression; 25% ($N = 14$) reported mild to moderate depression; and 7.1% ($N = 4$) reported moderate to severe



depression. No mothers reported depression in the severe range.

Parenting stress. The Parenting Stress Index (Abidin, 1986; see Appendix B) is a 120-item questionnaire designed to assess the degree of stress in the parent-child system. A profile is derived which identifies the degree of stress associated with the Child Domain (adaptability, acceptability, demandingness, mood, distractibility/hyperactivity, reinforces parent; 47 items), and the Parent Domain (depression, attachment, restriction of role, sense of competence, social isolation, relationship with spouse, parent health; 54 items). The PSI also includes an optional Life Stress scale (19 items). A Total Stress Score is derived by adding the Child Domain and Parent Domain scores. High scores on each subscale are indicative of greater stress.

The PSI was normed on a sample of 534 mothers of children between the ages of 1 month and 19 months of age, with a mean age of 14 months. The sample group was predominantly white, with a wide range of family incomes represented, and a relatively high educational level. Normative data on 100 fathers, also predominantly white, are reported as well. Concurrent validity was demonstrated by correlating test scores with alternative measures of the same construct. The reported correlations were generally satisfactory, ranging from the .40's to the .80's. The

instrument has also been shown to have good predictive and discriminant validity (Abidin, 1986). Alpha reliability coefficients for the subscales, domain scores and total score ranged from .52 to .95, indicating adequate internal consistency. Test-retest reliability coefficients ranged from .63 to .96 after three-month intervals, and from .55 to .70 after a one-year interval.

Numerous studies have demonstrated the adequate reliability and discriminant validity of the PSI when used with parents of preschool and school-aged children as well (e.g., Breen & Barkley, 1988; Burke, 1978; Mouton & Tuma, 1988; Spielberger, Gorsuch, & Lushene, 1970). These results suggest that the PSI is a reliable and valid instrument for the assessment of stress in the parent-child system.

The proposed model utilized two variables derived from the PSI. Parent domain stress (MOSTRESS) is a composite of all subdomains included in the Parent Domain score with the exclusion of the depression subdomain score ($\alpha = .84$). The depression subdomain was excluded to avoid confounding the parenting stress and depressed mood variables. Subdomains included in this variable (attachment, restriction of role, sense of competence, social isolation, relationship with spouse, parent health) reflect stresses associated with mother characteristics and perceptions of the parenting role.

The child domain stress (CHSTRESS) variable is the

complete Child Domain Score from the PSI. This variable reflects stresses associated with child characteristics (adaptability, acceptability, demandingness, mood, distractibility, reinforces parent).

Videotaped interactions. Each mother and child dyad was videotaped during a number of interactions in the psychological clinic. The interactions took place in a small playroom in which the mother and child were seated on opposite sides of a small table containing age-appropriate toys. Three tasks were videotaped, during which the mother was directed via a bug-in-the-ear device. The first task was child-directed, during which time the mother was instructed to play with her child, allowing the child to direct the play. After 5 minutes the mother was instructed to tell the child that it was her turn to choose a game and to keep the child playing by her rules. After 5 minutes of mother-directed play, the mother was instructed to ask her child to clean up the toys. The clean-up task ended when the task was completed, or after 10 minutes if clean-up had not been accomplished.

These tapes were coded using an adapted version of a system devised by Belsky (1987), which measures both parent and child variables. The coding system was developed to be consistent with research on parent-child relations which highlight the centrality of affect and control in parental behavior, and child behavior which reflects attention,



affect, and social orientation. Mother behaviors are coded which reflect positive and negative affect, responsiveness to child's needs and affect, ability to facilitate or undermine child's functioning. Child variables reflect positive and negative affect, cognitive and behavioral competence, persistence in maintaining contact with the parent, dependency, compliance and disobedience. Table 1 briefly describes the codes, and Appendix C includes a complete description of each code.

Tapes were coded by three graduate level students. Raters trained on pilot tapes until Pearson correlations between raters' codes (one code per variable per minute of tape) were above .70. Raters then coded subjects' tapes, double coding every fourth tape. Reliability was checked after each double-coded tape, and re-training was implemented when necessary. Pearson correlations across all doubly coded tapes for each item ranged from .53 to .95 ($M = .82$).

Table 1

Items Coded for Quality of Mother-Child Interactions

<u>Item</u>	<u>Description</u>
A. Positive Affect	Extent to which the parent displays warmth, nurturance, and positive affection toward child.
B. Negative Affect	Extent to which parent displays hostility, negative affect, and displeasure or annoyance toward child.
C. Positive Feedback	Extent to which parent provides contingent rewards and praise to child.
D. Negative Affective Feedback	Extent to which parent criticizes and/or demeans child's behavior.
E. Facilitates Self-Regulation	Extent to which parent facilitates child's ability to control and engage situation.
F. Intrusive/Overcontrolling	Extent to which parental behavior is ill-timed, intrusive, or inappropriately controlling.
G. Unresponsive/Unavailable/ Undercontrolling	Extent to which parent makes no attempt to control or facilitate child's behavior.
H. Demands Self-Reliant Behavior	Extent to which parent explicitly or indirectly requires child to be self-reliant.
I. Undermines Child Functioning	Extent to which parent subtly or overtly undermines child's optimal functioning.
J. Focused Attention/ Involvement	Extent to which child involves self in play activities or exploration.
K. Cognitive Sophistication	Child's sophistication in play, and level of play organization.
L. Sense of Mastery/Skill/ Competence	Mastery, skill or competence child displays during play.
M. Organized Transitions	Child's movement from one involved activity to another.
N. Positive Affect/Enthusiasm	Enthusiasm and comfortableness of the child.
O. Negative Affect	Extent to which child shows anger, dislike, or hostility.
P. Degree of Distress	Degree of distress of child.
Q. Strange Behavior	Strange behaviors (e.g., rocking, blank staring, frozen posture).
R. Transgressions	Extent to which child contacts objects and materials that have been placed off-limits.
S. Seeking Proximity to Parent	Extent to which child seeks proximity to parent.
T. Distancing from Parent	Extent to which child tries to increase physical distance between self and parent.

Table 1 (cont'd)

<u>Item</u>	<u>Description</u>
U. Cooperation/Compliance	Extent to which child complies with parent's specific instructions or directions.
V. Disobedience	Extent to which child verbally refuses to comply with parent's request.
W. Dependency/Need for Help	Extent to which child turns to parent for help.
X. Verbal Interaction with Parent	Extent to which child maintains verbal contact with parent.

Chapter 4

Results

Operationalizing the quality of mother-child interactions

An aggregate score reflecting the Quality of Mother-Child Interactions (QUALITY) was derived by adding z-scores for the mother and child codes after multiplying those considered to reflect more negative interactions by -1. Codes were excluded if less than five subjects exhibited the behaviors in question. These included Mother's Negative Affect, Strange Behavior, and Degree of Distress Exhibited by Child. Items were also excluded if their item-total correlations were less than .20. Items excluded by this criterion were Child Seeks Proximity to Parent, Child's Organized Transitions, Verbal Interaction with Parent, and Child's Dependency/Need for Help. To reduce skewness due to outlying scores, z-scores greater than +3.00 and less than -3.00 were converted to +3.00 and -3.00, respectively. The raw score means, standard deviations, range of scores, and number of outliers for each code are listed in Table 2.

The final quality scale ($\alpha = .87$) included seventeen items. Item-total correlations are shown in Table 3. Three positive maternal behavior codes (Positive affect, Facilitates self-regulation, Positive feedback), and five negative maternal behaviors (Unresponsive/unavailable/undercontrolling, Intrusive/overcontrolling, Negative



Table 2.

Descriptives of Items in Quality of Mother-Child Interactions

<u>Item</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Min/Max*</u>	<u>#Outliers</u>
<u>MOTHER BEHAVIORS</u>				
Positive Affect	2.99	.47	1.93 - 3.79	
Positive Feedback	1.45	.28	1.00 - 2.27 (1)	2 ^a
Negative Affect Feedback	1.12	.25	1.00 - 2.35 (28)	
Facilitates Self-Regulation	2.66	.35	1.86 - 3.46	
Intrusive/Overcontrolling	1.20	.24	1.00 - 2.13 (15)	2 ^a
Unresponsive/Unavailable	1.04	.11	1.00 - 1.60 (45)	2 ^a
Demands Self-Reliant Behavior	1.02	.04	1.00 - 1.23 (44)	1 ^a
Undermines Child	1.03	.09	1.00 - 1.56 (40)	1 ^a
<u>CHILD BEHAVIORS</u>				
Focused Attention	3.94	.49	2.24 - 4.64	1 ^b
Cognitive Sophistication	2.44	.36	1.52 - 3.31	
Mastery/Skill/Competence	3.46	.47	2.40 - 4.38	
Organized Transitions	1.04	.06	1.00 - 1.18 (30)	
Positive Affect	3.16	.54	2.07 - 4.23	
Negative Affect	1.32	.38	1.00 - 2.71 (10)	2 ^a
Transgress	1.20	.33	1.00 - 2.55 (20)	2 ^a
Seek Proximity	1.04	.18	1.00 - 2.24 (47)	1 ^a
Distancing	1.05	.14	1.00 - 1.90 (39)	1 ^a
Cooperation	2.04	.36	1.30 - 2.83	
Disobedience	1.43	.44	1.00 - 3.00 (5)	1 ^a
Dependency	1.17	.18	1.00 - 1.67 (15)	
Verbal Interactive	3.06	.58	1.86 - 4.57	

* (N) indicates number of subjects that did not exhibit behavior (value = 1.00).

^a Z - score > +3.00

^b Z - score < -3.00

Table 3.

Item-total Correlations for Quality of Mother-Child Interactions.

<u>Mother Behavior</u>		<u>Child Behavior</u>	
Positive affect	.55	Positive affect	.46
Facilitates self-regulation	.37	Mastery/self-confidence	.53
Positive feedback	.33	Cognitive soph.	.26
Unresp./unavail./undercont.	.57	Focussed attent./involvement	.66
Intrusive/overcon.	.24	Disobedience	.64
Negative feedback	.50	Transgressions	.69
Undermines child functioning	.61	Negative affect	.59
Demands self-rel.	.23	Distancing from parent	.55

feedback, Undermines child functioning, Demands self-reliance) were included. Child behavior codes included in the final scale consisted of five positive behaviors (Child positive affect, Mastery/self-confidence, Cognitive sophistication, Focussed attention/involvement, Cooperation/compliance) and four negative child behaviors (Disobedience, Transgressions, Child's negative affect, Distancing from parent).

Correlational analyses

To determine whether any of the proposed variables were linked to mother's age, education, or family income, Pearson correlations were used to test the association between these variables and the variables in the proposed model.

Variables in the proposed model were shown to be unrelated to these demographic variables. Intercorrelations between the predictor variables (mothers' depressed mood, prior child health problems, parent domain stress, child domain stress, and quality of mother-child interaction) and child health problems during the follow-up year for the total sample are presented in Table 4. Means, standard deviations, and range of scores of all variables in the predicted model are presented in Table 5.

Tests of the predicted model

Because of missing data, the path analyses are based on estimates from subsamples used to compute correlations in the total sample. N's for the pairwise correlations on



Table 4

Intercorrelations Among Variables in the Proposed Model for Total Subjects.

	<u>DEPRESS</u>	<u>PRE-ILL</u>	<u>MO-STRESS</u>	<u>CH-STRESS</u>	<u>QUALITY</u>
<u>PRE-ILL</u>	-.01				
<u>MO-STRESS</u>	.37**	.13			
<u>CH-STRESS</u>	.16	-.01	.59***		
<u>QUALITY</u>	-.07	.05	.37**	.16	
<u>FU-ILL</u>	.18	.53***	.18	.13	-.05

Table 5

Descriptives of Variables in the Proposed Model.

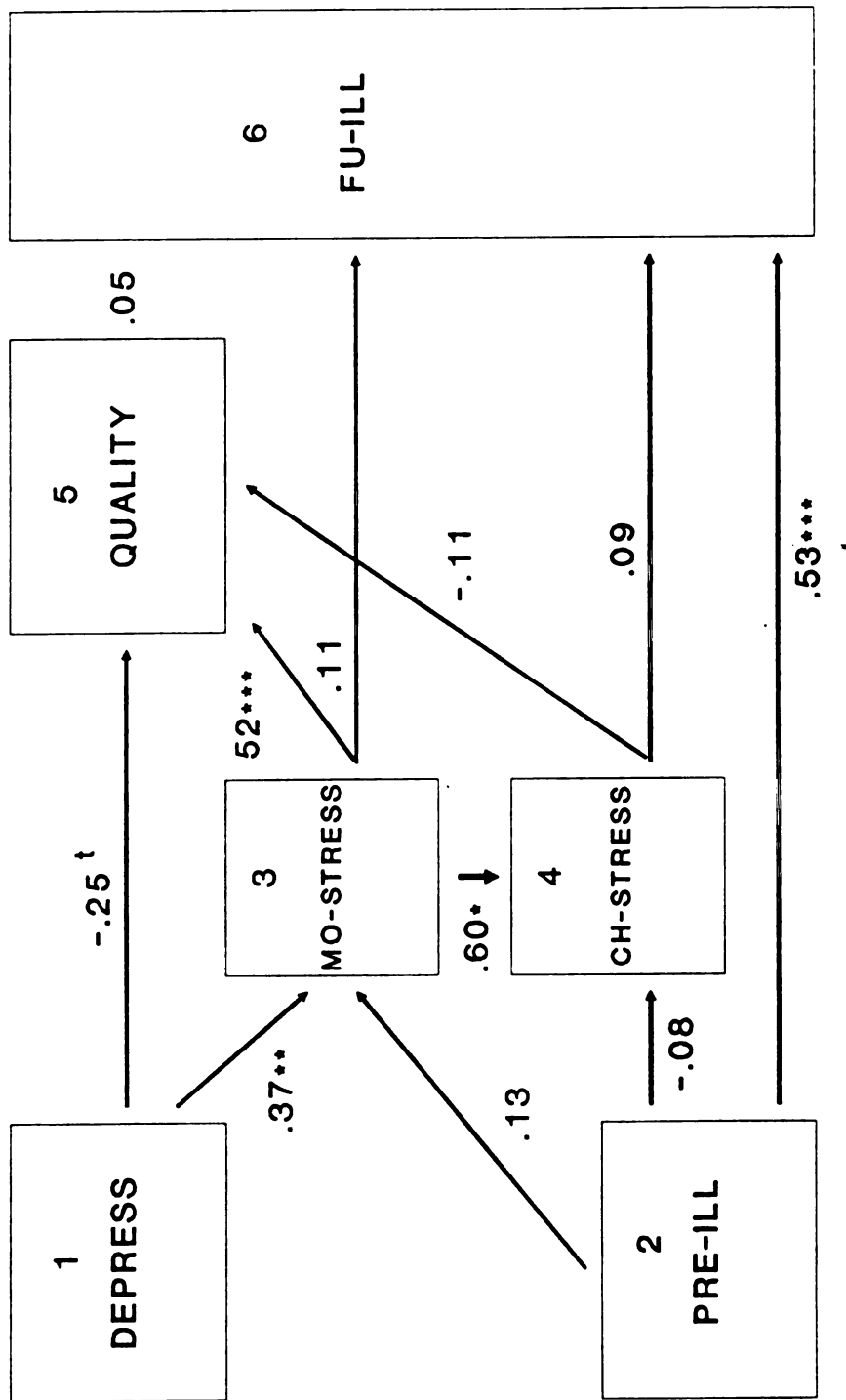
<u>Variable</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Min./Max.</u>
PRE-ILL	55	1.21	.27	.60 - 1.89
DEPRESS	56	7.25	6.80	.00 - 29.0
MO-STRESS	56	103.05	16.56	67.0 - 143.0
CH-STRESS	56	102.27	16.73	67.0 - 133.0
QUALITY	54	.02	.05	-1.87 - .65
FU-ILL	53	.02	.36	0 - 1.0

