

**MATERNAL HARSHNESS AND THE MOTHER-CHILD RELATIONSHIP
IN THE TODDLER YEARS: ASSOCIATIONS WITH BEHAVIOR PROBLEMS
AT SCHOOL ENTRY**

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Both harsh parenting and insecure attachment have been identified as potential risks for behavior problems in young children. Previous research, however, has typically investigated these factors separately and has tended to focus on the development of externalizing rather than internalizing problems. This study examined relations between observed maternal harshness and attachment insecurity in the toddler/preschool years, as well as associations among these same early parenting and relationship variables and their interaction with child negative affect, and child behavior problems in early grade school (Grade 1/Grade 2) and investigated whether associations differed for girls and boys. Participants consisted of a subset ($N = 111$) of families from the Pittsburgh site of the on-going, multi-site study of child development, the NICHD Study of Early Child Care. Mothers and their children participated in two laboratory interactions when children were 2 and 3 years, a shared snack and a semistructured play task, and observed maternal harshness and child negative affect were coded from these videotaped interactions. At 3 years, a modified Strange Situation was used to assess the degree to which the child's attachment relationship was observed to be insecure or secure, rated qualitatively on a 9-point scale. Teachers completed questionnaires when the children were in first/second

grade to assess internalizing and externalizing symptoms. Results showed that early maternal harshness predicted child internalizing symptoms 5 years later even after controlling for demographic risk and child negative affect. Early maternal harshness also predicted teacher-rated externalizing problems but only in conjunction with child negative affect: higher levels of child negative affect were only associated with increased risk for externalizing problems when paired with increased maternal harshness. Furthermore, mother-child attachment security moderated the association between harshness and internalizing in a manner suggesting that attachment security was not protective in the context of early maternal harshness. Results examining associations as a function of child sex revealed a complex pattern of interactions, giving some indication that boys may be differentially susceptible to the rearing environment and suggesting the need to consider the interplay between parenting, attachment and behavior problems separately for boys and girls.

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PREFACE

I would like to acknowledge the NICHD Study of Early Child Care, Pittsburgh site (grant number HD25420) and thank the mothers and children who participated in this study. I would also like to thank the faculty comprising my Dissertation Committee for their time and patience in seeing this project to fruition, especially Sue Campbell who stayed the course even though the journey was long. A great deal of gratitude goes to my family who believed in me even when I did not believe in myself and whose support and encouragement saw me through my darkest days. And finally, I dedicate this work to my two beautiful and amazing daughters who have given me immeasurable joy and inspired me to persevere no matter what the obstacles.

1.0 INTRODUCTION

Parenting has long been considered a critically important domain of influence with respect to young children's adjustment (Baumrind, 1993; Maccoby & Martin, 1983). Because the infant and young child's earliest experiences occur in the context of the family, it is intuitive to look to parenting practices and the parent-child relationship for explanations when problems occur. Indeed, considerable attention has been directed to understanding the impact that negative parenting behaviors have on children's socio-emotional development. More specifically, both harsh parenting practices and a hostile parenting style have consistently been associated with behavior problems in young children (Patterson, 1982; Rothbaum & Weisz, 1994).

Research in this area, however, has typically focused on the relation between maternal harshness and externalizing problems such as noncompliance, aggression, and oppositional behavior, with notably less attention to internalizing symptoms such as depression and anxiety. Additionally, although attachment theory offers a rich conceptual framework and empirical literature pertinent to questions regarding the association between early maternal behaviors and later maladjustment, the effects of discrete parenting practices are typically examined outside the context of the mother-child relationship. Therefore, the purpose of the current study was to examine the longitudinal effects of maternal harshness during toddlerhood with respect to

children's behavior problems, particularly internalizing symptoms, in early grade school and to explore whether the mother-child attachment relationship may mediate or moderate any associations between maternal harshness and child behavior problems.

