

RELATIONS BETWEEN CHANGES IN MATERNAL
HOSTILITY AND CHILDREN'S COGNITIVE
AND SOCIAL FUNCTIONING IN
KINDERGARTEN

By

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CHAPTER 1

Introduction

Depression and Hostility

Depression has always been a topic of heavy interest in the fields of psychology and development, especially when children are involved. Beardslee, Bemporad, Keller, and Klerman (1983), Field (1992), Gefland and Teti (1990), and Zahn-Waxler, Iannotti, Cummings, and Denham (1990) are just a few of the many research teams that have linked depression, maternal depression in particular, to cognitive and social problems in children. In fact, over the past two decades alone there has been an increasing amount of attention given to the children of depressed parents. Most of this research has relied on various types of parent reports and interviews aimed at identifying problems in children of parents (mainly mothers) who have either reported symptoms common to depression (i.e. eating and sleeping difficulties, changes in activity, difficulty thinking clearly, low self-esteem, feelings of sadness, guilt, anger (American Psychiatric Association, 1994)) or who have received a diagnosis from a clinician (Kershner & Cohen, 1992). However, there is an aspect of depression and how it relates to social and cognitive outcomes in children that many of these researchers have touched on, but not examined in depth—hostility.

In recent research conducted by Hubbs-Tait, Page, Huey, Starost, Culp, Culp, and Harper (2005), maternal hostility is an essential component of the negative affect that reduces “tolerance for the demands of parenting” (page 16). This is significant for two

reasons: (1) there has been very limited research that has explored the implications of hostility for child development, and (2) there is potential for new and useful information that could be useful for not only parents, but also for those who develop interventions aimed at enhancing child development. As mentioned before, there have been studies that have recognized that exposure to hostility could possibly be the most important factor for the development of social and cognitive problems in children (Cox et al., 1987; Cohen and Bromet, 1992; Brody, Stoneman, & McCoy, 1994). Once again, however, these studies simply included hostility under the broader concept of depression.

In a classic clinical evaluation of what part hostility plays in depression, Weissman, Klerman, and Paykel (1971) theorized that there are two kinds of hostility. “Hostility-in” was seen as the result of turning the hostility inward due to guilty feelings of having displaced anger onto others. “Hostility-out”, on the other hand, was a form of anger and negative affect that was directed towards others, with family members or loved ones being the most likely targets. In more recent literature, however, the term “hostility” covers a wide variety of behaviors and attitudes. Buss and Perry (1992) conceptualize it as being a cognitive element of aggression that manifests itself as resentful and suspicious thoughts. On a more general level, parental hostility can theoretically be thought of as aggression, harshness, anger, or negative maternal affect directed at the child (Peterson, Ewigman, & Vandiver, 1994). Any or all of these can theoretically result in an impaired relationship between the mother and child, and could lead to changes in social and cognitive functioning.

Finally, certain types of family climate may exacerbate hostility. For example, conflicts or disruptions within the family and high marital stress levels may cause higher

levels of continuing negative affect and harshness that could be directed towards the child. Pryor-Brown and Cowen (1989) have demonstrated in their research that, in general, stressful life events and circumstances may have negative effects on the physical and psychological aspects of the child's surroundings.

Child Outcomes

Social and cognitive functioning covers a wide variety of behaviors in children. Problems in social functioning can include aggression that children display while interacting with others, how comfortable or anxious they are in social situations, or how distractible or hyperactive they are in classroom situations. Cognitive functioning, on the other hand has been conceptualized as including receptive and expressive language abilities of the child (Hubbs-Tait, Culp, Culp, & Miller, 2002).

Downey and Coyne (1990) point out that hostility may interfere with the ability to be warm and consistent to the child. Mothers may experience negative emotions concerning the demands of being parents, and displace that emotion on their child in the form of hostility and rejection (Coletta, 1983; Davenport, Zahn-Waxler, Adland, & Mayfield, 1984). This may impair the child's social and cognitive development, which is supported in a study conducted by Cohen and Bromet (1992) in which depressive symptoms were not significant predictors of social behavior problems when the level of hostility was controlled. Additionally, in a project by Hubbs-Tait, Badiyan, and Culp (2000) at a meeting of the Society for Research in Child Development, there were direct links drawn between maternal hostility and social competence in children. They used ratings by teachers to obtain information on the sociability of the child in the classroom,

and an inverse relation was found between the maternal hostility scores and the ratings that the teachers gave the children during Head Start.

The National Institute of Child Health and Human Development (NICHD) found that children were at risk with respect to their cognitive and social outcomes when their mothers reported feelings of depression (1999). But, they also noted there are some discrepancies between the findings of how maternal depression affects cognitive outcomes in children. For example, Teti, Gelfand, Messinger, and Isabella (1995) found direct relations between maternal depression and poor cognitive functioning in children; however, other research teams (Murray, 1992; Sameroff, Baldwin, & Baldwin, 1993) reported relations for boys only, or in situations of family hardship. In addition, Murray (1992) and Sameroff et al. (1993) speculated that the relation is not a direct one, but rather that an association is shown when hostility is present. Therefore, it follows that the relation between hostility and child outcomes warrants a closer look.

Importance of Change

This study will specifically attempt to observe how *changes* in levels of maternal hostility relate to social and cognitive outcomes in children. Egeland, Kalkoske, Gottesman, and Erikson (1990) demonstrated that changes in a mother's level of depression from the preschool to early school years was related to changes in their child's developmental outcomes above and beyond stable levels of depression. In fact, they even proposed that changes in depression could be related to changes in hostility levels. However, no explicit links were drawn between changes in hostility and child development outcomes, and none have been attempted by other researchers in similar studies. Hammen, Burge, and Adrian (1991) also noted the importance of change in maternal depression and

how it relates to child outcomes. In their study on the temporal aspect of depression, the onset and any changes in maternal depressive symptoms were noted, along with similar symptoms in their children. They found that increases in maternal symptoms of depression may place stress on the child, leading to the development of depression in the child at or near the same time period changes were documented in the mother's depression.

Although the importance of changes in hostility and how they relate to changes in social and cognitive functioning has not yet been studied systematically, there is evidence that changes in levels of depression over a period of time may impact a child's development more than just being exposed to chronic levels of depression. It has been established through research that hostility is a key symptom of depression, so it could be speculated that the role of change is as important in studying the relation of hostility to child outcomes as it is when looking at the relation of depression to child outcomes.

Additional Factors

In addition to maternal hostility, there are other factors that are commonly mentioned in studies that relate maternal issues to cognitive and social outcomes in children. For example, family stressors (e.g., shifts in marital status, marital discord) have been consistently linked with depression in parents and problems with social functioning in children (Jaycox & Repetti, 1993; Loeber & Dishion, 1984; Patterson, 1982).

Maternal education is another important factor that should be considered when observing differences in children's social and cognitive functioning. Several researchers have noted that higher levels of maternal education coupled with warmth may be related to more appropriate social functioning in their children (Fewell, Casal, Glick, Wheeden, & Spiker, 1996).

Research Questions

Given that it has not been made clear through past and current research just how maternal hostility is related to cognitive and social functioning in young children, one purpose of the current study will be to determine if there is a relation between changes in maternal hostility and changes in children's social and cognitive functioning between Head Start and kindergarten. Furthermore, are it is anticipated that changes in levels of hostility are more important than initial presence of hostility. The main research questions that this study will attempt to answer are "How do changes in maternal hostility relate to changing cognitive competence in children?" and similarly, "How are changes in maternal hostility related to changes in child social competence?"