which the overall path analysis was based ranged from 53 to 56. Because all of the N 's are larger than 50, the relationships are assumed to be representative of the sample as a whole. Beta weights associated with the predicted pathways are presented in Figure 2.

Hypothesis I. Regression analyses only partially supported the hypothesis that parent domain stress would be predicted by mothers' depressed mood and prior child health problems. Although the predicted pathway accounted for a significant amount of variance ($R^2 = .15$, $p < .05$), an examination of the beta coefficients for each of the predictor variables indicated that only mothers' depressed mood was positively associated with parent domain stress ($\beta = .37$, $p < .01$). The expected association between severity of child illness in the previous year and parent domain stress was not found ($\beta = .13$, p , n.s.).

Hypothesis II. Predicted influences on mothers' experience of child-domain stress were partially supported as well ($R^2 = .35$, $p < .001$). The expected positive association between parent-domain stress and child-domain stress was found ($\beta = .60$, $p < .05$). However, the prediction that severity of child illness during the prior year would contribute to parent domain stress was not supported ($\beta = -.08$, p , n.s.).

Hypothesis III. It was hypothesized that the quality of mother-child interactions would be predicted by mothers'



Note: *p < .05, **p < .01, ***p < .001

Figure 2. Beta Weights for Proposed Model Predicting Quality of Mother-Child Interactions and Subsequent Child Illness.



depressed mood, parent domain stress, and child domain stress. This prediction was partially supported as well ($R^2 = .19$, $p < .05$). There was a trend in the expected direction between mothers' depressed mood and quality of mother-child interactions ($\beta = -.25$, $p < .07$). In addition, there was a significant and relatively strong association between parent domain stress and quality of the mother-child interactions, but rather than the predicted negative relationship, the observed relationship was positive ($\beta = .52$, $p < .001$). Mothers reporting more stress had more positive interactions with their child. Finally, the predicted association between child domain stress and quality of mother-child interactions was not significant ($\beta = -.11$, p , n.s.).

Hypothesis IV. For the most part, the predicted influences of quality of mother-child interactions, parent domain stress, child domain stress, and severity of prior illnesses on subsequent child illness were unsubstantiated. Although the predicted pathways did contribute a significant amount of variance ($R^2 = .32$, $p < .01$), the beta coefficients indicate that this was primarily accounted for by the strong association between severity of prior illness and severity of subsequent illness ($\beta = .53$, $p < .001$). No association was found between subsequent child illness and quality of mother-child interactions ($\beta = .05$, p , n.s.), parent domain stress ($\beta = .11$, p , n.s.), or child domain

stress ($\beta = .09$, p , n.s.).

The trimmed model. The predicted model was compared with the "full" model by running a path analysis based on predictions of each endogenous variable from all the antecedent variables. The nonpredicted pathways did not contribute any additional variance in the full model (see Table 6). The resulting trimmed model, depicting only those predicted pathways with partial regression coefficients significant at the $p < .05$ level, is shown in Figure 3.

Additional Analyses

The absence of an association between child illness and parenting stress is inconsistent with results reported by other investigators using similar measures (e.g., Casey, 1983). In retrospect, it was thought that mothers' experiences of parent domain and child domain stress might be more likely to result from cumulative experiences over the child's three or four years of life. Therefore, a new variable reflecting total severity of illness over the child's life prior to participation in the study was derived from the Illness Severity codes.

Path analyses of the predicted model were repeated as described above with the new variable, Total Previous Illness Severity (TOT-ILL), substituted for severity of illness in the previous year. Partial regression coefficients were virtually unchanged except that when total severity of illness was used there was a positive

1

Table 6

Values of R^2 for Predicted and "Full" Models.

<u>Predicted</u>		<u>Full</u>	
R^2 2•1,2	.15*	R^2 3•31,2	.15*
R^2 4•2,3	.35***	R^2 4•1,2,3	.35***
R^2 5•1,3,4	.19*	R^2 5•1,2,3,4	.19*
R^2 6•2-5	.32**	R^2 6•1-5	.34**

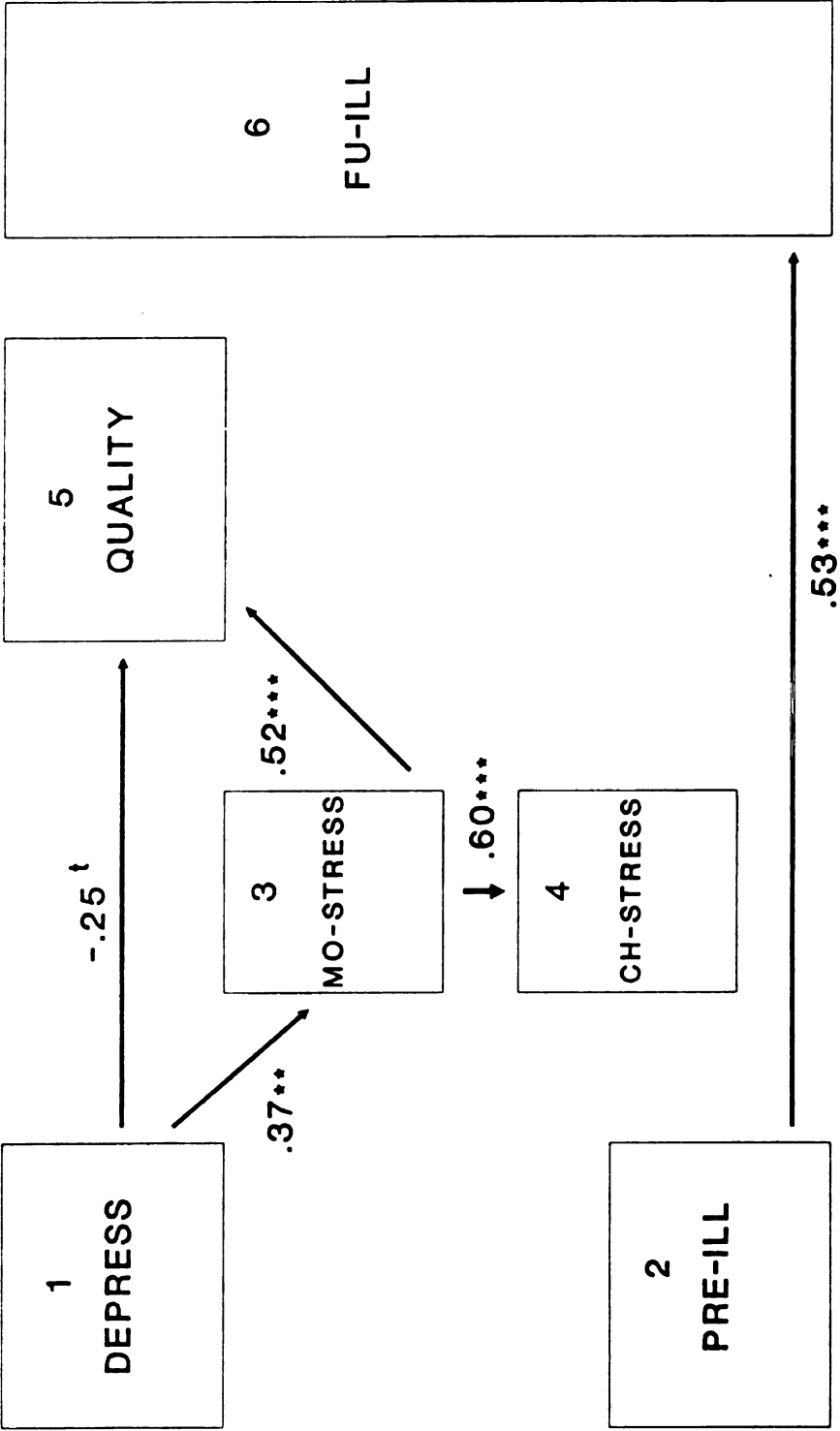
Note: *p < .05.

**p < .01.

***p < .001.

Subscripts refer to the following: 1=DEPRESS, 2=PRE-ILL, 3=MO-STRESS, 4=CH-STRESS, 5=QUALITY, 6=FU-ILL

1



Note: *p < .05, **p < .01, ***p < .001

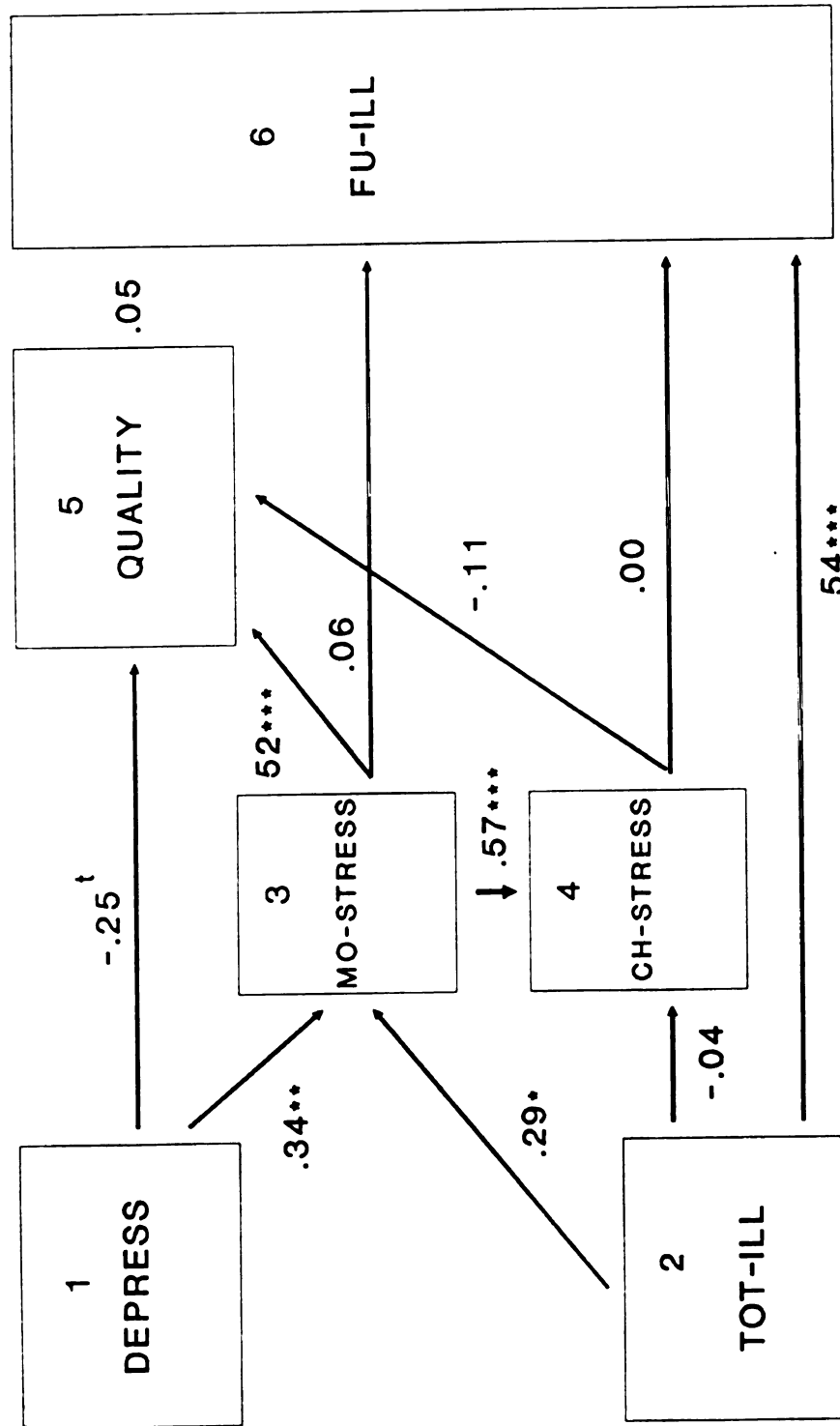
Figure 3. Trimmed Model Predicting the Quality of Mother-Child Interactions and Subsequent Child Illness.

association between child illness and parent domain stress ($\beta = .29$, $p < .05$). These are summarized in Figure 4. With the use of this new illness score the amount of variance in parent domain stress accounted for by mothers' depressed mood and child illness is increased significantly ($R^2 = .22$, $p < .01$). As Table 7 depicts, R^2 values for the other endogenous variables remain essentially the same.