1.1 MATERNAL HARSHNESS

It is widely accepted that parental inconsistency, negativity, harshness, and overcontrol can contribute to children's maladjustment (Campbell, 2002; Maccoby & Martin, 1983; Patterson, 2002). Conceptualizations of these aspects of negative parenting derive from an array of research lines: parenting style, using a typological approach; specific parenting behaviors at a more molecular level; or through the lens of attachment theory. Regardless of which approach is taken, two primary factors established as key components of parenting, hostility versus warmth and control versus autonomy, tend to converge in most definitions of harshness (Darling & Steinberg, 1993; Maccoby & Martin, 1983; Parke & Buriel, 1998).

The most influential typological approach to discerning various parenting styles is that of Baumrind (1967, 1972) whose well-known early observational research showed that children's patterns of interaction in preschool could be reliably predicted by their mothers' childrearing styles. Baumrind distinguished four parenting styles: an authoritative style consisting of high levels of warmth combined with firm limit-setting, a permissive style in which high warmth is not accompanied by appropriate control, a neglecting style involving a lack of both warmth and control, and an authoritarian style comprised of high control paired with low warmth. According to this taxonomy, the authoritarian style denotes harsh parenting. As defined by Baumrind (1967), authoritarian parents are demanding and directive, value

obedience and conformity, and do not allow for the child's autonomy. They hold high expectations and maturity demands and are unresponsive, punitive, and even outright rejecting if the child fails to measure up to these expectations. This harsh authoritarian style has been associated with children's low self-esteem and lack of social competence with peers (Baumrind, 1991; Maccoby & Martin, 1983), negative self-attributional styles (Lewis, 1992), and anxious behavior in preschool (Dumas, LaFreniere, & Serketich, 1995; LaFreniere & Dumas, 1992).

Focusing more narrowly on discrete parenting behaviors, harshness has also been studied in the context of discipline practices. In this domain, harshness is recognized in the use of punitive, hostile, or physically aggressive disciplinary strategies. Research in this area has demonstrated that a harsh discipline style involving physical punishment (Dodge, Pettit, & Bates, 1994), maltreatment (Weiss, Dodge, Bates, & Pettit, 1992) or a pattern of interactions where parents and children engage in escalating coercive cycles (Patterson, 1982) is associated with child maladjustment (Patterson, 2002; Rothbaum & Weisz, 1994). This work has primarily focused on school-aged children or adolescents and on outcomes such as aggression and externalizing behaviors. Because physical harshness is unlikely to be easily observed by researchers in the lab or home setting, researchers have tended to rely on measures of parents' self-reported discipline strategies and beliefs about parenting.

1.2 THE MOTHER-CHILD ATTACHMENT RELATIONSHIP

Attachment theory provides yet another framework within which to consider the influence of parenting behavior. Here, harshness is understood in terms of unresponsive and insensitive

parental care which in turn, leads to attachment insecurity. Attachment has been conceptualized as an affective bond between infant and caregiver that emerges out of the infant's cumulative experience with her caregiver (Bowlby, 1969/1982; Carlson & Sroufe, 1995). This special attachment bond is conceptualized as a dyadic construct that is distinguished from but partly based on the particular behaviors that serve to build the attachment relationship. The history of interactions between mother and infant, including the emotional and behavioral proclivities that both bring to the relationship, is theorized to create dynamic, mostly unconscious representations in the child that serve to predict and interpret behavior and that tend to persist over the life span (Bowlby, 1973; Bretherton, 1993). According to attachment theory then, the emphasis is on the importance of early relationships as the foundation of later functioning (Sroufe, 1986).