CHAPTER 2

Review of Literature

Maternal Hostility and Child Outcomes

Maternal hostility. Although hostility covers a wide variety of behaviors and attitudes, Buss and Perry (1992) conceptualize it as being a cognitive element of aggressive behavior that manifests itself as feelings of unfairness, resentment, or “ill-will”. Research teams such as Hokanson and Butler (1992), and Riley, Treiber, and Woods (1989) have confirmed that high levels of hostility and anger persist both in individuals who have been clinically diagnosed with depression, and those who have not been diagnosed, yet still report feeling depressed.

The presence of hostility within depression is important to note because research teams such as Cox, Puckering, Pound and Mills (1987) have speculated that although the mental health of mothers may determine how much hostility is experienced by a child, persistent hostility may be the key factor for continuing behavior problems in children. In a review on how maternal depression affects child development by Cummings and Davies (1994) that discussed familial and contextual factors that contributed to depression, the authors divided their research into three main topics that were related: characteristics of the parent’s (with a focus on mothers), relationships between the mother and child, and marital functioning. Within the characteristics of depressed mothers, Cummings and

Davies noted that maternal hostility and intrusive and insensitive parenting can negatively affect young children by interfering with their developing ability to regulate emotion.

Internalizing versus externalizing behavior problems. Hostility can also take a more covert form, as opposed to being out in the open and obvious. Instead of appropriately expressing anger, a parent or member of a family who is experiencing depression may be more likely to use more subtle, nonverbal forms of hostility such as giving other family members the “cold shoulder” (Field, 1989). This unspoken tenseness between adults may be associated with **internalizing behaviors** in children (i.e., anxiety, withdrawal, fearfulness, and psychosomatic complaints) which can lead to elevated stress levels, feelings of anger, and confusion with how to behave in regard to their confused feelings that possibly arise as a result of not having the opportunity to see an adult handle tension in an appropriate manner. Cummings and Davies (1994) also speculated that exposure to environments such as these where anger and hostility are more often expressed nonverbally may prevent children from releasing their own frustration in a safe manner, and exacerbate the development of internalizing disorders.

On the other hand, according to Patterson (1982), and Patterson, Reid, and Dishion (1992), **externalizing problems** in children typically emerge during preschool, can be characterized by noncompliance or aggression directed towards others, and are generally believed to be facilitated a number of factors that may be related. These factors range from coercive parenting styles (Jaycox & Repetti, 1993), family environment (Gartstein & Fagot, 2003), to financial difficulties (Teti, Gefland, & Pompa, 1990) and shifts in marital status (Jaycox & Repetti, 1993; Patterson, 1982). Aside from these

variables there is one other factor that appears to be a common thread: maternal depression.

The aim of a study by Kershner and Cohen (1992) was to explore how maternal depressive symptoms were related to child functioning in a sample of 78 girls and boys (50 boys and 28 girls) ages 6 to 12 (*M* age for boys = 9.9, *M* age for girls = 9.8 years) that had been referred to the Psychiatry Outpatient Department at The Hospital for Sick Children in Toronto, Canada, for clinical services. Some reasons for referral included emotional problems and poor social functioning. The families of the children were of varying socioeconomic levels, with 58 of the children coming from two-parent families and the remaining 20 from single-parent households. Sixty-two of the children were from Canada, and the rest were from West India, Asia, and Europe. It was hypothesized that there would be a positive correlation between mothers' depressive symptoms and internalizing behaviors in their children; however, no predictions were made in regards to gender differences, SES, or ages (Kershner & Cohen, 1992).

These children were directly observed by the researchers who collected data on categories considered important for positive functioning. Some of the areas of assessment included social cognitive maturity, locus of control, self-esteem, and social cognitive ability. The parents of the children also rated problem behaviors, to confirm findings of previous reports. Mothers completed the Child Behavior Checklist (Achenbach & Edelbrock, 1983) and relations between depressive symptoms and Internalizing and Externalizing *T* scores were reported.

Maternal depressive symptoms were assessed with self-reports on the Malaise Inventory, which is a questionnaire that includes questions regarding various emotional

disturbances in adults (Rutter, Tizard, & Whitmore, 1970). Some of the applicable symptoms assessed by it are depressed mood, anxiety, irritability, somatic complaints, and sleep disturbances. The scale has been used on children in some cases; however, there is a pattern of higher scores in women with depression (McGee, Williams, & Silvia, 1986).

Depressive symptoms were related to poorer performances among the boys, but not the girls in the study. For boys especially, the scores that the mothers received on the Malaise Inventory were positively correlated with the child's score on the questions related to internalizing behaviors on the CBCL, thus lending partial support to the hypothesis. The researchers went on to explain this finding in terms of the distinct possibility of characteristics that commonly accompany the depressive symptoms. For example, the authors reasoned that the child could have been constantly exposed to negative thinking, and not having needs met on a consistent basis. These characteristics could make the child more susceptible to developing poor adaptive behaviors associated with internalizing. Somewhat surprisingly, there was no significant correlation between the two tests for girls. This raised the question within the context of the study of whether or not boys with depressive mothers are more likely themselves to receive a diagnosis of depression from a mental health provider (Kershner & Cohen, 1992). However, it could also be speculated that the gender differences in this study could be due to there being almost twice as many boys included in the sample.

The main methodological issue that Kershner and Cohen cited was in relation to how maternal depressive symptoms were measured. The Malaise Inventory items only reflect current patterns of functioning, but do not provide information on how long the symptoms have lasted, or the level of clinical depression. In addition, there could be no

causal inferences made due to the correlational nature of the data collected. The authors instead explained their findings in terms of a reciprocal interaction between the mother and the child, with each having possible effects on the other (Kershner & Cohen, 1992).

Internalizing. In a study conducted by Stein and Newcomb (1994), similar results were found in a non-clinical sample of children. The participants were 145 mothers, and the oldest child from each mother was included in the analyses. These children ranged in age from 2 to 10 (M age = 4.6), with 69 of them being boys, and 79 being girls. This sample was unique in that the mothers involved were part of a much larger sample of adolescents ($n=1,634$) that began the study in Los Angeles in 1976. This number was lowered due to a screening process and attrition. Largely, the sample of mothers were Caucasian, with African-American and Hispanic following. Five of the women were listed as Native American, Asian, or “other”. The races of the children were not specified, so it is assumed that they were similar in race to their mother. In addition, the mother’s SES and education varied across the study (Stein & Newcomb, 1994).

Similar to the previous study described, the mothers filled out a 24-item checklist based on questions from the CBCL (Achenbach & Edelbrock, 1983) to assess behavior patterns of their children and determine the level of depressive symptoms present. For this study, however, the researchers broke the responses down into 5 categories: fearfulness, hyperactivity, acting out, psychosomatic complaints/anxiety, and social problems. In regards to internalizing behaviors, fearfulness and psychosomatic complaints/anxiety were the outcomes (Stein & Newcomb, 1994). In contrast to the previous study, the children’s behaviors were not guaranteed through any form of direct assessment or observation on

the part of the researchers. All of the information gathered came solely from the reports of the mothers who participated, and there were no gender related hypotheses made.

Mothers were measured quite differently in this study. The researchers wished to evaluate the mothers not only on a psychological scale, but also physically. These two dimensions were labeled as “objective”, which denoted physical symptomology, and “subjective”, which referred to depression. The subjective portion was captured using three separate scales. The psychosomatic scales from the Bentler Medical-Psychological Inventory (BMPI; Newcomb, Huba, & Bentler, 1986) were used to define some medical and psychological complaints; however, the questions asked did not overlap with those asked in the objective portion of testing. To assess depressive symptomology, 20 items from the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) were used in conjunction with 3 items from the Hopkins Symptom Checklist (HSCL; Uhlenhuth, Balter, Mellinger, Cisin, & Clinthorne, 1983). In this sample, Stein and Newcomb (1994) reported that they expected a wide range of responses, but did not expect to find high levels of clinical depression.