Using the new variable, total previous illness severity, the final trimmed model changes slightly (see Figure 5). The quality of mother-child interactions is predicted by parent domain stress, and indirectly by mothers' depressed mood and previous child illness through their effects on parent domain stress. The association between parent domain stress and quality of mother-child interactions remains a positive one, contrary to what was predicted. The negative trend between mother's depressed mood and quality of mother-child interactions remains unchanged with the use of the new illness variable, as does the positive association between parent domain stress and child domain stress. Severity of illness in the follow-up year continues to be predicted only by previous illness.

Influence of mothers' employment status

Examination of the effect of mothers' work status was undertaken, as it was thought that the amount of time a mother spent at home with her child might influence her reactivity to recurrent illness in her child. Mothers were



Note: $^*p < .05$, $^{**}p < .01$, $^{***}p < .001$

Figure 4. Beta Weights for the Proposed Model with Total Previous Illness Substituted for Illness During the Past Year.

Table 7

Values of R^2 for Predicted and "Full" Models when Total Child Illness Represents Prior Illness.

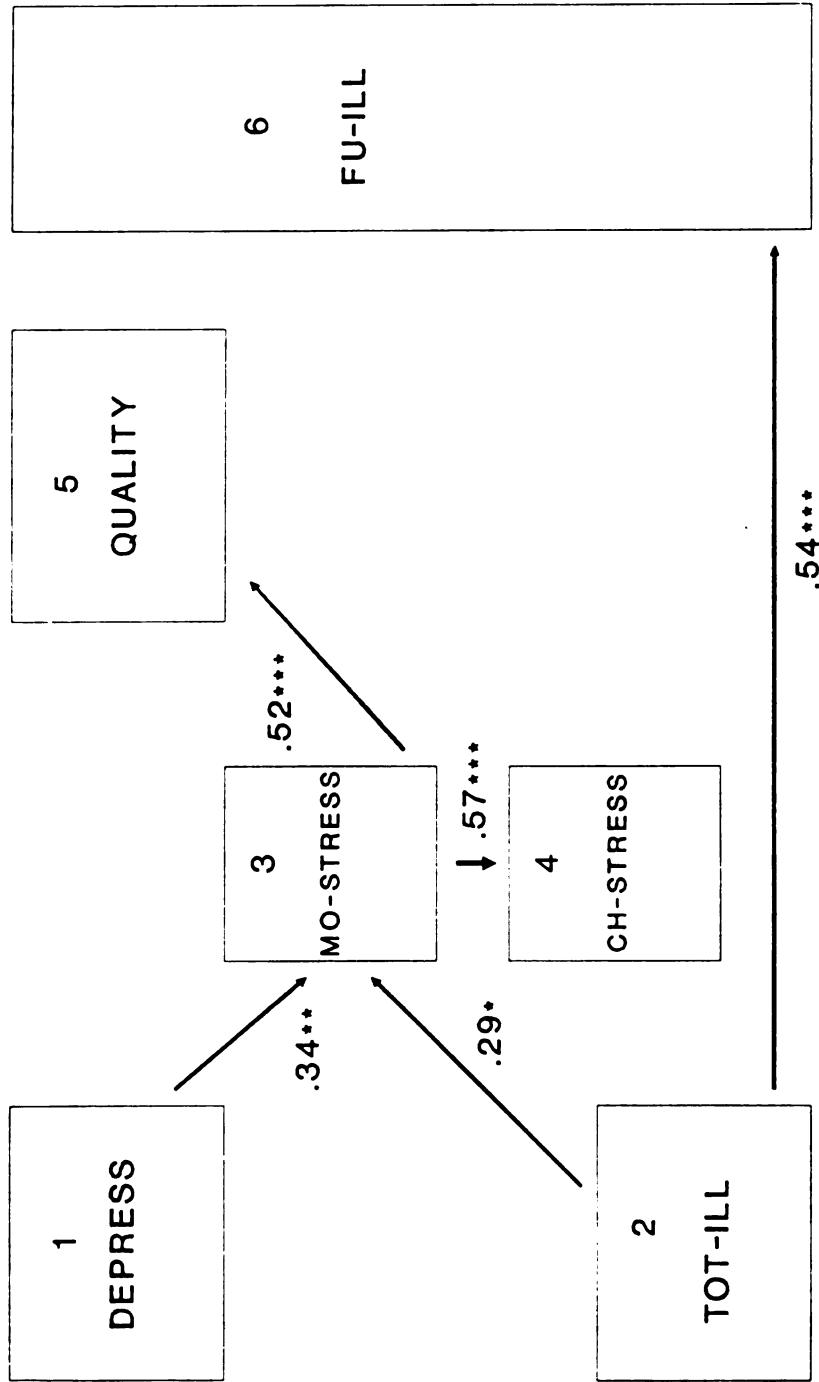
<u>Predicted</u>		<u>Full</u>	
R^2 3•1,2	.22**	R^2 3•1,2	.22**
R^2 4•2,3	.34***	R^2 4•1,2,3	.35***
R^2 5•1,3,4	.19*	R^2 5•1-4	.19*
R^2 6•2-5	.31**	R^2 6•1-5	.34

Note: *p < .05

**p < .01

***p < .001

Subscripts refer to the following: 1=DEPRESS, 2=TOT-ILL, 3=MO-STRESS, 4=CH-STRESS, 5=QUALITY, 6=FU-ILL



Note: *p < .05, **p < .01, ***p < .001

Figure 5. Trimmed Model with Total Previous Illness Substituted for Illness During the Past Year.

grouped into those who were not employed outside of the home (NE) (N = 16), those who were employed part-time (PTE) (1-34 hours; N = 19), and those who were employed full time (FTE) (35+ hours; N = 20). A series of oneway analyses of variance with mothers' work status as the independent variable were carried out to explore further the effects on child illness, mothers' depressed mood, parent and child domain stress, and quality of mother-child interactions. Mothers' work status was significantly related to mothers' depressed mood ($F(54) = 4.19, p < .05$). Mothers who were employed full time reported significantly higher levels of depressed mood ($M = 10.25$) than did mothers who were not employed outside of the home ($M = 4.00$). Mothers who worked part time reported an intermediate level of depressed mood ($M = 7.10$) that did not differ significantly from the other two groups. Table 8 presents the results of the oneway analyses of variance.

To determine whether mothers' work status influences relationships between variables in the proposed model, correlations between variables were computed again, with subjects divided into groups according to mothers' employment status. These correlations are presented in Tables 9, 10, and 11.

The pattern of correlations did differ between groups, with non-employed and part-time employed mothers looking much more similar than the full-time employed group. In the

Table 8

Oneway Analyses of Variance for Total Prior Illness, Mothers' Depressed Mood, Parent Stress, Child Stress, Quality of Interactions, and Follow-up Illness by Work Status.*

	<u>Not Employed</u>	<u>Employed Part-Time</u>	<u>Employed Full-time</u>
TOT-ILL	1.3 ^a (N = 16)	1.2 ^a (N = 18)	1.2 ^a (N = 20)
DEPRESS	4.0 ^a (N = 16)	7.1 ^{ab} (N = 19)	10.2 ^b (N = 20)
MO-STRESS	104.3 ^a (N = 16)	101.9 ^a (N = 19)	103.0 ^a (N = 20)
CH-STRESS	108.3 ^a (N = 16)	101.9 ^a (N = 19)	98.2 ^a (N = 20)
QUALITY	-.10 ^a (N = 16)	.13 ^a (N = 18)	.002 ^a (N = 19)
FU-ILL	.56 ^a (N = 15)	.50 ^a (N = 18)	.44 ^a (N = 19)

*Groups with same superscript do not significantly differ ($p < .05$).

Table 9

Correlations Between Predictor Variables and Follow-up Illness for Non-Employed Mothers.

	DEPRESS	CH-STRESS	QUALITY	TOT-ILL	FU-ILL
MO-STRESS	.62** (16)	.70** (16)	.30 (16)	.63** (16)	.23 (15)
DEPRESS		.34 (16)	-.12 (16)	.52* (16)	.51* (15)
CH-STRESS			.16 (16)	.38 (16)	-.20 (15)
QUALITY				.10 (16)	-.22 (15)
TOT-ILL					.50 ^t (15)

Note: t < .08
 *p < .05
 **p < .01
 ***p < .001

Table 10

Correlations Between Predictor Variables and Follow-up Illness for Mothers Employed Part-Time.

	DEPRESS	CH-STRESS	QUALITY	TOT-ILL	FU-ILL
MO-STRESS	.73** (19)	.76** (19)	.50* (19)	.45 ^t (19)	.35 (19)
DEPRESS		.62** (19)	.29 (19)	.50* (19)	.53* (18)
CH-STRESS			.21 (19)	.45 ^t (19)	.37 (18)
QUALITY				.15 (19)	-.03 (18)
TOT-ILL					.49* (18)

Note: t < .08
 *p < .05
 **p < .01
 ***p < .001

Table 11

Correlations Between Predictor Variables and Follow-up Illness for Mothers Employed Full- Time.

	DEPRESS	CH-STRESS	QUALITY	TOT-ILL	FU-ILL
MO-STRESS	.06 (20)	.34 (20)	.43 ^t (19)	-.07 (20)	-.02 (19)
DEPRESS		-.19 (20)	-.29 (19)	-.22 (20)	-.06 (19)
CH-STRESS			.27 (19)	-.27 (20)	.06 (19)
QUALITY				.28** (19)	.08 (18)
TOT-ILL					.59** (19)

Note: t < .08.
 *p < .05.
 **p < .01.
 ***p < .001.

NE and PTE groups there were positive associations between prior child illness and mothers' depressed mood (NE, $r = .52$, $p < .05$; PTE, $r = .50$, $p < .05$). There was a positive association between prior illness and parent domain stress in the NE group, and a trend in the same direction in the PTE group. However, partial correlations revealed that when depressed mood was partialled out, the correlation between prior illness and parent domain stress was no longer significant (see Table 12). Whole-item correlations also suggested an association between maternal depressed mood and child illness at follow-up, but the correlations for both groups were not significant when prior illness was partialled out (see Table 13). In general, dividing subjects into groups according to employment status did not affect relationships between the proposed model, with the exception of the emergence of an association between child illness and maternal depressed mood in non-employed and part-time employed mothers, but not in the group of mothers employed full time.

Table 12

Partial Correlation Between Prior Illness and Mother Domain Stress, Controlling for Mothers' Depressed Mood.

	<u>Non-Employed</u>	<u>Part-Time Employed</u>	<u>Full-Time Employed</u>
TOT-ILL/ MO-STRESS	.02 (13) n.s.	-.19 (15) n.s.	-.16 (17) n.s.

Table 13

Partial Correlation Between Mothers' Depressed Mood and Follow-up Child Illness, Controlling for Prior Illness.

	<u>Non-Employed</u>	<u>Part-Time Employed</u>	<u>Full-Time Employed</u>
DEPRESS/ FU-ILL	.34 (12) n.s.	.36 (15) n.s.	.08 (16) n.s.

1

Chapter 5

Discussion

The combined effects of mothers' depressed mood, mothers' experience of parent role and child domain stress, and prior child illness on the quality of mother-child interactions accounted for 19% of the variance. Mothers' depressed mood, mothers' experience of parent role and child domain stress, prior child illness, and the quality of mother-child interactions accounted for 32% of the variance of subsequent child illness. With the exception of prior child illness, tests of the model did not support the proposed links between the predictor variables and subsequent child illness. Hypothesized links between the predictor variables and the quality of mother-child interactions were partially supported. An unexpected positive relationship emerged between mothers' reports of parent domain stress and the quality of mother-child interactions. Possible explanations for the expected and unexpected findings are discussed below.

Predictors of parent role stress

Mothers' experience of stress related to the parent role was predicted by their level of depressed mood, as hypothesized. This finding is consistent with cognitive theories of depression, in that a depressed person is more likely than a non-depressed person to interpret events negatively, to blame herself when things go wrong, and to

1

feel ineffective in managing or changing life events and situations (Beck et. al., 1979). The stress literature has shown that people experience events as more stressful when they believe that they cannot control them (Antonovsky, 1979). Therefore, depressed mood would conceivably contribute to feeling insecure or incompetent in the parent role, contributing to mothers' experience of their role as stressful.

Interactional models of depression (e.g., Coyne, 1976) illustrate another way by which depressed mood may contribute to parent role stress. This model suggests that a depressed person is more isolative, and when the individual does seek help or support they are likely to do so in an aversive way, making it less likely that they will receive the support they want. Additionally, the stress literature suggests that an important buffer of stress is social support (Haggerty, 1980). Hence, the mother who is experiencing higher levels of depressed mood may actually have less practical and emotional support, and as a result feels more stress in relation to her parent role.

Child illness was found to predict parent domain stress only when frequency and severity of illness over the child's life was considered, and only when the group of dyads was analyzed as a whole. The association was not strong enough to show up in smaller groups of dyads divided by work status. Illness over the past year was not related to

parenting stress. The association between child health problems and parent domain stress is consistent with previous research (e.g., Casey, 1983). In this sample of children with routine, non-chronic illnesses, it appears that child illness does not effect mothers' perceptions of their parent role as stressful unless the child has a history of repeated illnesses. This seems to suggest that mothers' feelings about being a parent develop over time and are not necessarily reactive to recent or acute stressors. It may be that having a child who repeatedly has health problems undermines mothers' confidence in their parenting abilities. Repeated illnesses in the child may also cause mothers to feel restricted by their parent role because the child needs more physical care, mothers are likely to rely less on babysitters or alternative child care, and the child illnesses may interfere with family outings, vacations, etc.