Although attachment security is a function of the dyadic mother-child relationship, attachment theorists have stressed maternal sensitivity, or the mother's prompt and appropriate responses to infant signals, as playing a central role in the genesis of secure attachment (Ainsworth, Blehar, Waters, & Wall, 1978; Carlson & Sroufe, 1995). A sizeable body of research has established that maternal sensitivity is a robust predictor of infant attachment security. However, in a recent meta-analysis, De Wolff and van IJzendoorn (1997) reported that in terms of effect size, measures of sensitivity tend to be only modest predictors of attachment security. In addition, De Wolff and van IJzendoorn (1997) presented evidence that other aspects of parenting only indirectly related to sensitivity may be equally important in the development of attachment, suggesting the need to consider other maternal behaviors as antecedents of attachment. Although maternal rejection has been considered in some early studies (Isabella, 1993), more typically the focus is on parental antecedents that promote

security (De Wolff & van IJzendoorn, 1997). As a consequence, risk for insecure attachment appears to be conceptualized largely as a result of deficiencies in positive parenting. The absence of positive parenting characteristics, however, cannot necessarily be equated with the presence of negative parenting behaviors. It is conceivable that some mothers express mild to moderate negative behaviors such as annoyance, criticism, or sharpness toward their children despite displaying reasonably sensitive parenting reflected in prompt and reliable responding. For instance, one could imagine a mother who is capable of being sensitive in response to child distress, soothing a sick or injured child, and yet be negative or critical in a teaching or correcting context or when the demands for mothering are less clear.

Maternal harshness may be a particularly pertinent behavior in the prediction of attachment security and addresses several potential limitations inherent in the present focus on maternal sensitivity. Some researchers have argued that current measures of sensitivity fail to adequately address complexities in operationally defining sensitive parenting (Bohlin & Hagekull, 2000; Claussen & Crittenden, 2000; Goldberg, Grusec, & Jenkins, 1999). More specifically, without substantial attention to both the situational context of parenting behaviors and the developmental level of the child, sensitivity and responsiveness are likely to be confounded (Claussen & Crittenden, 2000; De Wolff & van IJzendoorn, 1997). From this viewpoint it is the appropriateness of response rather than reliability and promptness that is crucial. Additionally, Claussen and Crittenden (2000) point out that optimally sensitive parenting should function to promote children's overall adaptation; therefore, sensitivity is reflected by parents who take children's long-term needs into consideration as opposed to solely satisfying children's immediate desires. Further, the needs of the child should change with the child's development. Context-dependency may be less relevant to maternal harsh

behaviors such as criticism, negativity or shaming which are generally considered less appropriate under many circumstances in our society, especially in middle- and upper-class families.

Another reason to examine maternal harshness is its saliency across situations. According to Bowlby's (1969/1982) original theory, it is the caregiver's sensitivity to the infant's attachment behavior or distress signals that is crucial in the development of the attachment relationship (Goldberg et al., 1999). This suggests that attachment must be assessed in a context that triggers the child's attachment behavioral system. Ainsworth's Strange Situation (Ainsworth et al., 1978), the gold standard for assessing attachment security, has appeared to successfully invoke mild to moderate infant distress through brief separations of infant from caregiver along with the introduction of a stranger during the interaction. Current researchers, however, have drawn attention to the need for more developmentally appropriate measurement strategies for assessing attachment in preschoolers and older children (e.g., Cassidy, Marvin, & the MacArthur Working Group on Attachment, 1992) and have argued that changing patterns of childcare may make the Strange Situation a potentially less valid measure of attachment security (e.g., Goldberg et al., 1999; however, see NICHD Early Child Care Research Network, 1997, for evidence to the contrary). Maternal harshness on the other hand may itself activate the child's attachment system, conveying the distressing message to the child that the caregiver on whom the child is dependent may be rejecting and unsafe (Lyons-Ruth; Weinfield, Sroufe, Egeland, & Carlson, 1999). It is also conceivable that maternal harshness may be a relatively low frequency occurrence among middle- and upper-class

women. Consequently, any harshness displayed during low-stress everyday interactions may provide important information in these populations about the quality of the mother-child relationship.