The results of the study once again showed support for the hypothesis indicating that in general, the mothers’ physical and psychological problems were positively correlated with the children’s internalizing behaviors. For maternal depression specifically, there was a .98 correlation with internalizing behaviors reported. The children’s ages or gender were not shown to be significantly associated with depression; therefore they were not included for analysis. In spite of the support, however, there were some limitations to this study. An obvious one lies in the fact that in any study where questionnaires are involved, the response style of the participants will influence the way they answer. In other

words, mothers who were showing signs of depression might have reported similar affect in their children, whereas mothers without depressive symptoms may have had more positive reports of their child's behaviors. In addition, a major limitation lies in the fact that mothers were used as the only source of information regarding the behavior of the children (Stein & Newcomb, 1994).

Marchand and Hock (1998) approached the issue from a slightly different angle via the inclusion of fathers in the research sample. They defined internalizing behaviors as including withdrawal, somatic complaints, anxiety, and depression, and their primary goal was to provide information on externalizing and internalizing behaviors by looking at correlates of them in non-clinical children of a preschool age. Their sample was made up of 46 Caucasian families, most of who were from a middle class SES. Only the first-born child of each family participated (23 boys, 23 girls), and their average age was 4 years old. The families used in the study were initially part of a longitudinal study dealing also with maternal depression, and they were recruited from such facilities as childbirth classes, physician's offices, and other community resources (Marchand & Hock, 1998).

Like the previous studies, the hypothesis was that maternal (and in this case paternal) depression would be related to children's internalizing behaviors in a community sample, in addition to other aspects of the relationship between the parent and child. No hypotheses were made regarding gender. To assess symptoms of depression in the mothers (and fathers), the self-report CES-D (Radloff, 1977) was used, and once again, the CBCL (Achenbach & Edelbrock, 1983) was utilized to measure internalizing behavior problems in the children.

Although the mothers were the ones to fill out the CBCL questionnaires, this study reported one other interesting addition to the way the children were evaluated. To be certain that the ratings the mothers gave the children on the CBCL were an accurate portrayal of the child's characteristics and not overly subjective, the scores were correlated with ratings of behavior that an independent observer supplied. The observers noted during each visit the child's behavior patterns and how they interacted with their mothers on different assigned tasks. When the observers' ratings (interrater reliability was reported to range from 86 % to 93%) were correlated with the mother's responses, the accuracy of the mother's ratings was supported. In other words, children who the observers had rated as being less positive in their interactions scored higher on internalizing behaviors (Marchand & Hock, 1998). This was also reflected in the results of the study, which yielded a positive, significant relation between the CES-D scores that the mothers received and the children's internalizing scores on the CBCL.

Similarly to the Kershner and Cohen (1992) study previously discussed, this study had the advantage of having more than just one source (the mothers) of information on the children. The use of independent observers allowed the researchers to verify that the information given by the mothers on the CBCL was an accurate reflection of the child's behaviors. In addition, this study had an equal number of girls and boys, whereas the Kershner and Cohen study had almost twice as many boys.

Finally, in a study conducted by Anderson and Hammen (1993), 96 children who had mothers with unipolar depression, bipolar depression, a medical illness, or no history of psychiatric illness, were included to observe how their functioning differed. The children ranged in age from 8-16 years, and were followed for three years. If the family

had more than one child in the appropriate age range, both the oldest and youngest were included. Twenty-two of the children were from 16 mothers with unipolar major depression (10 boys and 12 girls, *M* age=12). Eighteen children (8 boys, 10 girls, *M* age=13) were from 15 mothers with bipolar disorder. Another group of 18 (9 boys, 9 girls, *M* age=12) were offspring of 14 medically ill women. The remaining 38 children (19 boys, 19 girls, *M* age=11) were from 24 mothers with no psychiatric history. No hypotheses were made in regards to race, gender, SES, or which group of mothers would have children with the most internalizing behaviors (Anderson & Hammen, 1993). The mothers who were unipolar and bipolar were recruits from inpatient, outpatient, and private clinics, and were included based on whether or not they met the Research Diagnostic Criteria (RCD; Spitzer, Endicott, & Robins, 1978) for major depressive or bipolar disorder. Most of participants were Caucasian, although African American and Hispanic women were included. The families were largely in the middle to upper SES, although there was variance in this due to some of the unipolar women who were on public assistance as a result of psychiatric disability. There were no reported differences in education.

During the initial session, and in each follow-up, mothers were asked to complete CBCLs for their child to assess their levels of internalizing behaviors. In addition, teachers filled out the CBCL Teacher Report Form (Edelbrock & Achenbach, 1984) whenever it was possible to do so to provide separate sources of information about the children's behaviors. A high correlation between the scores was reported for internalizing behaviors at the initial assessment, and after the first and second years.

Especially for internalizing behaviors, there was a significant difference between groups. Comparisons indicated that children of the mothers with unipolar depression had higher overall scores than those in the group with bipolar mothers, the group with medically ill mothers, and the normal group. Interestingly enough, no differences in internalizing behaviors were found between children of the bipolar and normal groups. In fact, the children from the bipolar mothers did not differ from those of the normal group on any of the measures in this study. The unipolar mothers' children clearly displayed the most problems in functioning psychologically, and were rated as the least socially competent, and the highest in internalizing behavior problems (Anderson & Hammen, 1993).

Externalizing. Although depression and hostility have been linked to the development of internalizing problems in children who are exposed to nonverbal forms of expression of anger, the research specific to nonverbal expressions of anger and hostility is at best uncertain. For example, Jenkins and Smith (1991) found no relation between the development of internalizing child behavior problems and covert expressions of hostility. Others have only found general associations between hostility and child behavior problems. Weisman et al. (1984) noted that exposure to hostility was the largest contributor to persistent problems in children, but they were very non-specific in their findings.

There is, however, an agreement that open maternal hostility is associated with externalizing behavior problems in children (Cummings & Davies, 1994; Morris et al., 2002). Externalizing behavior problems can include acting out in a disruptive manner, aggressiveness, and hyperactivity, and are reported more often because they are easier to

observe and study. Cohen and Bromet (1992) observed symptoms such as these (child hyperactivity and conduct problems) and correlated them with levels of hostility reported by mothers on various questionnaires. To measure externalizing problems in the children, the Behavior Screening Questionnaire (BSQ; Richman & Graham, 1971) and other measures were used at ages three and four respectively.

As predicted by earlier research, Cohen and Bromet found strong correlations between maternal hostility and behavior problems in children. Interestingly, children who did not have behavior problems at three years old but developed them at four had high externalizing scores and had mothers who had experienced rising levels of depression and hostility. Similarly, in children whose behavior problems persisted at both three and four years of age, their externalizing scores and maternal hostility when the child was three were the main predictors of ongoing behavior problems. In fact, maternal depression alone was not a significant predictor of behavior problems when maternal hostility was controlled (Cohen & Bromet, 1992).

Morris et al. (2002) found that behavior problems were often related to maternal hostility, however, their approach was slightly different. They agreed that maternal hostility would be associated with externalizing problems in children, yet they went a step further and hypothesized that certain child temperaments would lead to differing levels of susceptibility to various types of parenting styles.

To gather their data, Morris et al. not only interviewed mothers and teachers, they also asked first and second grade children ($M = 7$ years, 7 months) to answer questions regarding maternal parenting styles. They found that children who reported maternal hostility also had high reports of externalizing behaviors from teachers. In addition, they

found that the correlation between maternal hostility and externalizing behaviors was somewhat affected by levels of “irritable distress” displayed by the child. In other words, among children who reported higher levels of anger and frustration, maternal hostility was a significant predictor of externalizing problems. This suggested to Morris et al. (2002) that children who are irritated or easily frustrated are more apt to develop behavioral problems when maternal hostility is present.