On the other hand, child illness did not contribute to mothers' experience of their children as causing them stress. That is, the stress they felt was attributed to the parent role or maternal characteristics rather than to characteristics of the child. This was unexpected, as it was hypothesized that increased irritability or demandingness on the part of the child would contribute to child domain stress. The fact that this did not occur suggests that mothers were able to remain empathic toward their children and probably attributed increases in

difficult behavior to the illness rather than to characteristics of the child.

The association between parent domain stress and child domain stress is consistent with research suggesting that parents' perceptions of their child are dependent to some degree on their moods or mental states. Interestingly, there was not a direct relationship between mothers' experience of child domain stress and depression. Rather, tests of the proposed model suggested that the effect of depressed mood on mothers' perceptions of their children as demanding, moody, etc., appears to be mediated by parent domain stress. That is, when depressed mood contributes to parent domain stress (i.e., feeling incompetent, increased social isolation, feeling restricted by the role) it may undermine the mother's ability to remain empathic toward the child and increase her feeling that her child is stressful. Furthermore, children may respond to less empathic parenting with more difficult behaviors.

Predictors of the quality of mother-child interactions

Because research with clinically depressed mothers suggests that they are less consistent, more demanding, and less supportive of autonomy, a relationship between depressed mood and quality of mother-child interactions was expected in the present study. However, tests of the proposed model resulted in a weak relationship in the expected direction that did not reach statistical

significance. The failure to find the expected relationship may have occurred because the sample used in this study was a non-clinical sample, and in fact reported relatively low levels of depressed mood. The majority of the mothers reported no or minimal depression, and one quarter of them reported mild to moderate depression. Only four mothers reported depressed mood in the moderate to severe range, and none in the severe range. This suggests that at this relatively low level, the effects of depressed mood are primarily on the mothers' feelings about the parent role and her ability to parent adequately, and indirectly on her perceptions of her child as causing her stress. However, it appears that mothers are still able to monitor their behavior with their children and remain responsive and positive toward them. It is possible that with a group of subjects that included mothers with more severe levels of depression, the relationship between depressed mood and quality of interactions would be stronger.

Another reason for the weak association between depressed mood and behavioral observations of mother-child interactions may have to do with the laboratory setting within which the interactions took place. The mothers in our laboratory task knew they were being observed, and after every five minute segment they received directions from an experimenter via a bug-in-the-ear device. Furthermore, the interaction sequence took place at a university

psychological clinic, and mothers were probably aware that their behavior was being evaluated. Since most people would want to present themselves in a positive light, we may have been seeing the "optimal" interactional styles of all of the mothers. More subtle effects on mother-child interactions might be manifest during routine interactions at home that are not being observed, or when the observer is less intrusive. In fact, two investigations which reported an association between maternal depression and mothers' behavior toward their children used home observations for behavioral samples of routine interactions (Longfellow et. al., 1982; Hops et. al., 1987).

It was also hypothesized that mothers' reports of parent domain and child domain stress would be associated with the quality of mother-child interactions. In fact, there was not a relationship between child domain stress and quality of interactions. Tests of the proposed model did find a significant relationship between parent domain stress and quality of the interactions, but in the opposite direction than was predicted. Previous research has suggested that stress contributes to mothers being more demanding, less nurturant, and less consistent with their children (Zelkowitz, 1982). However, in the present study higher levels of reported stress were associated with more positive and responsive behavioral interactions. It is important to note that there were very few "negatives" in

the interactions within any of the dyads. However, there were significantly more "positives" in the dyads in which mothers reported higher levels of stress.

This unexpected finding may again be interpreted as a function of the sample, which was a "normal" sample of families obtained from a pediatric care facility, as opposed to a clinical sample in which the families were seeking assistance for emotional or behavioral disturbances. In non-clinical families, in which coping resources and mothers' ability to empathize with the child are intact, stress may actually have a "mobilizing" effect. That is, these mothers try to buffer the effects of stress on their children by increasing the "positives" in their interactions.

The idea that these mothers were changing their behavior with their children to compensate for stressors has support from a parallel investigation with the same group of families. Using the same sample, Freeark et. al. (1989) investigated the effect of recurrent otitis media on children's language competency. Behavioral observations of mother-child interactions indicated that mothers of children with more frequent recurrences of otitis media had more frequent verbal interactions with their child during the structured play sessions described above. Furthermore, children with high frequency of otitis media and high verbal stimulation from their mothers were more competent on tests

of language ability than children with high frequency of OM and low verbal stimulation from their mothers.

A different but compatible interpretation of the unexpected finding is that mothers who are experiencing stress in the role of parent (social isolation, low confidence, etc.) may find compensation for themselves in the positive aspects of their relationships with their children. Such a compensatory process has been suggested in the marital literature. A study by Brody and colleagues (1986) found that mothers reporting higher levels of marital strain were more involved with their early school-aged children in a laboratory interaction task. Similarly, Belsky and his colleagues (1990) found that mothers who reported a decrease in feelings of love toward their husbands over a three-year period were more positive and supportive with their three year-old children in a freeplay interaction.

Pirsch (1990) investigated father-child relationships in the same families participating in the current study. She found a similar pattern: there was an inverse relationship between fathers' reports of the "parenting alliance" with their wives and the quality of the father-child interactions in the videotaped interactions. That is, fathers who reported less degree of respect and agreement with their wives on issues related to parenting were more positive in their interactions with their children

during the structured play sessions. Again, fathers who lack interpersonal gratification within the husband-wife dyad may be seeking compensation in their relationships with their children.

The converging literature illustrates a compensatory process by which parents buffer the effects of stressful events on their children, and whereby stress related to the parent role may actually mobilize the parent to make an extra effort to make interactions with their children positive and facilitative. At the same time, this positive relationship with a child may serve the purpose of providing the parent with needed positive interpersonal interactions. This reciprocal process relies on the ability of the parent to perceive and respond to the child's needs, and to place the child's needs before their own. When a parent's ability to do this is compromised, which may occur he or she is clinically depressed or suffering from other forms of mental illness, this process may break down. Or, when coping resources are depleted due to poverty or other social situations, the child's emotional well-being may not be attended to. When there is only one parent, or when neither parent is coping well, children may become symptomatic. Investigation of marital satisfaction, family stressors, and parent-child relationships with intact couples and their children would help illustrate this system further.

In this sample, child domain stress did not directly



influence the quality of mother-child interactions. This suggests that even when children were perceived by their mothers as more demanding, moody, etc., the mothers were able to maintain warm, positive interactions with them. Previous research (Billings & Moos, 1983; Schaughency & Lahey, 1985; Brody & Forehand, 1986) suggests that mothers' perceptions of their children's behavior are usually strongly correlated with behavioral observations and reports of child behavior by others who know the child well. Assuming that the same is true of this sample of mothers, one would expect that the dyads in which mothers report more difficult child behavior (child domain stress) would have interactions that reflect these behaviors by being less positive, warm, etc. The fact that this did not occur suggests that the mothers are somehow adjusting their responses to their children's difficult behaviors in a way that facilitates positive interactions.

The lack of direct associations between child variables (child illness and child domain stress) and quality of mother-child interactions supports Belsky's (1984) hypothesis that when children are young, the parent has more influence on the "outcome" of the parent-child interactions than the child. In particular, child illness indirectly predicted quality of the interactions via its influence on parent domain stress, but did not contribute directly to mother-child interactions. Child domain stress, which may

be an approximate reflection of child characteristics or temperament, was also not associated with the parent-child interactions in this study. Belsky suggests that this may be because the adult is better able to empathize, to predict the consequences of his or her behavior, and to adopt a nurturant orientation. Again, in a clinical sample where mothers or children are more seriously impaired (psychologically, physically or medically) the mother's ability to maintain positive interactions might be undermined.

Predictors of child health problems

Only child illness prior to participation in the study predicted child illness during the follow-up year. This association between previous and subsequent illness is certainly not surprising, and is consistent with previous research which has shown that high use of pediatric care facilities by individuals is established early in childhood and persists over time (Zook & Moore, 1980; Starfield et. al., 1985; Fosarelli et. al., 1987).

The lack of an association between mothers' depressed mood and child illness is inconsistent with studies using psychiatric populations which have found associations between parental depression and child illness (Billings & Moos, 1983; Weissman et. al., 1986). Again, the lack of such an association in the present study may be due to the non-clinical sample, in which mothers reported relatively

minor levels of depressed mood.

In this study, the presence of stress appeared to have a "mobilizing" effect on mothers to summon up empathy and coping resources in order to maintain responsive and nurturant interactions with their children. This ability to buffer the effects of stress on children may be one reason that the expected stress-illness and depression-illness associations were not found. It may be that in psychiatric samples with mothers who are clinically depressed, this ability to buffer the effects of stressors on the child is compromised, and increased health problems may be one manifestation of the effects of maternal mental illness and environmental stress.

A note of caution in interpreting the results of this study relates to the way in which child illness was measured. Severity of illness was calculated from the child's medical records. While care was taken to get all of the child's records from birth, this measure reflects only child illness which resulted in the child seeing a health care professional. It has been suggested by others that some children may be more reactive than others to illness, and so will be more likely to be taken to a physician (Starfield et. al., 1985). It has also been suggested that some parents may be more likely than others to take their child to the doctor for minor illnesses that other parents would ignore or treat with over the counter medications

(Fosarelli et. al., 1987).

To avoid confounding over-utilization of health care facilities with severity of illness, the present study used illness severity ratings of each visit to calculate illness variables. However, this does not address the possibility that some parents may under-utilize pediatric care facilities, resulting in depressed illness severity scores. In fact, those mothers who are depressed, unresponsive to their children, or under a great deal of stress might be the parents who do not use medical facilities as often.

Influence of mothers' work status

Post hoc analyses illustrated that the relationships between child illness, mothers' depressed mood, parenting stress, and the quality of mother-child interactions depended upon the mothers' employment status. Mothers in this sample who were employed full time reported higher levels of depression. The relationship between maternal employment and parenting is a complicated one, and a woman's ability to integrate her feelings about her role as a mother with her career orientation and reasons for seeking employment is undoubtedly a crucial factor (Baruch et. al., 1987; Benn, 1986; Hock et. al., 1989; Stafford, 1984). It has been demonstrated that maternal depression and stress are related to conflicts between the parenting role and career orientation in mothers who stay at home (Hock & DeMeis, 1990; Yarrow, 1962), but has yet to be demonstrated

in mothers who are employed outside the home. Further investigation of employed mothers' experience of conflict between parenting and work roles is needed. Other family variables which may influence the relationship between employment and depression include fathers' involvement in parenting and additional sources of support and practical assistance.

While mothers who were employed full time reported higher levels of depressed mood, they did not appear to be as reactive to child illness. Non-employed and part-time employed mothers reported higher levels of depressed mood when their children had experienced more previous illness. It may be that child illness is more salient to mothers' sense of self-efficacy and control when their primary responsibility is parenting, and these mothers may be more vulnerable to self-blame or low self-efficacy when their children have repeated illnesses.

Another possible explanation for this difference is that mothers who are full-time homemakers or are employed part time may be more likely to be solely responsible for making the child comfortable, take the child to the doctor, and deal with the child's irritability. Employed mothers may get more assistance in caring for their sick children from their husbands or other primary caretakers (e.g., extended family, babysitters). Again, further exploration of employed vs. non-employed mothers' attributions about

child illness, as well as the roles of other caretakers in the family system, would help clarify the impact of child illness on the family.

Methodological considerations and implications for future research

This study illustrates that it is a mistake to generalize findings from studies using clinical populations to those with "normal" samples. Not only was there an absence of expected deleterious effects of maternal depressed mood and stress, but mothers in this nonclinical group demonstrated an ability to compensate for stressors on the parent-child relationship such that higher levels of stress were associated with more positive, responsive, and facilitative mother-child interactions. This compensatory reaction to stress has recently been documented in other studies with non-clinical samples (Brody et. al., 1986; Belsky et. al., 1990; Pirsch, 1990). It is possible that families who present at mental health clinics because of child or family difficulties are families in which this compensatory process has broken down because of parental pathology or other reasons. It would be interesting to determine whether the relationship between parenting stress and parent-child interactions is different in families that present to mental health clinics because of parental distress, as well as those that present with child behavior problems.

It is also important to note that the sample used in the present study was selected in a manner that excluded some major sources of stress, including single parenthood, low socioeconomic status, and large numbers of children in the household. It can be assumed, then, that the level of stressors on the children has been controlled for somewhat, and tests of the proposed model might yield very different results in families that are experiencing these kinds of stressors.

Nevertheless, the compensatory process itself warrants further investigation. So far, it has been demonstrated only with mothers. The studies noted above (Brody et. al., 1986; Belsky et. al., 1990) did not find the same association between deteriorating marital satisfaction and positive parent-child interactions in fathers. Furthermore, Belsky (1990) suggests that this compensatory process emerges after infancy, at least in regard to marital distress. Whether or not this is true of other stressors such as illness and maternal mood has not been investigated.

An investigation of this compensatory process in the broader family system, by looking at mothers and fathers in the same families, is an important next step in this line of research.

Determining the characteristics of mothers who are able to mobilize coping resources in order to buffer effects of stress on their children would have important implications

for intervention. Such characteristics as empathy, confidence and self-efficacy come to mind. External resources such as adequate finances, emotional and social support may also be important. Further clarification of the ways in which parents maintain or fail to maintain positive interactions with their children could be achieved through sequential analysis of parent and child behaviors. Comparing the results of sequential analyses in a non-clinical sample with those of clinical samples might be particularly useful in planning interventions with dysfunctional families.

A limitation of the present study is that the model must be recursive to allow path analysis of the data. Because of this requirement, reciprocal interactions between variables in the structural model are not addressed. For instance, effects of child domain stress on parent domain stress and maternal depressed mood were not investigated. One might expect that quality of parent-child interactions would have reciprocal effects on parenting stress and mothers' depressed mood.