In conclusion, harsh parenting behaviors may be particularly salient to the very young child and be likely to have a negative impact on the mother-child relationship. Maternal harshness in the current study was operationalized as any display of physical reprimand, criticism, shaming, annoyance, punitiveness, or negative tone of voice, and its assessment included both quantitative (frequency) and qualitative (intensity) aspects of these behaviors. This compromise between more global versus specific aspects of harsh parenting behaviors addresses critiques of extant conceptualizations of parenting style and parenting practices. For instance, one criticism of the typological approach is that it may obscure the understanding of the roles of specific parenting behaviors in their contribution to associations between parenting style and child adjustment (Barber, Olsen, & Shagle, 1994; Darling & Steinberg, 1993).

Some researchers have argued that it is crucial to disaggregate and investigate separately the components that constitute broadly-defined parenting styles (Barber et al., 1994; Galambos, Barker, & Almeida, 2003). Conversely, the argument has been made that microanalytic methods based on frequencies or sequences of particular behaviors may not adequately capture qualitative characteristics of parent-child interactions (Maccoby & Martin, 1983). In the present study, harshness was defined not from the more narrow perspective of discipline interactions but within the broader context of the parent-child relationship and was assessed in the laboratory while mother and child engaged in semi-structured play activities and shared a snack together. Since these tasks were relatively undemanding and because mothers were aware of being videotaped in the lab setting, one would not anticipate that the situation

would give rise to conflict between mother and child. Therefore, expressions of harshness displayed in these contexts were expected to be more likely to represent a core indicator of a negative parent-child relationship.

1.3 HARSH PARENTING AND CHILD BEHAVIOR PROBLEMS

Behavior problems have been categorized into two broad classes: internalizing and externalizing. This internalizing-externalizing distinction represents the most consistently identified classification of psychopathology across ages, including the early preschool years (Cicchetti & Toth, 1991). Both internalizing and externalizing problems comprise behavioral and affective components and characteristic cognitive features; however, internalizing problems primarily concern the child's internal world and are associated with subjective distress whereas externalizing problems are distinguished by failure to control behavior according to the expectations of others (Zahn-Waxler, Klimes-Dougan, & Slattery, 2000). With respect to etiology, research has demonstrated that there is a substantial genetic component in the development of both externalizing disorders (Connell & Goodman, 2002; Rowe, 1994) and internalizing disorders (Kovacs & Devlin, 1998); however, both common and nonshared environmental effects appear to play a role as well (Gjone & Stevenson, 1997; Reiss et al., 1995; Wichers, van Os, Danckaerts, Van Gestel, & Vlietinck, 2001).

With respect to the classification of behavior problems, both discrete and dimensional systems are used. In line with these two methods of assessing maladjustment, clinical diagnoses as well as subclinical symptom levels have been examined. While the exact association between assessment of symptom patterns versus diagnostic categories has not been established

(Keenan, Shaw, Walsh, Delliquadri, & Giovanelli, 1997), there is some evidence that subclinical levels may interfere with functioning or may even be developmental precursors to later full-blown psychological disorders (Lewinsohn, Solomon, Seeley, & Zeiss, 2000; Kim, Ge, Brody, Conger, Gibbons, & Simons, 2003). Due to the young age of the children investigated in the current study, the focus is intended to be on behavior problems more broadly (i.e., internalizing and externalizing syndromes); however, in keeping with the diversified literature, the empirical work that is discussed includes studies of specific disorders, such as conduct disorder, depression, and anxiety, and studies utilizing dimensional measures of symptom levels alike.

1.3.1 Child externalizing problems and maternal harshness

There is abundant evidence that parenting strategies anchored in harsh, negative, overcontrolling, or coercive styles are associated with the development of externalizing problems in children (Campbell, 2002; Dodge, Pettit, & Bates, 1996; Patterson, 1982; Rothbaum & Weisz, 1994). More specifically, behavior problems have been linked to harsh parenting behaviors including spanking (Strassberg, Dodge, Pettit, & Bates, 1994), physical abuse (Weiss, et al., 1992), coercive cycles (Patterson, 1982), and anger, rejection, and negative control (Bates, Pettit, Dodge, & Ridge, 1998; Campbell, Pierce, Moore, Marakovitz & Newby, 1996; Denham, Workman, Cole, Weissbrod, Kendziora, & Zahn-Waxler, 2000; Heller, Baker, Henker, & Hinshaw, 1996; Pauli-Pott, Haverkock, Pott, & Beckmann, 2007; Rubin, Burgess, Dwyer, & Hastings, 2003; Shaw, Owens, Giovanelli, & Winslow, 2001). It should be noted, however, that these associations among harsh parenting behaviors and child behavior problems