Although parental anger and a punitive parenting style have been found to be the factors most related to instances of child abuse (Peterson, Ewigman, & Vandiver, 1994), even non-abusive, punitive parenting can also be considered hostility directed at the child and has been shown to relate negatively to cognitive competence in children. For example, Fagot and Gauvain (1997) found that maternal punitiveness and criticism during interactions with their children at two different points in time (18 and 30 months of age) had later consequences for the children’s performance on cognitive tasks. These findings were replicated in a latter study by Culp, Hubbs-Tait, Culp, and Starost (2000) who noted that in a sample of Head Start children, maternal warmth and punitiveness were significantly related to cognitive development in children. In fact, they found that maternal punitiveness alone continued to predict cognitive outcomes in children through their kindergarten year. In the Culp et al. (2000) study, punitiveness was operationalized by one of two negative parenting variables from the Computer-Presented Parenting Dilemmas (CPPD), which is an adaptation of the Holden’s Computer Presented Social Situation (Holden & Ritchie, 1991).

Further Conceptualization of Hostility

Some researchers have defined hostility as a persistent characteristic that is common in mothers who have been diagnosed with depression (Riley, Treiber, & Woods, 1989). However, for the purposes of this study, maternal hostility will be conceptualized in terms of a negative attitude or behavior that is directed at the child and other family members. This is consistent with the definition purposed by Peterson, Ewigman, and Vandiver (1994). As such, these behaviors and attitudes are assumed to be susceptible to change over time, and these changes will be evaluated.

Maternal Changes and Changing Child Outcomes

Overview. Another aspect of this project will be to assess the changing relation of maternal hostility to child behavior over time. Doing so will make it possible to observe how levels of maternal hostility vary, and in turn, how those varying levels are related to child development. This should help clarify if it is initial levels of maternal hostility that are related to changes in development, or whether it is stable or changing levels of hostility that are most related to shifts in cognitive and social development.

The recognition of the importance of observing stability and change in behaviors dates back at least to the contributions of Heinz Werner (Lerner, 1976). In his developmental studies, he was interested in observing how changes in one variable affected changes in outcome variables, and he differentiated between continuity versus discontinuity, and stability versus instability. By doing so, he was able to focus on both group patterns of change (continuity/discontinuity), and their impact on individuals relative to their reference group (stability/instability) (Lerner, 1976).

Diana Baumrind (1989) followed Werner's example and applied his ideas to some of her studies, noting the importance of examining what she termed "relational continuity". As the name implies, this application helped her in observing the relationship between parent (usually mothers) and child, but it also allowed her to identify different points in time in which changes were present, and how those changes were associated with children's outcomes.

Findings. Many research teams have observed and measured the effects of changes in maternal behavior on child outcomes. For example, Egeland, et al. (1990) explored the importance of stability and change in their study that attempted to determine the extent to which continuity of adaptation existed between preschool and later years. More specifically, they attempted to discover whether or not problem behaviors persisted from preschool to the third grade, and what factors caused variations in stability of problems (i.e., changes in characteristics of the mother or child, situational familial circumstances, environmental factors).

The longitudinal data Egeland et al. (1990) collected demonstrated that the majority of the children that had behavioral problems in preschool continued to have them throughout the first three years of school. Likewise, there was also a high level of continuity in preschool children who were competent in their behavioral skills. Deviations from this pattern of continuity were explained by three main categories of changes in the child's environment.

According to the data, a lower number of family stressful events reported by the mothers were related to a decrease in behavior problems for the child over the course of the study. In addition, the child's home environment was a factor that accounted for

discontinuity in behavior across the study. Finally, a major factor reported by Egeland et al. that led to changes in behavioral functioning was a change in maternal depression levels, with increases in depression related to increasing behavior problems and decreases in depression related to decreasing behavior problems.

Another research topic addressing how maternal changes are related to child social outcomes is in the area of attachment. There are several studies of the variables predicting stability or instability in attachment classification over time. For example, in a longitudinal study on attachment security conducted by Waters, Merrick, Treboux, Crowell, and Albersheim (2000), patterns of attachment in infants were examined at 12 months of age in a middle-class sample. The participants were contacted again 20 years later so that the degree of change and stability in patterns of attachment could be assessed using the Adult Attachment Interview (AAI), and by comparing the results of the AAI to the results of the strange situation assessment in infancy. This gave the researchers the opportunity to learn what factors (i.e., life events) facilitated either stability or change in the participants' attachment patterns. These factors included loss of a parent, divorce, serious illness (parent or child), having a parent with a psychiatric disorder, or abuse by a family member (Waters et al., 2000).

Waters et al. (2000) found that among mothers who claimed to have experienced multiple stressful events, their young adult children were twice as likely to report changes in attachment when compared with children of mothers who reported no stressful events. In addition, 66.6% of the participants changed from a securely attached infant to later being insecure when the mother reported having multiple stressful life events, whereas 72% retained their same attachment classification when no events were mentioned.

Although there were exceptions, these data provided strong support that changes in maternal factors are significantly related to changes in attachment patterns from infancy to young adulthood.

Weinfield, Sroufe, and Egeland (2000) reported somewhat similar findings in their study that approached this area from a different angle. Weinfield et al. also examined change and stability of attachment patterns from infancy to early adulthood; however, they conducted their research with a low-income sample in which the children were at a higher risk for poor developmental outcomes. Due to a high percentage of participants in their study that had experienced at least one negative life event (91%), Weinfield et al. were interested in a comparison of experiences (maternal stressors, child maltreatment, depression reported by mothers, and patterns of family functioning) of groups that were stably attached versus those who changed over the course of the study.

Weinfield et al.'s (2000) data suggested that changes in levels of maternal depression accounted for changes in attachment, in that the participants who showed discontinuity were more likely to have a mother who experienced higher levels of depression over the course of the study. In addition, young adults who displayed continuity of insecurity over the period of the study were more likely to have experienced episodes of maltreatment compared to those who transitioned from insecure to secure attachment patterns. Finally, participants who transitioned from early insecurity to later security tended to have higher levels of family functioning as compared to those who remained insecurely attached. Maternal stress was the only variable that did not significantly relate to stability or changes in attachment patterns.

Methodology of change. To measure the importance of change in her research, Diana Baumrind (1989) proposed correlating key traits in her participants across several points in time. More specifically, she sought to measure age appropriate issues at different developmental periods; however, instead of trying to observe the exact same trait at each time, she created constructs that would allow her to observe clusters of related traits. Baumrind claimed that a change in a key factor at one point in time could lead to subsequent changes in correlations between scores at later points. To further illustrate this point, in her study non drug users who began using drugs were more likely to experience shifts in social responsibility scores at later points in time. By applying Baumrind's method of using correlational data to the current study, the stability over time of children's scores should change as a function of the instability of maternal hostility.

Another option for measuring the importance of changing maternal hostility on children's development is through calculating a "change score". By subtracting maternal hostility at time 1 from maternal hostility at time 2 (or the child participant's cognitive and social functioning scores at one point in time from a second point), change scores can be obtained and analyzed.

Control Variables

Marital status. In addition to maternal hostility, changing maternal marital status is an important factor that should be considered when observing differences in children's social and cognitive functioning. Family stressors (including shifts in marital status, marital discord) have been consistently linked with depression in parents and problems with cognitive and social functioning in children (Jaycox & Repetti, 1993; Loeber & Dishion, 1984; Patterson, 1982). Furthermore, McLanahan and Sandefur (1994) found that not

only are reductions in child school achievement common as a result of shifts in marital status, these disadvantages may last well into subsequent years of schooling and even affect high school graduation.