The continuity between pre-test illness and follow-up illness is consistent with prior research. Unfortunately, the variables in the proposed model did not illustrate mediating variables in this relationship. There are many factors which may contribute to recurrent illness which were not addressed in the proposed model. For instance, family

resources including finances and social support were not measured. Children's participation in group child care or preschool settings, and the presence of school-age siblings would influence exposure to viruses and may account for some of the continuity. Furthermore, some children may be biologically more vulnerable to illness than others.

Further investigation into the apparent susceptibility of some children to frequent illness is needed. Reliance on past medical records as a measure of child illness may not be an accurate measure. Feagans et. al. (1987) avoided this problem in their study of the effects of otitis media on later school performance by using a sample of children in a day care setting who had regular medical checks and hearing tests at the preschool. In this way, direct measures of child health is not confounded by the parents' perception of whether or not the illness is serious enough to seek professional medical services. Similar prospective investigations of child health in general, utilizing direct measures of child health, would be more costly and time consuming, but would yield more accurate data.

Summary and conclusion

The proposed model of the combined effects of mothers' depressed mood, mothers' experience of parenting stress, and prior child illness on the quality of mother-child interactions and subsequent child illness was partially supported. Tests of the proposed model revealed that only

previous child illness was related to child health problems during the follow-up year, and that this association was stronger in children with mothers employed outside of the home. While the stability of degree of child health problems over time is consistent with previous research, the proposed model does not explain the apparent vulnerability of some children to frequent illnesses, except to illustrate that the association is strongest when mothers are employed outside of the home. It is suggested that alternative variables should be explored, for example, family support and financial resources, the child's participation in group child care or preschool settings, and the presence of school- age siblings in the home.

Caution is urged in assuming that medical records are accurate reflections of children's health status over a period of time, as some parents might take a child to a doctor for an illness that another parent might treat at home. Prospective studies using periodic health checks would be more accurate measures, and may well be worth the added time and expense in order to determine factors contributing to utilization of pediatric care facilities.

The proposed model was more successful in illustrating predictors of the quality of mother-child interactions. An unexpected finding is a strong association between mothers' reports of high levels of parenting stress and more positive, responsive, and facilitative mother-child

interactions. This finding is discussed in relation to a "compensatory" process which may be similar to that reported in the literature on effects of marital satisfaction on parent-child interactions. It is suggested that mothers respond to stress by increasing positive interactions with their child, thereby buffering to some extent the effect of stress on the child. This may explain the absence of the expected influences of parenting stress and maternal depressed mood on child health.

This compensatory process may also benefit the mother by satisfying her need for positive interpersonal interaction. It is further speculated that this process may be absent or distorted when the mother's capacity for empathy and for placing the needs of her child before her own needs is compromised. This could occur, for example, when the mother suffers from mental illness, or when the family is under severe stress or lacks adequate financial and social resources. The need for further investigation into such compensatory in the broader family system is discussed.

Mothers who were employed full time reported higher levels of depressed mood than those who were not working outside of the home. On the other hand, non-employed mothers were more likely to report depressed mood in association with frequent child illness than were employed mothers. Contrary to previous literature, in this sample of

mother-child dyads, maternal depression did not have a significant negative influence on the quality of their interactions. This finding is discussed in light of the relatively low level of depressed mood reported by these groups of mothers.

Mothers' depressed mood also indirectly influenced child domain stress through its influence on parent domain stress. That is, it appears that depressed mood contributes to mothers' experience of stress related to herself in the role of parent. When mothers' experience of parent domain stress is high, they are also likely to experience their children as more difficult and causing them more stress.

Child illness indirectly predicted the quality of mother-child interactions through its association with higher levels of parent domain stress. This only occurred when the sum of all prior illnesses in the child's life was calculated; illness in the previous year was not sufficiently powerful to influence parent domain stress. Severity of health problems was not associated with child domain stress, as if mothers make allowances for increased behavioral difficulty in their children when they are ill.

In sum, the proposed model did not illustrate variables which contribute to the apparent vulnerability of some children to recurrent illnesses. It did, however, illustrate an interesting process by which mothers appear to compensate for the effects of stress (such as child health

problems) on their children by responding to the child in a more positive, facilitative manner. These findings highlight the lack of generalizability between clinical and non-clinical samples. It may be the lack of this compensatory process which differentiates clinical from non-clinical samples. That is, families which present to mental health clinics for child or family problems may be families in which, for one reason or another, the parents are not able to mobilize coping resources that enable them to remain positive and facilitative in their interactions with their children. Further investigation of this compensatory process could have important implications for intervention with these families.

APPENDICES

APPENDIX A
BECK DEPRESSION INVENTORY

BECK DEPRESSION INVENTORY

INSTRUCTIONS: On the following pages are groups of statements. Please read each group of statements carefully. Then pick out the one statement in each group which best describes the way you have been feeling the PAST WEEK, INCLUDING TODAY! Circle the number beside the statement you picked. If several statements in the group seem to apply equally well, circle each one. Be sure to read all the statements in each group before making your choice.

1. 0 I do not feel sad
 1 I feel sad
 2 I feel I have nothing to look forward to
 3 I feel that the future is hopeless and that things cannot improve
2. 0 I am not particularly discouraged about the future
 1 I feel discouraged about the future
 2 I feel I have nothing to look forward to
 3 I feel that the future is hopeless and that things cannot improve
3. 0 I do not feel like a failure
 1 I feel I have failed more than the average person
 2 As I look back on my life, all I can see is a lot of failures
 3 I feel I am a complete failure as a person
4. 0 I get as much satisfaction out of things as I used to
 1 I don't enjoy things the way I used to
 2 I don't get real satisfaction out of anything anymore
 3 I am dissatisfied or bored with everything
5. 0 I don't feel particularly guilty
 1 I feel guilty a good part of the time
 2 I feel quite guilty a good part of the time
 3 I feel guilty all of the time
6. 0 I don't feel I am being punished
 1 I feel I may be punished
 2 I expect to be punished
 3 I feel I am being punished
7. 0 I don't feel disappointed in myself
 1 I am disappointed in myself
 2 I am disgusted with myself
 3 I hate myself
8. 0 I don't feel I am any worse than anyone else
 1 I am critical of myself for my weaknesses or mistakes
 2 I blame myself all the time for my faults
 3 I blame myself for everything bad that happens

9. 0 I don't have any thoughts of killing myself
 1 I have thoughts of killing myself, but I would not carry them out
 2 I would like to kill myself
 3 I would kill myself if I had the chance
10. 0 I don't cry anymore than usual
 1 I cry more now than I used to
 2 I cry all the time now
 3 I used to be able to cry, but now I can't cry even though I want to
11. 0 I am no more irritated now than I ever am
 1 I get annoyed or irritated more easily than I used to
 2 I feel irritated all the time now
 3 I don't get irritated at all by the things that used to annoy me
12. 0 I have not lost interest in other people
 1 I am less interested in other people than I used to be
 2 I have lost most of my interest in other people
 3 I have lost all of my interest in other people
13. 0 I make decisions about as well as I ever could
 1 I put off making decisions more than I used to
 2 I have greater difficulty in making decisions than before
 3 I can't make decisions at all anymore
14. 0 I don't feel I look any worse than I used to
 1 I am worried that I am looking old or unattractive
 2 I feel that there are permanent changes in my appearance that make me look unattractive
 3 I believe that I look ugly
15. 0 I can work about as well as before
 1 It takes an extra effort to get started at doing something
 2 I have to push myself very hard to do anything
 3 I can't do any work at all
16. 0 I can sleep as well as usual
 1 I don't sleep as well as I used to
 2 I wake up 1-2 hours earlier than usual and find it hard to go back to sleep
 3 I wake up several hours earlier than I used to and cannot go back to sleep
17. 0 I don't get more tired than usual
 1 I get tired more easily than I used to
 2 I get tired from doing almost anything
 3 I am too tired to do anything

18. 0 My appetite is no worse than usual
 1 My appetite is not as good as it used to be
 2 My appetite is much worse now
 3 I have no appetite at all now
19. 0 I haven't lost much weight, if any, lately
 1 I have lost more than 5 pounds. I am purposely trying
 2 I have lost more than 10 pounds to lose weight by
 3 I have lost more than 15 pounds eating less.
 Yes___ No___
20. 0 I am no more worried about my health than usual
 1 I am worried about physical problems such as aches and pains;
 or upset stomach; or constipation
 2 I am very worried about physical problems and it's hard to
 think of much else
 3 I am so worried about my physical problems, that I cannot
 think about anything else
21. 0 I have not noticed any recent change in my interest in sex
 1 I am less interested in sex than I used to be
 2 I am much less interested in sex now
 3 I have lost interest in sex completely

APPENDIX B
PARENTING STRESS INDEX

PARENTING STRESS INDEX

	1 Strongly Agree	2 Agree	3 Not Sure	4 Disagree	5 Strongly Disagree	
1 2 3 4 5						1. When my child wants something, my child usually keeps trying to get it.
1 2 3 4 5						2. My child is so active it exhausts me.
1 2 3 4 5						3. My child appears disorganized and is easily distracted.
1 2 3 4 5						4. Compared to most, my child has more difficulty concentrating and paying attention.
1 2 3 4 5						5. My child will often stay occupied with a toy for more than 10 minutes.
1 2 3 4 5						6. My child wanders away much more than I expected.
1 2 3 4 5						7. My child is much more active than I expected.
1 2 3 4 5						8. My child squirms and kicks a great deal when being dressed or bathed.
1 2 3 4 5						9. My child can be easily distracted from wanting something.
1 2 3 4 5						10. My child rarely does things for me that make me feel good.
1 2 3 4 5						11. Most times I feel that my child likes me and wants to be close to me.
1 2 3 4 5						12. Sometimes I feel that my child doesn't like me and doesn't want to be close to me.
1 2 3 4 5						13. My child smiles at me much less than I expected.
1 2 3 4 5						14. When I do things for my child I get the feeling that my efforts are not appreciated very much.
1 2 3 4 5						15. Which statement best describes your child? 1. almost always likes to play with me, 2. sometimes likes to play with me, 4. usually doesn't like to play with me, 5. almost never likes to play with me.

NAME _____					1	2	3	4	5
					Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
1	2	3	4	5	16. My child cries and fusses: 1. much less than I had expected, 2. less than I expected, 3. about as much as I expected, 4. much more than I expected, 5. it seems almost constant.				
1	2	3	4	5	17. My child seems to cry or fuss more often than most children.				
1	2	3	4	5	18. When playing, my child doesn't often giggle or laugh.				
1	2	3	4	5	19. My child generally wakes up in a bad mood.				
1	2	3	4	5	20. I feel that my child is very moody and easily upset.				
1	2	3	4	5	21. My child looks a little different than I expected and it bothers me at times.				
1	2	3	4	5	22. In some areas my child seems to have forgotten past learnings and has gone back to doing things characteristic of younger children.				
1	2	3	4	5	23. My child doesn't seem to learn as quickly as most children.				
1	2	3	4	5	24. My child doesn't seem to smile as much as most children.				
1	2	3	4	5	25. My child does a few things which bother me a great deal.				
1	2	3	4	5	26. My child is not able to do as much as I expected.				
1	2	3	4	5	27. My child does not like to be cuddled or touched very much.				
1	2	3	4	5	28. When my child came home from the hospital, I had doubtful feelings about my ability to handle being a parent.				
1	2	3	4	5	29. Being a parent is harder than I thought it would be.				

	1 Strongly Agree	2 Agree	3 Not Sure	4 Disagree	5 Strongly Disagree	
1	2	3	4	5		30. I feel capable and on top of things when I am caring for my child.
1	2	3	4	5		31. Compared to the average child, my child has a great deal of difficulty in getting used to changes in schedules or changes around the house.
1	2	3	4	5		32. My child reacts very strongly when something happens that my child doesn't like.
1	2	3	4	5		33. Leaving my child with a babysitter is usually a problem.
1	2	3	4	5		34. My child gets upset easily over the smallest thing.
1	2	3	4	5		35. My child easily notices and overreacts to loud sounds and bright lights.
1	2	3	4	5		36. My child's sleeping or eating schedule was much harder to establish than I expected.
1	2	3	4	5		37. My child usually avoids a new toy for a while before beginning to play with it.
1	2	3	4	5		38. It takes a long time and it is very hard for my child to get used to new things.
1	2	3	4	5		39. My child doesn't seem comfortable when meeting strangers.
1	2	3	4	5		40. When upset, my child is: <ol style="list-style-type: none"> 1. easy to calm down, 2. harder to calm down than I expected, 4. very difficult to calm down, 5. nothing I do helps calm my child.
1	2	3	4	5		41. I have found that getting my child to do something or stop doing something is: <ol style="list-style-type: none"> 1. much harder than I expected, 2. somewhat harder than I expected, 3. about as hard as I expected, 4. somewhat easier than I expected, 5. much easier than I expected.