are rarely conceptualized as unidirectional; rather, child characteristics and behaviors are likely to operate in conjunction with parenting behavior, suggesting transactional models as most appropriate (Bronfenbrenner & Morris, 1998; Campbell, 2002; Patterson, 1982).

1.3.2 Child externalizing problems and child-mother attachment security

Troubles in the mother-child relationship have also been shown to relate to child externalizing problems. More specifically, modest associations have been reported between insecure attachment, including disorganized (D) attachment status (Green & Goldwyn, 2002; Lyons-Ruth, Alpern, & Repacholi, 1993; Pauli-Pott et al., 2007) and avoidant (A) and ambivalent (C) status (Muris, Meesters, & van den Berg, 2003; Wartner, Grossman, Fremmer-Bombik, & Suess, 1994) and externalizing symptoms. However, other studies have not revealed any association between attachment and externalizing symptoms (Bates, Maslin, & Frankel, 1985) or have found more complex relations involving other factors, such as continuity of insecurity, and demonstrating different patterns of associations as a function of child sex (Lewis, Feiring, McGuffog, & Jaskir, 1984; Lyons-Ruth, Easterbrooks, & Cibelli, 1997; McCartney, Tresh Owen, Booth, Clarke-Stewart, & Vandell, 2004; Shaw & Vondra, 1995). In addition, findings have been more consistent for high-risk samples as opposed to community samples (DeKlyen & Speltz, 2001).

1.3.3 Child internalizing problems and maternal harshness

In contrast to the substantial literature on externalizing problems, internalizing problems in early childhood have been studied far less. Compared to the noncompliance, aggression, and defiance that accompanies externalizing problems, internalizing problems are often not as immediately distressing to the parents of young children. Nevertheless, children with internalizing disorders have been shown to have multiple problems and to demonstrate impairment in important areas of functioning (Kovacs & Devlin, 1998). There is also evidence for considerable developmental stability of internalizing problems even from a very young age among some child populations (Kovacs & Devlin, 1998; Mesman & Koot, 2001); however, this finding is not always consistent (Fischer, Rolf, Hasazi, & Cummings, 1984; Last et al., 1996). Unfortunately, few empirical studies have examined the developmental precursors of internalizing problems in young children.

A number of studies, however, provide evidence of associations between harsh parenting and internalizing problems around adolescence. Ge, Best, Conger, and Simons (1996), for instance, reported that 10th grade children whose mothers were observed to be more hostile during a number of structured interaction tasks in 7th, 8th, and 9th grades had elevated depressive symptoms even after controlling for demographic variables and 7th grade symptoms. Likewise, Shumow, Vandell, and Posner (1998) found that mother-reported harsh parenting was associated with teachers' reports of poorer behavioral adjustment, including aspects of child emotional wellbeing, for 5th grade children. With respect to adolescent self-report, Muris and associates (2003) found that adolescents who perceived their parents as showing high levels of rejection and overprotection displayed higher levels of internalizing symptoms.

Finally, investigating nonshared experiences of adolescent siblings, Reiss and colleagues (1995) compared the relation between depressive symptoms and experiences of harsh parenting in the family with the degree of genetic variation in depressive symptoms and found that 41% of variance in depressive symptoms could be accounted for by harsh parenting.