Coleman (1988) takes the notion of marital status being related to cognitive and social functioning a step further with his theoretical framework of three types of capital that play a role in children's development: financial, human, and social. Financial capital refers to monetary resources that are available to the family. Human and social capital are somewhat more complicated and of more interest in this study. Social capital depends on the actual people present in the family structure and the relationships between them. This means that children may have access to varying levels of social capital depending on interactions with their caregivers, and how their caregivers interact with each other. In cases where conflict is high such as in separations or divorces, social capital should be reduced, which can greatly affect the influence of the caregiver on the child's social and cognitive development (Coleman, 1988). Human capital includes caregiver cognitive levels and educational attainments and will be included in the next section on education.

Maternal education. Although living arrangements resulting from marital shifts can potentially influence cognitive and social development in children, levels of education attained by mothers may also be important according to some researchers. In fact, Smith, Flick, Ferriss, and Sellman (1972) asserted that the best predictor of a child's cognitive functioning was the mother's education level. More recent studies have supported this claim as well. Furstenberg, Brooks-Gunn, and Morgan (1987) found that many women who became pregnant in their middle teens struggled to remain in school, and after dropping out had difficulty returning to school and subsequently finding a job and raising

their children. Several other researchers have also noted that higher levels of mothers' education may be related to more appropriate social functioning in their children (Fewell, Casal, Glick, Wheeden, & Spiker, 1996). Finally, Coleman's (1988) "human capital" suggests that caregivers can influence cognitive and social development in their children depending on their own cognitive functioning and educational attainment. According to Coleman, these factors will effect whether or not the caregiver will provide an appropriately stimulating environment for their children.

Conclusion

Although shifts in marital status and maternal education are important factors in the cognitive and social development of a child, there are sufficient data that question whether these factors are the most influential in leading to changes in children's cognitive and behavioral scores. Furthermore, other research points to the importance of hostility. Therefore, this thesis research will take the position that changes in hostility matter more than changes in marital status and maternal education.

Hypotheses

- 1) Changes in maternal hostility will explain variance in children's cognitive outcomes over and above changes in marital status or maternal education.
- 2) Changes in hostility will explain variance in children's social competence and behavior problems over and above changes in marital status or maternal education.

CHAPTER 3

Methods

Participants

The 105 mother and child dyads participating in this study were drawn from a set of longitudinal data collected through grants funded by the National Institute of Mental Health and the Administration on Children, Youth, and Families on 167 primary caregivers and their four-year-old children. Child participants for this study were all enrolled in rural Head Start programs across north-central Oklahoma and all attended kindergarten in the same or nearby communities. Head Start is a community-based program that has provided over 15 million impoverished children with comprehensive health, education, and other social services for over 30 years. There is a special emphasis on encouraging parents to play an active role in child education, building self confidence for parents and children, and providing basic skills for successful functioning (<http://www.okacaa.org/headstart/index.htm>).

Two cohorts of children participated, with cohort one attending kindergarten throughout the 1996-1997 school year, and cohort two attending kindergarten 1997-1998. This particular study will focus on the data collected for the children's years of Head Start and kindergarten.

The majority of the primary caregivers were mothers of the target children, with two custodial grandmothers and one stepmother, ranging in age from 19.15 to 54.12

($M=29.42$). During the same time period, the children's ages ranged from 4.01 to 4.98 ($M= 4.6$). Ethnically, caregivers were 78% Caucasian, 15% Native American, 2% African American, and 5% multiethnic. Child participants were 59% Caucasian, 9% Native American, 2% African American, and 30% multiethnic. Twenty-six of 32 children in the multiethnic category had at least one parent that was Native American.

Educationally, about 15% of the mothers had not received a high school diploma, 77% had either obtained a high school diploma or completed some vocational-technical school training, and 8% reported some college. The median monthly household income was \$1,250 (range = \$50-\$4,000), with more than 50% of the sample meeting or falling below the federal guidelines for poverty (Starost, 2004). In Head Start 51% percent of caregivers were married, 16% were remarried 10% reported never being married, 18% were either divorced or separated, and 5% reported being widowed.

Procedure

Participants for this study were recruited purposefully by flyers distributed to the target Head Start sites and by project representatives attending parent meetings. Informed consent was collected both upon the initial parental commitment and prior to any data that was gathered each school semester.

After gaining consent, the researchers collected information on the target children through questionnaires distributed to the teachers. Questionnaire packets were also completed by mothers, and a structured interaction between the caregiver and child was videotaped by the researchers. Data collection began in the fall of 1995 for cohort 1 across six Head Start sites. Cohort 2 began in the fall of 1996, and consisted of children from the

original sites plus two additional ones. Each caregiver and teacher was compensated for the data they provided.

Head Start-Fall. Questionnaire packets were administered to the caregivers at their convenience in the presence of a researcher so that questions could be addressed. The packets were comprised of the Demographic Information Questionnaire (DIQ), the Center for Epidemiologic Studies Depression Scale (CES-D, Radloff, 1977), the Aggression Questionnaire (AQ; Buss & Perry, 1992) and the Adult-Adolescent Parenting Inventory (AAPI; Bavolek, 1989), so that demographic, parenting, and relevant child related information could be collected. Caregivers also completed the Peabody Picture Vocabulary Test-Revised (PPVT-R; Dunn & Dunn 1981). Of these instruments, the one included in the current study was the Demographic Information Questionnaire. The DIQ was used so caregivers' marital status, educational levels, race, and other demographic information could be obtained. Maternal education levels and marital status also used as control variables in this study.

Head Start-Spring. The researchers administered the PPVT-R to target children, so that each child's level of cognitive functioning could be obtained. Teachers completed the Preschool Behavior Questionnaire (PBQ; Behar, 1977), the California Preschool Social Competence Scale (CPSCS, Levine, Elzey, & Lewis 1969), and Howes' Rating Scale of Social Competence with Peers (RSSCP, Howes, 1988). Of these instruments, the ones included in the current study was the PPVT-R administered to the children.

Kindergarten-Fall. Questionnaire packets were completed by caregivers, with the addition of a few other instruments, which are irrelevant to the current thesis. The

Aggression Questionnaire was administered again to assess continuity and change in the four subscales of this measure.

Kindergarten-Spring. Teachers filled out the same behavior questionnaires as completed by Head Start teachers in the previous year, and the children were administered the PPVT-R and the McCarthy Scales of Children's abilities (McCarthy, 1972). The children's PPVT-R Spring scores were included in this study to enable the researchers to note the amount of change that took place in cognitive functioning.

Child Outcome Measures

Child cognitive outcome measures - Peabody Picture Vocabulary Test-Revised (PPVT-R). The PPVT-R (Dunn & Dunn, 1981) is a standardized test of receptive vocabulary test that can be appropriately administered to persons 2 ½ through 40 years of age. The respondent must choose (by pointing) one of four illustrations (e.g., "show me bus;" respondent points) that most represents the Standard American English word orally presented by the researcher.

Validity was only reported in comparison to the PPVT due to lack of research done on the PPVT-R (Dunn & Dunn, 1981). The PPVT-R has been highly correlated with the PPVT (.70 median), which has, in turn, been highly correlated with other measures of vocabulary such as the Expressive One-Word Picture Vocabulary Test (Gardner, 1979) with a median of .70, and intelligence tests such as the Wechsler Adult Intelligence Scale (.72).