NAME _____

- | | 1 | 2 | 3 | 4 | 5 | |
|-----------|----------|-------|------|----------|----------|---|
| | Strongly | Agree | Not | Disagree | Strongly | |
| | Agree | | Sure | | Disagree | |
| 1 2 3 4 5 | | | | | | 42. Think carefully and count the number of things which your child does that bothers you. For example: dawdles, refuses to listen, overactive, cries, interrupts, fights, whines, etc. Please circle the number which includes the number of things you counted. |
| | | | | | | 1. 1-3 |
| | | | | | | 2. 4-5 |
| | | | | | | 3. 6-7 |
| | | | | | | 4. 8-9 |
| | | | | | | 5. 10+ |
| 1 2 3 4 5 | | | | | | 43. When my child cries it usually lasts: |
| | | | | | | 1. less than 2 minutes, |
| | | | | | | 2. 2-5 minutes, |
| | | | | | | 3. 5-10 minutes, |
| | | | | | | 4. 10-15 minutes, |
| | | | | | | 5. more than 15 minutes. |
| 1 2 3 4 5 | | | | | | 44. There are some things my child does that really bother me a lot. |
| 1 2 3 4 5 | | | | | | 45. My child has more health problems than I expected. |
| 1 2 3 4 5 | | | | | | 46. As my child has grown older and become more independent, I find myself more worried that my child will get hurt or into trouble. |
| 1 2 3 4 5 | | | | | | 47. My child turned out to be more of a problem than I expected. |
| 1 2 3 4 5 | | | | | | 48. My child seems to be much harder to care for than most. |
| 1 2 3 4 5 | | | | | | 49. My child is always hanging on me. |
| 1 2 3 4 5 | | | | | | 50. My child makes more demands on me than most children. |
| 1 2 3 4 5 | | | | | | 51. I can't make decisions without help. |
| 1 2 3 4 5 | | | | | | 52. I have had many more problems raising children than I expected. |

:

- | | 1
Strongly
Agree | 2
Agree | 3
Not
Sure | 4
Disagree | 5
Strongly
Disagree | |
|---|------------------------|------------|------------------|---------------|---------------------------|---|
| 1 | 2 | 3 | 4 | 5 | | 53. I enjoy being a parent. |
| 1 | 2 | 3 | 4 | 5 | | 54. I feel that I am successful most of the time when I try to get my child to do or not do something. |
| 1 | 2 | 3 | 4 | 5 | | 55. Since I brought my last child home from the hospital, I find that I am not able to take care of this child as well as I thought I could. I need help. |
| 1 | 2 | 3 | 4 | 5 | | 56. I often have the feeling that I cannot handle things very well. |
| 1 | 2 | 3 | 4 | 5 | | 57. When I think about myself as a parent I believe: <ul style="list-style-type: none"> 1. I can handle anything that happens, 2. I can handle most things pretty well, 3. sometimes I have doubts, but find that I handle most things without any problems, 4. I have some doubts about being able to handle things, 5. I don't think I handle things very well at all. |
| 1 | 2 | 3 | 4 | 5 | | 58. I feel that I am: <ul style="list-style-type: none"> 1. a very good parent, 2. a better than average parent, 3. an average parent, 4. a person who has some trouble being a parent, 5. not very good at being a parent. |
| 1 | 2 | 3 | 4 | 5 | | 59. What were the highest levels in school or college you and the child's father/mother have completed? <p>Mother:</p> <ul style="list-style-type: none"> 1. 1 - 8th grade 2. 9 - 12th grade 3. Vocational or some college 4. College graduate 5. Graduate or professional school |

NAME _____

- | | 1 | 2 | 3 | 4 | 5 | |
|-----------|----------|-------|------|----------|----------|--|
| | Strongly | Agree | Not | Disagree | Strongly | |
| | Agree | | Sure | | Disagree | |
| 1 2 3 4 5 | | | | | | 60. Father:
1. 1 - 8th grade
2. 9 - 12th grade
3. Vocational or some college
4. College graduate
5. Graduate or professional school |
| 1 2 3 4 5 | | | | | | 61. How easy is it for you to understand what your child wants or needs?

1. very easy,
2. easy,
3. somewhat difficult,
4. it is very hard,
5. I usually can't figure out what the problem is. |
| 1 2 3 4 5 | | | | | | 62. It takes a long time for parents to develop close, warm feelings for their children. |
| 1 2 3 4 5 | | | | | | 63. I expected to have closer and warmer feelings for my child than I do and this bothers me. |
| 1 2 3 4 5 | | | | | | 64. Sometimes my child does things that bother me just to be mean. |
| 1 2 3 4 5 | | | | | | 65. When I was young, I never felt comfortable holding or taking care of children. |
| 1 2 3 4 5 | | | | | | 66. My child knows I am his or her parent and wants me more than other people. |
| 1 2 3 4 5 | | | | | | 67. The number of children that I have now is too many. |
| 1 2 3 4 5 | | | | | | 68. Most of my life is spent doing things for my child. |
| 1 2 3 4 5 | | | | | | 69. I find myself giving up more of my life to meet my children's needs than I ever expected. |
| 1 2 3 4 5 | | | | | | 70. I feel trapped by my responsibilities as a parent. |
| 1 2 3 4 5 | | | | | | 71. I often feel that my child's needs control my life. |

	1 Strongly Agree	2 Agree	3 Not Sure	4 Disagree	5 Strongly Disagree	
1	2	3	4	5		72. Since having this child I have been unable to do new and different things.
1	2	3	4	5		73. Since having a child I feel that I am almost never able to do things that I like to do.
1	2	3	4	5		74. It is hard to find a place in our home where I can go to be by myself.
1	2	3	4	5		75. When I think about the kind of parent I am, I often feel guilty or bad about myself.
1	2	3	4	5		76. I am unhappy with the last purchase of clothing I made for myself.
1	2	3	4	5		77. When my child misbehaves or fusses too much I feel responsible, as if I didn't do something right.
1	2	3	4	5		78. I feel every time my child does something wrong it is really my fault.
1	2	3	4	5		79. I often feel guilty about the way I feel towards my child.
1	2	3	4	5		80. There are quite a few things that bother me about my life.
1	2	3	4	5		81. I felt sadder and more depressed than I expected after leaving the hospital with my baby.
1	2	3	4	5		82. I wind up feeling guilty when I get angry at my child and this bothers me.
1	2	3	4	5		83. After my child had been home from the hospital for about a month, I noticed that I was feeling more sad and depressed than than I had expected.
1	2	3	4	5		84. Since having my child, my spouse (male/female friend) has not given me as much help and support as I expected.
1	2	3	4	5		85. Having a child has caused more problems than I expected in my relationship with my spouse (male/female friend).

NAME _____

	1	2	3	4	5	
	Strongly	Agree	Not	Disagree	Strongly	
	Agree		Sure		Disagree	
1 2 3 4 5						86. Since having a child my spouse (or male/female friend) and I don't do as many things together.
1 2 3 4 5						87. Since having my child, my spouse (or male/female friend) and I don't spend as much time together as a family as I had expected.
1 2 3 4 5						88. Since having my last child, I have had less interest in sex.
1 2 3 4 5						89. Having a child seems to have increased the number of problems we have with in-laws and relatives.
1 2 3 4 5						90. Having children has been much more expensive than I had expected.
1 2 3 4 5						91. I feel alone and without friends.
1 2 3 4 5						92. When I go to a party I usually expect not to enjoy myself.
1 2 3 4 5						93. I am not as interested in people as I used to be.
1 2 3 4 5						94. I often have the feeling that other people my own age don't particularly like my company.
1 2 3 4 5						95. When I run into a problem taking care of my children I have a lot of people to whom I can talk to get help or advice.
1 2 3 4 5						96. Since having children I have a lot fewer chances to see my friends and to make new friends.
1 2 3 4 5						97. During the past six months I have been sicker than usual or have had more aches and pains than I normally do.
1 2 3 4 5						98. Physically, I feel good most of the time.
1 2 3 4 5						99. Having a child has caused changes in the way I sleep.

1
Strongly
Agree

2
Agree

3
Not
Sure

4
Disagree

5
Strongly
Disagree

1 2 3 4 5

100. I don't enjoy things as I used to.

1 2 3 4 5

101. Since I've had my child:

1. I have been sick a great deal,
 2. I haven't felt as good,
 4. I haven't noticed any change in my health,
 5. I have been healthier.
-
-

NAME _____

DURING THE LAST 12 MONTHS, have any of the following events occurred in your immediate family? Please circle any that have happened.

- 102. Divorce
 - 103. Marital reconciliation
 - 104. Marriage
 - 105. Separation
 - 106. Pregnancy
 - 107. Other relative moved into household
 - 108. Income increased substantially (20% or more)
 - 109. Went deeply into debt
 - 110. Moved to new location
 - 111. Promotion at work
 - 112. Income decreased substantially
 - 113. Alcohol or drug problem
 - 114. Death of close family friend
 - 115. Began new job
 - 116. Entered new school
 - 117. Trouble with superiors at work
 - 118. Trouble with teachers at school
 - 119. Legal problems
 - 120. Death of immediate family member
-

APPENDIX C
MOTHER-CHILD INTERACTION CODES

MOTHER-CHILD INTERACTION CODES

A. POSITIVE AFFECT (PARENT)

This rating assesses the extent to which the parent displays warmth, nurturance, and positive affection toward the child and enjoys interacting with the child, with extent defined in terms of both frequency and intensity. Behaviors that evidence such an orientation are numerous and diverse. Among others, they include kissing and hugging the child, affectionately touching the child and smiling at and laughing with the child as well as being enthusiastically involved in what the child is saying or doing. In comparison with the positive feedback rating, these behaviors do not have to be contingent on child behavior. However, for positive affect to be coded as feedback, the parent's response must be specific to a very explicit child behavior. The more general the situation that evokes the parents' positive affect, the more likely it is that it should be coded as positive affect instead of positive feedback. Positive affect that qualifies as positive feedback is not coded here.

1. No instances of warmth, affection, or enjoyment are observed. Parent is instructional or uninvolved.
2. Parent is involved in what the child is doing, initiates talk with the child.
3. Some instances of warmth, affection, and enjoyment are observed. Shows mild enthusiasm and parent seems to enjoy the child in the task. Expressions of empathy, like "that is hard, isn't it?" during clean-up or other tasks.
4. Parent is involved and enthusiastic. One overt expression of enthusiasm, i.e., "wow" or "I love this" or "you love these!" Active make-believe or participating in fantasy.
5. Instances of warmth, affection, and enjoyment are very frequent, or intense, exuberant.

B. NEGATIVE AFFECT (PARENT)

This rating assesses the extent to which the parent displays hostility, negative affect, and displeasure or annoyance toward the child, with extent defined in terms of both frequency and intensity. Behaviors that evidence such an orientation are numerous and diverse. They include annoyed or scornful facial expressions and posturing, aggressive handling of the child, explicitly negative or scornful vocal tones, and clear lack of enjoyment of the child in this situation. In comparison with the negative feedback scale, the parent behaviors rated in this scale do not have to be contingent upon the child's behavior. Negative affect that qualifies as negative feedback is not coded here.

1. No instances of hostility, negative affect, or displeasure are evident.
2. Parent's facial expression, posturing, or tone of voice is negative. However, there are no explicit negative messages.
3. Some subtle instances of hostility, negative affect, or displeasure/annoyance occur, but there is no escalation in intensity or loss of control.
- 4.
5. Instances of hostility, negative affect, and displeasure are frequent and/or intense.

NOTE: Oftentimes, a parent might laugh at the child and ridicule him/her, in a way that actually should be scored between 1 and 2 on negative affect. Yet, in the same minute, the parent might manifest positive affect that is between 1 and 2 as well. In these instances we code both positive and negative affect as 1 -- to balance them out-- since giving a 2 to both or 1 to one and 2 to the other would not capture the situation accurately.

C. POSITIVE FEEDBACK

This scale assesses the extent to which the parent provides contingent rewards and praise to the child for his/her behavior via verbal and/or nonverbal means, with extent defined in terms of both frequency and intensity of feedback. Statements such as "that's good" would thus be weighted less heavily in this rating than more elaborate ones like "that's terrific, you really worked hard at that; I'm proud of you!" Other examples of positive feedback include statements like "You did a good job" in response to cleaning up toys, or a pat on the back or a clapping of hands in response to the child's accomplishments during freeplay. Observer must be able to identify the contingency between child and parental behaviors in order to score this as feedback as opposed to positive affect. The parent should be intentionally or explicitly providing a positive response to a particular child action.

1. No positive feedback is observed.
2. Within any single minute parent says one to three times, "that's good" or "very good" without elaborating on the feedback and/or without special enthusiasm.
3. Parent gives 4 feedbacks of the type described in score #2, or fewer than 4 but with especial enthusiasm (e.g., clapping hands, hugging child, or elaborating on the feedback verbally).
4. Parent gives 4 or more feedbacks with enthusiasm (e.g., clapping hands, hugging child, or elaborating on the feedback verbally).
5. Positive feedback is frequent or intense and characterizes much of the way the parent responds to child. To give a 5, it should seem as if there is continuous positive feedback.

D. NEGATIVE AFFECTIVE FEEDBACK

This scale assesses the extent to which parent criticizes and/or demeans child's behavior with derogatory remarks or through some nonverbal means (e.g., disgusted facial expression, walking away) in response to child's behavior. Extent is defined both in terms of frequency and intensity of feedback, with statements like "that's lousy" delivered in a neutral tone counted less heavily than if communicated in a disgusted tone or embellished with additional commentary like "can't you do anything well?" or "you never really try!" Negative feedback during free play could involve derogatory statements about the child's activity or his/her unwillingness to do as the parent desires; during cleanup it could involve comments indicating that the child is not trying or is putting things in the wrong place, or during the teaching task it could involve comments that demean the child's efforts or products. To qualify as negative feedback, feedback must contain an affective message, not simply an informational message (i.e., that's in the wrong place). Observer must be able to identify the contingency in order to consider behavior as feedback rather than more general negative affect.

1. No negative feedback.
2. Implicit negative feedback is observed; facial expression, movement away, posture, or tone of voice is a negative affective response to child behavior. But contains no explicit message about the child's behavior.
3. Some explicit negative affective is observed: some sort of even minimally derogatory verbal statements.
- 4.
5. Negative feedback is frequent or especially salient and characterizes much of the way the parent responds to the child.

E. FACILITATES SELF-REGULATION

Re: coping, buffering, keeping task-oriented

This scale assesses the extent to which the parent facilitates his/her child's ability to control self and actively and positively engage the situation, that is, provides the "scaffolding" which allows the child to direct/structure the play. Parents are rated in terms of their ability to provide supportive assistance that facilitates the child's competent functioning, with extent being defined in terms of the frequency and intensity of parent's behavior.

Examples:

--During first few minutes of play P explains rules to C, including clear, precise instruction of what not to play with, coupled with what C can play with; there is a rationale present as well as an effort to engage C in legitimate activities. If C transgresses, prohibition is delivered in a well-timed, clear, and supportive manner. During play P provides supportive presence, whether actively playing with C or watching C play, yet "being there" for C.