Child cognitive outcome measures - California Preschool Social Competency Scale-Task Mastery (CPSCS). This instrument is a 30-item scale of children's social competence as rated by the teacher in a classroom setting. It offers four descriptive

responses to each item with a score of 1 to 4. Each of the four possible responses illustrates varying degrees of social competence for each child behavior being measured by the teacher (Levine, Elzey, & Lewis, 1969). Ladd (1990) reports three factors yielded by the CPSCS: task mastery, peer involvement, and sharing materials. The three items for task mastery measure language comprehension and were included in this study as a measure of child cognitive abilities. An example of a task mastery item would be “Following verbal instructions.” Cronbach’s alpha (internal consistency) for the task mastery items (items 8-10) was determined to be acceptable in both Head Start (.81) and Kindergarten (.84).

Child social outcome measures - Preschool Behavior Questionnaire (PBQ). The PBQ (Behar, 1977) is a 30-item questionnaire that asks preschool teachers (or in this case the Head Start teacher) to rate children’s behaviors on a 3-point scale of “does not apply”, “applies sometimes”, or “certainly applies” with higher scores indicating higher frequencies of each particular behavior. The PBQ also contains three subscales that include hostile/aggressive, anxious/fearful, and hyperactive/distractible. Both test-retest reliability (.87) and interrater reliability (.84) are acceptable, as reported by Behar (1977).

Construct validity has also been supported by high correlations (.57-.79) between the PBQ and conceptually related scales (Behar, 1977). In a recent study by Funderburk, Eyberg, Rich, and Behar (2003), the validity and test re-test reliability was examined for the PBQ and a few other measures. At one week, the test-retest reliability for the PBQ was .90 ($p<.0001$) with coefficients of .86 for the hostile/aggressive subscale, .86 for the anxious/withdrawn subscale, and .90 for hyperactive/distractible.

Cronbach's alpha for hostile/aggressive, anxious/withdrawn, and hyperactive/distractible in the current sample were .95 (Head Start); .94 (Kindergarten), .76 (Head Start); .69 (Kindergarten), and .90 (Head Start); .90 (Kindergarten) respectively.

Child social outcome measures - Howes' Rating Scale for Social Competence with Peers. The Rating Scale for Social Competence with Peers (RSSCP) is an 18-item teacher rating scale of children's social functioning with peers that consists of three subscales: sociable, difficult, and hesitant (Howes, 1988). The RSSCP has also been found to have acceptable internal consistency for each of the subscales (.91-.96). Test-retest reliability was also acceptable at .76-.84 (Howes, 1988). Only the sociable subscale will be included in the current study, because the items on the difficult and hesitant subscales overlap with the items on the aggressive and anxious subscales of the PBQ. The sociable subscale measures how children interact with peers, and includes items such as "Is liked by peers; they seek him/her out to play." Cronbach's alpha for sociable subscale in the current sample was .80 for Head Start and .73 for Kindergarten.

Child social outcome measures - California Preschool Social Competency Scale (CPSCS). Items 13-21 of the CPSCS measured peer involvement and sharing with items such as "Taking turns" and "Playing with others." Cronbach's alpha for these items in the current sample was .86 for Head Start and .83 for Kindergarten.

Maternal Measure

Aggression Questionnaire (AQ). The AQ (Buss & Perry, 1992) consists of four subscales on which the respondents answer each item on a 1 to 5 Likert-type scale, with an answer of 5 denoting a characteristic that is most like the person. It was based on the

Buss-Durkee Hostility Inventory (Buss & Durkee, 1957), and was used in this study to measure levels of maternal hostility, anger, verbal aggression, and physical aggression. Buss and Perry (1992) reported internal consistency for the total AQ to be .89, with the subscales of physical aggression, verbal aggression, anger, and hostility having alphas of .85, .72, .83, and .77, respectively, from a sample of 1,253 college students. The hostility subscale as a measure of resentment and suspicion was confirmed by Felsten and Hill (1999). In their study, individuals with higher hostility scores responded more frequently with anger and aggression following provocation. In addition, these individuals perceived all aspects of provocation more negatively than individuals scoring lower on hostility. For the current study only the hostility subscale will be used. For this subscale, Cronbach's alpha for this study was .84 in Head Start, and .84 in kindergarten.

Marital status. Changing marital status is somewhat unique, because it was coded in two different ways. In the first way no change in marital status was coded as (0), and changes were coded as (1). Thus, a mean change of .162 (reported in Table 1) translates to a change in marital status for only 17 out of 105 mothers (not significant). In the second method, marital status was coded on a scale of 1 to 6, depending on the type of change that took place. A paired t-test revealed significant changes in marital status, $t(104) = -2.34, p = .021$.

Maternal education. To measure changes in education, mothers were asked to indicate their level of attained education at both the child's Head Start and kindergarten years. Each response was assigned a value depending on the level of education reported by the mother. For example, "vo-tech graduate" was given a value of 13, and "college grad" was given a value of 15.

Operationalization of Hypotheses

- 1) Changes in hostility subscale scores explain variance in children's cognitive outcomes (PPVT-R, CPSCS task mastery) over and above changes in marital status or maternal education with the initial (Head Start) level of the child's functioning held constant.
- 2) Changes in hostility subscale scores explain variance in children's social competence (RSSCP sociable subscale, CPSCS social subscale) and behavior problems (PBQ aggression, anxious, hyperactive subscales) over and above changes in marital status or maternal education with the initial (Head Start) level of the child's functioning held constant. .

Operationalization of Change

Maternal hostility. Changes in maternal hostility were calculated by subtracting the mothers' scores on the hostility subscale of the AQ when their child was in Head Start from scores on the hostility subscale of the AQ when their child was in kindergarten. This rendered a "change score" that was put in the regression equation (the initial Head Start value was held constant) so that changes in hostility could be compared to initial levels.

Maternal marital status. Changes in marital status were operationalized by any change in the mothers' reports of changes in marital status on the DIQ. This included positive changes, such as single to married and negative changes, such as married to divorced.

Maternal education. Changes in maternal education were operationalized by any reports of change in mothers' education on the DIQ. Maternal education when the child

was in Head Start was subtracted from responses maternal education when the child was in kindergarten.

Data analysis

Hierarchical multiple regression was used to analyze the data. Changes in maternal education and marital status were entered before changes in hostility.

CHAPTER 4

Results

Hypotheses

- 1) Changes in maternal hostility will explain variance in children's cognitive outcomes over and above changes in marital status or maternal education.
- 2) Changes in hostility will explain variance in children's social competence and behavior problems over and above changes in marital status or maternal education.

Descriptive Statistics

Descriptive statistics for all measures are listed in Table 1. It is interesting to note some of the changes that took place over time. The most important change was in maternal hostility, which dropped significantly between Head Start and kindergarten $t(104) = 2.47, p = .015$. Maternal education increased significantly over time $t(104) = 3.48, p = .001$, along with children's performance on the PPVT, $t(104) = -3.32, p = .001$. Children's aggressive behavior also dropped significantly between Head Start and kindergarten, as did children's social scores as rated by teachers (see Table 1), $t(104) = 3.30, p = .001$. This is interesting because there is no change in teacher ratings of children's sociability scores over time (see Table 1).

Hypothesis 1

Recall that hypothesis one proposed that changes in maternal hostility would explain more changes in children's cognitive outcomes than changes in marital status or maternal education. To test this, two different regression analyses were conducted. The first evaluated the relation of changes in marital status, education, and hostility to task mastery in kindergarten. Task mastery in Head Start was controlled in the first block of the regression. The second evaluated the relation of changes in marital status, education, and hostility to children's kindergarten PPVT. Results of both regressions are depicted in Table 2.

Results yielded by the tests of hypothesis one were not significant, although the relation between changing hostility and task mastery approached significance (see Table 2). In addition, it is worth noting that the relation between changing education and task mastery also approached significance.

Hypothesis 2

Hypothesis two stated that changes in maternal hostility would explain more changes in children's social competence and behavior problems than changes in marital status or maternal education. To test this hypothesis, social competence was split into "sociability" as measured by Howes' RSSCP, and "social" as measured by the CPSCS. In addition, I analyzed three subscales of behavior problems: hyperactive, anxious, and aggressive.

To test the relation of changes in maternal marital status, education level, and hostility to children's social competence, two different regression analyses were conducted. Results are depicted in Table 3. In the first block of the first regression, Head

Start sociability ratings were controlled and the analysis evaluated the relation of changes in marital status, education, and hostility to child sociability ratings in kindergarten. Results indicated that the relation between changing hostility and sociability ratings was significant at the level of $p = .05$.

The second regression evaluated the relation of changes in marital status, education, and hostility to child social ratings in kindergarten. Child social ratings in Head Start were controlled. Results indicated that the relation of changing marital status, education, and hostility to child social ratings was not significant (see Table 3). This is interesting because although teacher ratings of “social” were not significantly related to changing maternal hostility, teacher ratings of “social” did change over time. In contrast, there were no changes in teacher ratings of sociability over time, but there was a significant relation between teacher ratings of sociability and changing maternal hostility.

To test the second half of hypothesis two, that changes in maternal hostility would explain more changes in children’s behavior problems than changes in marital status or maternal education, three separate regressions were run, and their results are depicted in Table 4. The first analysis evaluated the relation of changes in marital status, education, and hostility to child hyperactivity in kindergarten. Head Start hyperactivity was controlled. The second regression evaluated the relation of changes in marital status, education, and hostility to child anxiety in kindergarten, with Head Start anxiety being controlled. Finally, the third regression calculated the relation of marital status, education, and hostility to kindergarten aggression. Head Start aggression was controlled.

Results of the second half of hypothesis two were mixed. In the cases of relating changes in maternal hostility to children’s hyperactivity and aggressive behavior, both

regressions were significant. The amount of variance in teacher ratings of child hyperactivity explained by changing hostility over and above changes in maternal education and marital status was $\Delta R^2 = .034$. The amount of variance in child aggressive explained by hostility over and above the other variables was $\Delta R^2 = .025$. However, the results of relating changes in maternal marital status, education, and hostility to child anxiety were not significant.

CHAPTER 5

Discussion

Summary of Thesis

The purpose of this study was to investigate if changes in levels of hostility were more important than initial presence of hostility. Research teams such as Egeland et al. (1990) have shown how changes in a mother's level of depression can be related to child developmental outcomes above and beyond stable levels of depression; however, the existing body of research has not attempted to draw explicit links between changes in hostility and child development outcomes. This study did so.

Furthermore, this study investigated links between maternal hostility and cognitive and social functioning in young children between the child's Head Start and kindergarten years. Research has demonstrated that hostility may hinder a mother's ability to show the warmth and consistency needed for effective parenting (Downey and Coyne, 1990). In addition, the demands and pressures of being a parent may lead to mothers' displacing feelings of hostility and rejection on their children (Coletta, 1983; Davenport, Zahn-Waxler, Adland, & Mayfield, 1984). In turn, this may impair the child's social and cognitive development (Cohen & Bromet 1992).

Relation between Maternal Hostility and Children's Cognitive Outcomes

The first hypothesis stated that changes in maternal hostility will explain variance in children's cognitive outcomes over and above changes in marital status or maternal

education. Recall that the cognitive outcome variable was determined by scores on the PPVT-R and the CPSCS at the two points in the study. Hierarchical regression, in which changes in maternal education and marital status were entered before changes in hostility, was used to analyze the data.

The results of the first regression failed to support the first hypothesis. Changes in maternal hostility from Head Start to Kindergarten did approach significance for task mastery in Kindergarten as measured by the task mastery questions in the CPSCS; however, for this study changes in maternal education also approaches significance. To my knowledge this is the first study to examine the relation between maternal hostility and child cognitive outcomes. Still, the results are consistent with past research, such as Smith et al. (1972) whose research suggested that the best predictor of a child's cognitive functioning was the mother's education level, and more recent research conducted by Pears and Moses (2003) who found maternal education to be strongly correlated with children's cognitive abilities.

It is not clear why changes in maternal hostility were not more strongly predictive of changes in child cognitive skills in this study. One possibility may be that even though there was a significantly lower reported amount of maternal hostility in Kindergarten, one year may not have been enough time to have an effect on the child's cognitive abilities. If the duration of the study were increased to include first or second grades, changes in amounts of hostility experienced by the child over a longer period of time might have a greater impact on changes in cognition.

Another possibility involves the mothers' concerns about having their parenting styles revealed. That is to say, they may not have wanted to appear "too hostile" by their

answers on the AQ, so they may have answered in a way that they deemed the researchers would find more favorable as opposed to being completely honest. This could artificially lower the effect that hostility would have on changes in cognitive behavior. Finally, results could be skewed by the child's *perception* of maternal hostility, a concept beyond the scope of this study. Even if the mothers' responses on the AQ indicated that they stayed at a consistent level of hostility between the Head Start and Kindergarten years, a child's perception of change in hostility could change how he or she performed cognitively.

Relation between Maternal Hostility and Children's Social Outcomes

The second hypothesis stated that changes in maternal hostility will explain variance in children's social outcomes over and above changes in marital status or maternal education, and as with cognitive outcomes, hierarchical regressions were used to analyze the data. The children's social outcomes were determined by behavior problem scores on the PBQ and social competence scores on the CPSCS and the Howes' teacher rating scale.

The results confirmed hypothesis two for behavior problems and sociability. Changes in maternal hostility explained more variance in children's sociability scores than any other measure. In addition, changes in hostility were significant predictors of higher scores on the aggression and hyperactivity scales of the PBQ.

These findings both support and fit into a broader spectrum of past research on the effects of maternal depression such as Cohen and Bromet (1992) who found that depressive symptoms were not significant predictors of behavior problems when the level of hostility was controlled. In the current study, changing hostility was related to behavior

problems and social competence. However, the current study found that externalizing but not internalizing behavior problems were related to changing hostility.

Limitations and Weaknesses

One possible limitation is how hostility was conceptualized for this project. While it could be argued that in some cases hostility is an enduring aspect of a personality that doesn't tend to change, it was assumed for this study that hostility was something that could fluctuate depending on other circumstances, such as the presence of depression. This definition was validated by the wide range of changes in levels of hostility reported by the mothers on the AQ. This suggests the possibility that levels of maternal hostility are subject to changes even over a relatively short period of time. Regardless of the reason for the changes in hostility, these changes in hostility are clearly related to children's development.

Another weakness of this study is that the mothers who chose to participate may have been different from mothers who were not motivated to take part. Mothers who participated took the time to be involved in a lengthy study that involved the provision of numerous types of data by them and their children. This included completion of a variety of instruments, participations in videotaping and completion of a computerized assessment of parenting. For that reason, the results of this study should only be applied to mothers who both have a child in Head Start and are willing to participate in research. Unfortunately, fathers were not included in this population, which was characterized by a high proportion of unmarried mothers, so the results cannot be generalized to fathers.

Related to this problem is the length of the data collection itself. While the nature of a longitudinal study allows data be gathered at multiple points in time, this can also lend

itself to retention issues. Some of the families in the original study sample either moved out of the counties that were involved in the study, dropped out of the Head Start program, or decided to discontinue participation in the study.