--the provision of rationales that offer information or appeal to positive or neutral consequences in order to obtain compliance. For example, the P's rationale might indicate that some child action will please the P, will be in accordance with a rule, or will lead to pleasant outcomes. Rationales that provide information might involve statements like "Why don't you do x, because something interesting will happen; because it works that way" or the like.

--the manipulation of materials in a way that improves the C's chances for being successful, yet does not involve doing the task or action for C. Such facilitative assistance may take the form of giving verbal hints, repositioning a piece where C will see it better, assisting C in doing something interesting or difficult by helping him/her manipulate the piece-- in essence, by providing a "scaffolding" for the C to use.

--the provision of well-timed, but not too frequent or intrusive directions, delivered in a pleasant or encouraging tone of voice which points C in the "right" direction. For example, in playing with puzzles a P might suggest that turning a piece around will make it fit into the puzzle better.

--the provision of well-timed interventions that prevent C from becoming over-aroused and disorganized. Such

facilitative parenting may take the form of P "steering" or "inducing" C away from a potential frustration, but not before C him/herself has a chance to cope, unless even one effort is likely to overwhelm C.

-- assisting C in the expression of his/her feelings that supports the child's desire to express and control them, as when C wants to talk about separation during reunion. Conversation or dialogue in service of maintaining C's organization. More generally paraphrasing C's feelings in ways that facilitate the organization of C's behavior and his/her coping is considered here.

The evaluation of the parent on this scale is not dependent upon the success of parent's facilitative acts; thus this scale assesses only the parent's skill, effort, and intent. Also, one never lowers scores (except when considering a score of 5) because of additional intrusive, unresponsive, or negative parental behavior.

Using the following definitions, it should be noted that if the parent sits close to child and is attentive and available to him/her in situations other than clean-up or the structured teaching tasks, the parent will receive a minimum score of 3. As more specific facilitative behavior is displayed, the parent's score will increase appropriately.

1. No evidence of facilitative behavior is observed. Parent does not pay attention to child in free play; just orders and sits back observing in clean up.
2. During free play, reflections of child's verbalizations, echoing child's comments. Repeating instructions, or just being attentive. One instance of facilitation may occur. If there is a 4 or 5 on intrusive, do not code more than 2 on facilitative.
3. Some instances of facilitative behavior are observed. Two to three instances beyond being attentive.
4. Four or more specific instances of facilitative behavior beyond being attentive.
5. Instances of facilitative behavior are frequent or especially salient and characterize much of the parent's way of relating to the child. Four or more instances, plus facilitation characterizes P's way of relating--there can be no scores above 1 on unresponsive or intrusive for a parent to obtain a 5.

F. INTRUSIVE/OVERCONTROLLING

This scale assesses the extent to which parental behavior is ill-timed, intrusive, and excessively and inappropriately controlling relative to what the child is doing. The parent's behavior may be ill-timed in the sense that it disrupts child's own goals and pursuits, or lacks empathy or synchrony with the child's feelings and action, respectively, and thus is psychologically intrusive. Intrusive behavior is likely to be dictated by a parental agenda regarding what should be going on and disregarding child's behavior.

Examples:

--During the first few minutes of play P explains the rules to C in a clear manner, but with the focus on what C can not play with. The instructions may be given in a dictatorial fashion (e.g., "don't let me catch you playing with this").

--During play P directs/structures play in a way that does not allow C to explore and decide what to play with. P often tells C what to play with or in some way decides what parent/child will play with together, without regard to C's wishes (e.g., "We're going to play with this toy now" or "Here, you play with these blocks now"). P interrupts or distracts C's own play or conversation.

--the provision of constant verbal directions that are not timed according to what C is doing and leaves C with little room for autonomous functioning.

--"quizzing" child in an interfering way ("what color is that? How about that? Who is that? etc.)

--intrusive manipulations of C's body or materials to force C to behave in a certain manner, (e.g., pushing C's arm back and forth to "help" him do something).

--interventions into C's actions before C has a real chance for mastery--not timed to C's degree of coping, but rather to P's need to "get on with it".

--Prolonging separation with extensive explanations that do not seem to be necessary, given C's affective state.

--While child is pretending/participating in pretend with parent, parent usurps control by trying to force in literal explanations rather than going along with child's non-literality.

1. No evidence of intrusiveness.

2. Unnecessarily dictatorial clean-up instructions; subtle intrusions that don't necessarily distract or upset child.

3. Some instances of intrusiveness are observed. (two instances of verbal intrusions or one physical intrusion). Parent is not responsive to child's protests.

4. 3 - 4 verbal intrusions.

5. Instances of intrusiveness are frequently or especially salient and characterize much of the parent's way of relating to child.

G. UNRESPONSIVE, UNAVAILABLE, UNDERCONTROLLING (PARENT)

This scale assesses the extent to which the parent makes no attempt either to control or to facilitate the child's behavior at a time when support, assistance, or availability would be helpful to the child. Indeed, under-control should be seen as "doing nothing" or token gestures made by the parent for the benefit of the experimenter, but not the child. Examples:

--P does not attempt to engage C in any activity or makes a "token gesture" for the benefit of the experimenter, during periods when C could use some support, guidance, etc. P allows C to direct/structure play activities but does not supply a supportive presence for the child, when it is clear that the child could use assistance. P may ignore bids for assistance from C, or misinterpret C's cues, or make perfunctory attempts at aiding C.

--P deliberately provides false information for his/her own ends (e.g., "Examiner will let you play with that box while I'm away.")

--If C transgresses, P will deliver the prohibition in a vague, haphazard manner, or simply not deliver them at all.

--P does not respond to child's comments or questions while pausing at the door during reunion.

1. No evidence of under-control is observed.

2.

3. Some instances of under-control are observed. (e.g., does not respond to child's questions twice)

4.

5. Instances of under-control are frequent or especially salient and characterize much of the parent's way of relating to the child.

NOTE: When unavailability seems intended to avoid rewarding and encouraging dependency, it is coded as demand for self-reliant behavior not as unavailability.

H. DEMANDS SELF RELIANT BEHAVIOR

This scale assesses the extent to which the parent explicitly or indirectly requires the child to be self-reliant, with extent defined in terms of the frequency and intensity of the parent's behavior. Indirect demands for self reliance involve actions that require the child to function on his or her own even though this intent is not explicitly stated. But unresponsiveness on the part of the parent to bids by the child should not be regarded as demands for self reliant behavior unless it is clear that the parent is purposefully promoting autonomous behavior.

Explicit and indirect demands for self reliant behavior may come in a variety of forms, both verbal and nonverbal. Examples include statements which encourage the child to do something on his/her own (e.g., "Go ahead, you try it yourself first"), that limit the parent's involvement and thereby place responsibility on the child (e.g., "It's not my job to do that" or "You get started, I'll be with you in a minute"), and actions that explicitly communicate the same message, as when a parent puts a puzzle piece in the child's hand for the child to use, or turns the child around and directs him/her toward an activity, but doesn't provide the accompanying supportive information that would make it a facilitation.

1. No demands for self reliant behavior are observed.
2. 1 - 2 instances
3. Some instances of demands are observed. 3 or more times.
- 4.
5. Demands for self reliant behavior are very frequent or highly salient.

I. UNDERMINES CHILD FUNCTIONING

This scale assesses the extent to which the parent subtly or overtly undermines his/her child's optimal functioning. Undermining behaviors are those that serve the parent's own emotions and needs to the detriment of the emotions and needs of the child. Oftentimes, a behavior will be scored as both under- control and undermining or both negative affective feedback and undermining, etc. Examples:

--Threatening the child with the promise of harm (e.g., "Examiner will be mad at you if you don't clean up!").

--Giving the child conflicting messages; saying one thing and acting in a contradictory way; reversing what s/he just told the child, etc. Pay attention to affect/content-of-message discrepancies (e.g., Parent says "Oh, great job here!" but in a derogatory tone of voice, or parent half-jokingly says, "Oh, you're so dumb!").

--Drawing attention to illusory danger or unpleasantness (e.g., "Don't worry, the camera isn't going to hurt you.")

--Making empty taunts or scolding the child unnecessarily ("See what you missed playing with because you just sat in the corner? No, it's too late now!" "We were going to go to McDonald's, but since you won't help pick up, we'll just forget about it.")

--Disapproving of the child him or herself, either overtly or subtly (e.g., "I don't like it when you cry"--disapproving of the child's real distress at separation or whatever)

--Being sarcastic with the child, using a sarcastic tone when responding to something the child has said or done.

--Behaving in an excessively rule-bound way.

--Overtly expecting the child to fail (e.g., "I don't know if you can do this one; I think it's too hard for you.") Again, pay attention to parent's affect and tone of voice. It's important to distinguish this from, "This one is going to be difficult," but said encouragingly.

--Devaluing the child's performance (e.g., "Oh, that was an easy one I think.") Note a tone of voice that conveys derogatory message.

1. No instances of undermining are observed.
2. One instance of undermining is observed.
3. Some instances of undermining are observed.
- 4.
5. Instances of undermining are frequent or especially salient.

NOTE: Undermining behaviors are counted across each episode. One instance is scored as a 2, two instances as a 3, and so forth. However, an especially intense instance is scored extra.

J. FOCUSED ATTENTION/INVOLVEMENT (CHILD)

This scale assesses the extent to which the child involves him/herself in play activities or exploration, defined in terms of duration and intensity. Factors to consider in coding this scale are length of time in activity, apparent attention span of child, evidence of focused involvement, and intensity of the child's actions. A child high on this scale would, for example, be completely absorbed in his/her activity (e.g., a puzzle) for the entire 60 second period. A child low on this scale may look highly tentative in approaching toys, may wander aimlessly around the room, or may superficially and redundantly fidget with a toy (e.g., haphazardly drops blocks into a bucket).

1. No engagement in play. C is almost entirely uninvolved with play activities. If there is involvement, it is fleeting at best and that occurs infrequently. C may show some brief signs of attention and focused activity but C is generally uninvolved in play. C is principally aimless. C fails to engage toys or withdraws from play activities or engages toys in highly stereotypic or rigid manner. C may fiddle with toys in superficial manner. C may frequently stare aimlessly or wander or focus attention mainly on P. C may appear to approach toys with marked tentativeness and never warms up. Breaks away from structured tasks.

2. Low level of engagement, but distractible, easily taken off task. Low level of attentiveness for part of minute. C may attend to toys and engage in some focused play activity but C stops or gives up play experience early in 60 second period. More non- focussed than focussed attention. Engagement and interest are low during mother-directed play. During clean-up, child cooperates part of minute.

3. Low level of attentiveness for entire 60 seconds. C shows a mixture of focused, but passing, involvement with toys and moments of involvement with other stimuli or distractions. Or C may show attentiveness to toys for entire 60 second period at a low level of engagement (interest). Or, C is involved with toys but looks up frequently (without engaging any other stimuli). C may engage in one or two bouts of focused attention lasting from 15-20 seconds, which involve manipulation. "Check-ins" without play; breaking set with s.t. During clean-up, is unwilling but cooperates the entire minute.

4. C is generally involved in exploration but there is a slight decline in involvement over the 60 second period. C may show slow initial involvement, but intensity builds over time. Or, two bouts of sustained involvement. If C breaks set, has to become re- involved with same or another

activity. Cooperates entire minute during clean-up.

5. C shows sustained, intense involvement in exploration of toys throughout the 60 second period. C appears totally absorbed in toy activities and may appear ready to continue beyond the free-play period. If C doesn't switch at parent-directed task because of intensity of own play, code 5, if C has been consistent to that point.

K. COGNITIVE SOPHISTICATION (CHILD)

This scale is designed to assess the child's sophistication in play, and level of play organization, defined in terms of intensity and duration. Factors to consider in coding this scale include the development of themes, and amount of imaginative/pretense play, as well as the intensity and/or length of time in play with one or more objects. Time, in and of itself, is not used to evaluate cognitive sophistication; instead it is used as a gauge to evaluate increasing complexity of either thematic play or combinatorial acts with an object. An example of a child high on this scale would be the child who builds a road system with blocks, then gets a toy car to drive on the road system; or a child who starts playing with the iron by ironing the table but verbalizing that s/he is ironing a tablecloth or some clothes. This child might then get some of the dress-up clothes to iron. A child low on this scale might simply stack the blocks with no obvious attempt to build something, or repetitiously move the iron back and forth.

1. Play activities are typically primitive. C shows very little consideration of objects' unique properties. C may try everything once but does nothing new or different, or C may try everything once but does nothing new or different, or C may return regularly to repetitious acts with familiar objects. A 1 is given whenever the highest level is "functional" (e.g., pushing buttons on phone, hammering peg with hammer)

2. Play activities remain simple but repetitious acts are few and scattered. Play activities may involve some attempt to combine objects in simple ways (e.g., put figures in airplane, arrange dishes on stove) make some isolated substitutions (peg as nail) or verbal description or labelling of objects and/or "functional relational" (e.g., putting puzzle together, figuring out drill--making it work--or combining picture turning and button pressing on phone, or putting puppet on hand, or stacking blocks.

3. Play activities typically involve combinatorial acts or substitutions. C may engage in fleeting instances of pretense or imaginative play ("simple pretend"), e.g., putting a puppet on each hand or pushing car while making motor sound. Writing letters or numbers.

4. Play activities involve sophisticated acts, combinations, or experimentation with objects. C may put different toys together in a new or interesting way. Repetition is minimal, C engages in fantasy play or creative construction ("substitutions with pretend").

Drawing, writing words.

5. Imaginative play is a notable or significant part of play experience. C develops schemes or stories with objects as props or symbols and/or constructs meaningful buildings, etc. Extended and coordinated thematic development ("sequences of pretend").

L. SENSE OF MASTERY/SKILL/COMPETENCE

This scale assesses the mastery, skill or competence the child displays during his or her play. The more confidently, independently, and successfully the child performs the play tasks, the higher the child's score. The more hesitant, dependent, and unsuccessful the child is, the lower the score. Efficiency and autonomy of functioning will be taken into account when making this rating.