Finally, there were some design issues that could have weakened the results of the study. For one, there may have been issues related to the method used to calculate changes in the mothers' and children's variables. For this study, a simple change score was calculated by subtracting the scores at one point in time from scores at a second point. It could be that this does not give a complete picture of the changes that are taking place, which in turn could affect the results. Diana Baumrind's (1989) proposed method of correlating key traits in participants might have yielded different results. However, evaluating significant differences in multiple pairs of correlations would have made the findings vulnerable to the criticism that results were due to chance. In addition, the study was correlational in design, so the direction of the relation between maternal hostility and child outcomes is not known.

Application of Research

This study aims to expand on the limited research that examines the importance of maternal hostility and how it relates to cognitive and social development in children. It has been established that hostility is an aspect of depression, yet in light of this project, and former studies conducted by Cohen and Bromet (1992) and Hubbs-Tait, Badiyan, and Culp (2000), a deeper investigation on hostility is warranted.

The results of this study, especially those regarding the relation between maternal hostility and children's social development, also have a clinical application. Recognizing that exposure to hostility over time may exacerbate behavioral problems in children (Cox,

Puckering, Pound, & Mills, 1987) could help both mothers and therapists target specific behaviors that can be changed. Similarly, this information can be applied to the general population of mothers who have children that participate in Head Start. Community programs offer parent education services, and this information could be used to help parents obtain a deeper understanding of their child's social and cognitive development. As alluded to previously, this can help parents realize how their actions and attitudes shape their child's development.

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Table 1

Descriptive Statistics for all Measures

Variable	Mean	SD
Hostility in Head Start	16.686	6.684
Changing Hostility	-1.181	4.901
Changing Education	2.381	.701
Changing Marital	.162	.370
Head Start Task Mastery	9.505	1.976
Kindergarten Task Mastery	9.267	2.439
Head Start PPVT	91.400	12.174
Kindergarten PPVT	94.543	12.930
Head Start Hyperactive	2.124	2.344
Kindergarten Hyperactive	2.562	2.583
Head Start Anxious	2.610	2.813
Kindergarten Anxious	2.038	2.266
Head Start Aggressive	5.420	5.799
Kindergarten Aggressive	3.867	5.023
Head Start Sociable	13.524	3.664
Kindergarten Sociable	13.819	3.422
Head Start Social	26.667	5.782
Kindergarten Social	20.400	3.936

Table 2

Cognitive Outcomes (N = 105)

Outcome	Change statistics (a)			Coefficients (b)			
Block and Predictors	ΔR^2	df	p	β	B	SE	p
Kindergarten Mastery (CPSCS)							
1 – Head Start Mastery	.086	1,103	.002	.293	.362	.116	.002
2 – Head Start Hostility	.004	1,102	.479	.067	.025	.035	.479
3 – Changing Marital	.030	2,100	.188	.005	.032	.626	.959
– Changing Education	.030	2,100	.188	.173	-.604	.328	.068
4 – Changing Hostility	.026	1,99	.088	-.185	-.092	.053	.088
Kindergarten PPVT							
1 – Head Start PPVT	.495	1,103	.000	.703	.747	.074	.000
2 – Head Start Hostility	.002	1,102	.482	-.050	-.096	.136	.482
3 – Changing Marital	.002	2,100	.790	.010	.351	2.485	.888
– Changing Education	.002	2,100	.790	-.047	.872	1.310	.507
4 – Changing Hostility	.001	1,99	.620	-.041	-.108	.217	.620

Table 3

Social Competence Outcomes (N = 105)

Outcome	Change statistics (a)			Coefficients (b)			
Block and Predictors	ΔR^2	df	p	β	B	SE	p
Kindergarten Sociable (Howes')							
1 – Head Start Sociable	.130	1,103	.000	.361	.337	.086	.000
2 – Head Start Hostility	.008	1,102	.329	-.090	.046	.047	.329
3 – Changing Marital	.003	2,100	.856	-.040	-.366	.862	.672
– Changing Education	.003	2,100	.856	-.035	.173	.454	.704
4 – Changing Hostility	.032	1,99	.054	-.206	-.144	.074	.054
Kindergarten Social (CPSCS)							
1 – Head Start Social	.127	1,103	.000	.356	.313	.081	.000
2 – Head Start Hostility	.010	1,102	.280	-.100	-.076	.070	.280
3 – Changing Marital	.005	2,100	.760	-.067	-.920	1.282	.475
– Changing Education	.005	2,100	.760	-.015	.145	.685	.833
4 – Changing Hostility	.021	1,99	.118	-.169	-.175	.111	.118

Table 4

Behavior Problem (PBQ) Outcomes (N = 105)

Outcome Block and Predictors	Change statistics (a)			Coefficients (b)			
	ΔR^2	<i>df</i>	<i>p</i>	β	<i>B</i>	<i>SE</i>	<i>p</i>
Kindergarten Hyperactivity							
1 – Head Start Hyperactivity	.154	1, 103	.000	.392	.432	.100	.000
2 – Head Start Hostility	.000	1,102	.848	.017	.007	.035	.848
3 – Changing Marital	.004	2,100	.791	.054	.379	.643	.557
– Changing Education	.004	2,100	.791	-.030	.111	.341	.745
4 – Changing Hostility	.034	1,99	.045	.215	.113	.056	.045*
Kindergarten Anxious							
1 – Head Start Anxious	.040	1,103	.041	.200	.161	.078	.041
2 – Head Start Hostility	.007	1,102	.395	.083	.028	.033	.395
3 – Changing Marital	.012	2,100	.535	.098	.600	.597	.317
– Changing Education	.012	2,100	.535	-.044	.142	.315	.653
4 – Changing Hostility	.015	1,99	.214	.140	.065	.052	.214
Kindergarten Aggressive							
1 – Head Start Aggressive	.373	1,103	.000	.611	.529	.068	.000
2 – Head Start Hostility	.003	1,102	.491	.054	.041	.059	.491
3 – Changing Marital	.000	2,100	.991	.001	.015	1.077	.989
– Changing Education	.000	2,100	.990	.011	-.078	.570	.892
4 – Changing Hostility	.025	1,99	.045	.185	.190	.093	.045*

**p* < .05

VITA

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Candidate for the Degree of

Master of Science

Thesis: RELATIONS BETWEEN CHANGES IN MATERNAL HOSTILITY AND
CHILDREN'S COGNITIVE AND SOCIAL FUNCTIONING IN
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Major Field: Human Development and Family Science

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Title of Study: RELATIONS BETWEEN CHANGES IN MATERNAL HOSTILITY
AND CHILDREN'S COGNITIVE AND SOCIAL FUNCTIONING IN
KINDERGARTEN

Pages in Study: 57

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Major Field: Human Development and Family Science

Scope and Method of Study: The purpose of this study was to observe how changes in levels of maternal hostility relate to social and cognitive outcomes in children. Participants were 105 mothers/caregivers and their children who participated in Head Start in several north-central rural communities in Oklahoma. Each mother participated by completing several measures including the Demographic Information Questionnaire (DIQ), the Center for Epidemiologic Studies Depression Scale (CES-D), the Aggression Questionnaire (AQ), and the Adult-Adolescent Parenting Inventory (AAPI), among others. Children completed the Peabody Picture Vocabulary Test-Revised (PPVT-R), which evaluated cognition. Finally, teachers completed the Preschool Behavior Questionnaire (PBQ), the California Preschool Social Competency Scale, and Howes' Sociability subscale among other measures to collect information on the target children's cognitive and social functioning.

Findings and Conclusions: Changes in maternal hostility were not found to be significantly associated with cognitive outcomes. However, changes in maternal hostility were significantly related to children's sociability and behavior problems.

ADVISER'S APPROVAL: Laura Hubbs-Tait