1. C does not initiate play activities and is totally dependent on the parent to suggest things to do; or, child plays on his or her own but shows virtually no initiative, and play is void of any challenge or risk-taking. Not engaged in play task at all. Or power struggle.
2. C initiates some activity, but is dependent upon parent for guidance the majority of the time. During clean up, doesn't clean up at all but tries to negotiate; or cleans up part of the time.
3. There is a balance between dependence and autonomy in the child. The child tries new things and initiates some activities on his/her own. Some guidance from the parent is necessary, but only after the child has made a reasonable effort to perform the task himself/herself. In parent-directed activities, child responds in a capable manner, keeps up with parent. Nominal clean-up.
4. Child takes initiative, attempts new or difficult tasks. Parent may be involved, but the child is an equal partner in the play. Child may have some moments of frustration but persists and accomplishes most tasks on his/her own, and appears to be evaluating his/her own performance. Or, in parent-directed activities, trying to negotiate own ideas or control, even if it doesn't work. In clean up, has to exert extra effort to solve problems.
5. Child's play is highly autonomous. Child seeks challenges and takes pride in figuring things out on his/her own. If parent is involved, it is clear that the child is an equal if not dominant partner in the task; child may give advice or suggestions to the parent. Negotiates with parent to get own wants/ideas acted upon; 2 or more instances, or particularly skillful at negotiations. Makes extra challenges out of clean-up (puts on shelves, etc.)

M. ORGANIZED TRANSITIONS

This scale assesses whether the child has moved from one involved activity to another, entirely on his own, with a period of no more than 45 seconds between the two periods of focused activity. Focused activity will be defined as relatively sophisticated play lasting 35- 40 seconds. the transition will be coded in the episode (60) second time frame) in which coder judges that the transition to another activity occurred, as the actual transition will probably cross time-samples.

Examples of transitions include when a child who is obviously involved in playing with the talking telephone, stops, breaks set, and moves to the kitchen area where s/he begins to cook a meal. Credit for transitions will be given to a child who leaves the focused activity entirely to go get something and bring it back to elaborate what s/he's been doing. For example, a child might be busily playing with the typewriter, stop, go over to the kitchen, pour him/herself a cup of coffee and bring it back to the typewriter and continue developing the pretense play.

To summarize, the coder has to make 2 judgments:

- 1) The initial play episode was sufficiently extended.
- 2) The subsequent play episode was sufficiently extended.

At the point when these judgments occur, the transition will then be coded as:

0. No organized transition observed
1. Yes, at least one organized transition observed

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N. POSITIVE AFFECT/ENTHUSIASM (CHILD)

This scale assesses the enthusiasm and comfortableness of the child during the session. Factors to consider when coding this scale include ease of movement, relaxed posture of body, facial expressions, and/or behaviors. A child high on this scale would be clearly having a good time, with spontaneous and zestful expressions of fun, delight, and bubblyness. The child would also appear very relaxed, with a high degree of ease of movement. A child low on this scale would look frozen or highly tentative, with stiff body movements, and distressed facial expressions.

1. Depressed: C's affect is completely flat and carries a depressive quality. There is no enthusiasm, smiling or interest. Movement may be slow. C may look vacant or inhibited to a marked degree. C appears unable to work up interest in toys or playful activity. Vocalizations may be absent or infrequent and will tend to have a flat, monotonic quality. C may show extreme hesitancy to engage in play with toys. C may appear highly anxious and withdrawn, frozen, or highly distressed. In sum, C seems very uncomfortable and apparently would rather not be here. Code 1 if negative affect is 4 or 5.

2. Flat: Neutral, watching neutrally, fleeting enjoyment. C's affect tends to be flat, but lacks depressive quality. Facial expression most often is bland, but may sometimes show half-smiles. Vocalizations still are infrequent. C may appear to be intensely concentrating on toys, but there is no quality of excitement or fun. Body movements appear stiff and child shows no evidence of having fun, although C is not highly distressed. C may appear bored. Interaction with toys looks almost obligatory as opposed to desirable. Further, interaction with toys will probably be characterized by repetitive, "nonthoughtful", simple manipulations of the items.

3. Modest satisfaction: Consistent modest level of enjoyment. Brief moments of fleeting pleasure, maybe a smile or two and/or interested vocalizations, or consistent enjoyment but at a moderate level. His or her movements may be a little bit hesitant. Although C seems to be having fun, coder isn't convinced that s/he would choose to come back if s/he had the choice.

4. Fun: Some animation and enthusiasm is apparent during play period. Facial expression shows interest and pleasure during play. Smiles and vocalizations clearly indicate C has fun with toys. C appears comfortable and in charge. C looks secure, and negative signs are non-existent. C typically appears thorough and/or spontaneous in play, but a

single brief sign of tentativeness may be noted.

5. Enthusiastic: C shows animation, bubbiness, or delight in interaction with toys, with significant intensity. Some evidence of peak excitement must be present for this score. C obviously feels good about him/herself, confident, secure, comfortable. C's activities appear spontaneous and zestful. S/he is clearly in control of the situation, purposeful, having a fun time, and seems glad to be here. C is likely to be laughing, smiling, moving easily, "lost" in his/her play.

O. NEGATIVE AFFECT

This scale assesses the extent to which the child shows anger, dislike, or hostility, with extent defined in terms of frequency and intensity. Evidence of negativity may take the form of forcefully rejecting parent's ideas (verbally or behaviorally), shaking head to indicate pouting, or being unreasonably demanding of parent or play materials. It is important to note that negativity can be displayed in response to the parent, the experimenter, or play materials. Negativity may occur in the context of refusal to cooperate, and such behavior would be coded on this scale as well as the disobedience scale. The way to distinguish between negativity and disobedience is in being aware that negativity characterizes an affective tone of behaving, including refusal to comply, whereas disobedience simply characterizes refusal to comply irrespective of the affect or style displayed. Crying will be coded as negativity unless the child has actually hurt him/herself. Thus, specific examples of negativity would be stomping feet, throwing toys, yelling in unpleasant tones, kicking materials, breaking toys, or making angry facial expressions. Negativistic behaviors directed toward persons would include shouting "no", throwing a tantrum, crying, or throwing an object. Finally, it must be pointed out that positive affect may be present without influencing this score.

1. No evidence of negative affective expression is displayed.
2. One of: pouts, folds arms, "no", ignores parents.
3. C displays some or modest evidence of negative affective expression. This behavior should not escalate into an extensive display, i.e., they are somewhat isolated behaviors.
4. Or, low level negativity that lasts whole minute.
5. C very frequently or markedly displays anger and/or hostility.

P. DEGREE OF DISTRESS

This scale is designed to assess the degree (if any) of distress of the child per 60 second interval, defined in terms of duration and intensity. Factors to consider when coding this scale include facial expressions, vocalizations--(e.g., crying, moaning, or verbalizing feelings), body posture, and movements. A child high on this scale would be crying intensely, appearing to be hysterically out of control, or crying at a more moderate level, but for the entire 60 seconds. A child low on this scale would show no signs of distress.

1. No distress.

2. Low level of distress. C looks distressed, but not crying; maybe a whimper, maybe a quivering lip. Distressed facial expression but no sound, e.g., pouting. Or, if child says something with fear or distress in the tone of his/her voice, but is not crying. Seems worried or scared.

3. Moderate level. C is crying just below surface, but working to contain it, C is upset, but working to modulate it, sniffing, whimpering. For this score, C must vocalize a sniff or cry at least once.

4. C begins to cry but without great intensity.

5. High level--C is sobbing or shrieking, very upset.

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12345678910

Q. STRANGE BEHAVIORS (CHILD)

This code assesses whether or not any instance of strange behavior occurs during a given 60 second interval. Strange behaviors may take a variety of forms: engaging in motor arousal discharges (e.g., fingerplay), rocking back and forth in one place, blank staring and/or frozen posture, non-verbal, weird, guttural sounds, picking nose, or extended thumb sucking.

- 0. No instances of strange behavior observed.
- 1. At least one instance of strange behavior is observed.

R. TRANSGRESSIONS (CHILD)

This scale assesses the extent to which child contacts objects and materials that have been placed off-limits to him/her. A child high on this scale will contact an off-limits object for an extended period, touch several objects for a brief period, or continuing maintaining contact with an object even after prohibition is given. During cleanup, sometimes parent "allows" child to play with off-limits items either implicitly or explicitly. Unless parent clearly says it's ok to play with it, continue to code as if a transgression. Parent must have been explicit about the child not playing with something: "It's not time to play now, it's time to clean up." Or puts toy on floor out of reach of child.

1. No transgression observed.
2. Brief momentary transgression (which terminates following parent's prohibition)
3. Two or more brief contacts or one contact lasting 15-30 seconds in duration.
4. Extended transgression lasting 30 seconds or more; unresponsive to parent prohibition.
5. Extended transgressions or attempts lasting the whole time.

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S. SEEKING PROXIMITY TO THE PARENT

This scale assesses the extent to which the child seeks proximity to the parent. Extent is defined in terms of intensity and duration. A child high on physical proximity to the parent would spend an extended period of time in close physical proximity to the parent. A child low on this scale would spend no time actively seeking to be close to the parent.

1. Child seems to be comfortable with his/her proximity to the parent. Child does not actively try to be closer.

2.

3. Child makes some attempts to be closer to the parent, but does not show distress or particularly clingy behavior.

4.

5. Child seeks to be close to parent and either shows a good deal of distress, or spends most of the time period in actual physical contact with the parent.

T. DISTANCING FROM PARENT

These two scales assess the extent to which the child tries to increase the physical distance between himself/herself and the parent. Extent is defined in terms of intensity and duration. Factors to consider include physical space between the parent and child, and persistence of child in trying to maintain or increase the distance. A child high on distancing from the parent would spend an extended period of time far from the parent, and would not try to maintain contact wither verbally or through eye contact. Or, the child would retreat from the parent in anger or distress. A child low on this scale would make not attempts to move away from the parent.

1. No instances of moving away from the parent.
- 2.
3. Child spends some time moving away from the parent, but maintains contact verbally or through eye contact.
- 4.
5. Child spends all of the time period moving away from the parent or actively trying to increase distance from parent. Child does not try to maintain verbal contact with the parent, or engage the parent in any way.

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U. COOPERATION/COMPLIANCE (CHILD)

This scale assesses the extent to which the child complies with the parent's specific instructions or directions, with extent defined in terms of both the frequency and emotional intensity of cooperation. A statement which involves an unenthusiastic, "OK, I'll try that piece," would thus be weighted less than one in which the child eagerly responds, "Right! I should try the blue before the yellow!" Compliant and cooperative behavior may be evidenced in a number of ways, either verbal or nonverbal. (Non-verbal directives include pointing, steering child, etc) Examples include verbal and nonverbal responses to the parent's questions, statements, or non-verbal directives (e.g., picking up a particular colored block when asked to do so, fetching a specific toy during clean-up). *Focus on explicit acts of child's compliance to a parental request and not subtle cooperation.

1. No compliant or cooperative behavior is observed.
2. One instance of compliance is observed.
3. Some instances (2-3) of child compliance are observed, or child complies in a neutral (as opposed to enthusiastic) manner (i.e., child acquiesces).
4. 4 - 5 instances.
5. The child is fully cooperative and compliant with all of parental requests, or is enthusiastically cooperative if only one or two opportunities arise. 6+ instances.

* bump up one number for particularly enthusiastic responses.

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V. DISOBEDIENCE (CHILD)

This scale measures the extent to which the child verbally refuses to comply with a parent's request (e.g., "I'm not going to do that" or "No, you can't make me.") or fails to comply through some nonverbal means (e.g., shaking the head "no", pushing self and/or toys away). Extent is defined both in terms of the frequency and intensity of disobedience, with neutral statements such as "No, I don't like that" weighted less heavily than an instance in which the child throws a toy and in a frustrated and disgusted tone remarks, "No, I won't, I hate this!" It is also important to note that noncompliant and disobedient behaviors may be of a more passive form, such as when the child ignores requests which clearly have been heard or when the child verbally agrees to cooperate, yet fails to perform or follow-through with the request.

1. No instances of noncompliance and disobedience are observed.
2. 1 - 2 low level verbalizations with real compliance or ignores parent for brief time.
3. Some evidence of low-level noncompliant and disobedient behavior is observed.
4. Negativity, low level for whole minute.
5. The child strongly refuses to comply with a parental request or direction.

W. DEPENDENCY/NEED FOR HELP

This rating assesses the extent to which the child turns to the parent for help in order to complete a particular task (i.e., clean up, structured activities), with extent defined in terms of both frequency and intensity. Dependent behaviors include verbal pleas for help such as, "Hold this for me," or "Where does this piece go?" or statements explicitly asking for assistance, such as "I can't do it." Other relevant behaviors may be more subtle, yet still be evidence of dependency, such as turning toward the parent and handing him or her the toy to put away during the clean up task.

1. No dependency or need for help is observed.
2. 1 - 2 instances.
3. Some dependency or need for help is observed. 3 - 5 instances.
- 4.
5. Instances of dependency or need for help are frequent or especially salient.

NOTE: During separation, dependency is coded whenever the child makes explicit bids to be with parent, to have the parent remain or not exit from the room.

X. VERBAL INTERACTION WITH PARENT

This scale assesses the extent to which the child verbally interacts with the parent. Extent is defined in terms of intensity and duration. The persistence of the child in trying to establish verbal interaction is considered. A child high on verbal interaction would persistently try to engage the parent in conversation, and failing that, would continue to talk to the parent, or make a brief and fleeting comment.

1. No orientation to the parent.
2. Sound, acknowledgement (e.g., a simple yes or no to parent's question). Or talking occurs in less than 1/2 of the segment.
3. Talks to parent -- talking occurs for about 1/2 of the segment. Statements or questions are brief.
4. Talking for more than 1/2 of segment. Talking is more meaningful than in 3; don't score more than 3 if child is just answering parent's questions.
5. Repeated, persistent, or extended talking with the parent.

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LIST OF REFERENCES

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