Of those few studies that have specifically examined associations between harshness and internalizing problems in younger children, findings have been more equivocal. In their investigation of family risk factors in early preschool, Mesman and Koot (2001) found that negative maternal attitudes and harsh parenting did not contribute independently to the prediction of later internalizing behavior. Similarly, Weiss and colleagues (1992) failed to find an association between harsh discipline and internalizing problems. However, in a study assessing the potential role of shame as a mediator in the relationship between parenting style and adjustment problems, authoritarian parenting at age 3 was a strong predictor of teacher-rated internalizing problems at age 5, but this relationship was not mediated by proneness to shame (Mills, 2003). Clearly, more research is needed to elucidate associations between mothers' harsh parenting and children's early internalizing difficulties.

1.3.4 Child internalizing problems and child-mother attachment security

Further evidence for a link between parenting and child internalizing problems can be found in the literature on attachment security and child maladjustment. For instance, McCartney and colleagues (2004) investigated a maternal attachment model of behavior problems using data from the NICHD Study of Early Child Care and reported that both mothers' and teachers' ratings of internalizing symptoms were predicted by a Q-sort measure of mother-child

attachment. Even more recently, Pauli-Pott and her colleagues (2007) examined the association between attachment quality and behavior problems in a low-risk sample in West Germany and found that infant attachment disorganization assessed at 18 months predicted emotional problems at 30 months. Others have reported associations between anxious attachment and difficulties including increased fearful and inhibited behaviors (Cassidy & Berlin, 1994) and increased withdrawn and dependent behaviors as reported by preschool teachers (Erickson, Sroufe, & Egeland, 1985). Rothbaum, Schneider-Rosen, Pott, and Beatty (1995), on the other hand, reported that attachment insecurity was related to mothers' perceptions of internalizing problems but not to teacher-rated internalizing problems assessed in school. Similarly, in an investigation of the manner in which self-evaluations and self-worth relate to both attachment representations and behavioral adjustment, Easterbrooks and Abeles (2000) found that children who demonstrated greater attachment security were reported by their mothers to exhibit fewer internalizing problems.

In a study by Bates and colleagues (1985), however, attachment security did not predict mother-rated anxious problems when children were three, something the authors hypothesized might be attributed to the low risk nature of their sample. In contrast, Shaw, and his associates (1997) in a low-income, high-risk sample, found that disorganized (D) attachment status was one of several risk factors that uniquely contributed to the prediction of mother-rated preschool internalizing problems. Lyons-Ruth and associates (1997) also assessed insecure attachment as a family risk factor in a high-risk, part maltreatment sample and found that avoidant (A) attachment in infancy predicted internalizing symptoms at age seven; however, in this case disorganized (D) attachment was not associated with internalizing problems.

With respect to clinical levels of internalizing problems, Warren, Huston, Egeland, and Sroufe (1997) examined the relationship between insecure attachment in infancy and adolescent diagnoses of anxiety disorders and found that anxious/resistant attachment status at 12 months of age predicted the presence of an anxiety disorder 16 years later, over and above maternal anxiety and child temperament measured in infancy. Again, the picture is less than clear as to the manner in which some insecure mother-child attachment relationships are associated with the development of internalizing problems while others are not.

1.4 COMORBIDITY OF INTERNALIZING AND EXTERNALIZING PROBLEMS

An important consideration in exploring associations between harsh parenting and behavior problems which may help to clarify links between harshness, insecure attachment relationships and the development of internalizing problems is the issue of comorbidity. Externalizing symptoms and internalizing symptoms have been found to co-occur frequently (Ge et al., 1996; Keiley, Lofthouse, Bates, Dodge, & Pettit, 2003; Kovacs & Devlin, 1998; Zahn-Waxler et al., 2000). The exact relationship between internalizing and externalizing problems is not known. However, it has been suggested that comorbidity between internalizing and externalizing problems may: 1) be explained by the presence of shared, correlated, or overlapping risk factors, 2) be a function of one disorder acting as a precursor of a second disorder, or 3) represent some aspect of the severity of the psychopathology (Kim et al., 2003). The current study sought to provide additional data to inform an understanding of how maternal harshness and child-mother attachment insecurity may relate differentially to child behavior problems of an internalizing versus externalizing nature.

1.5 REASONS TO EXPECT A RELATION BETWEEN HARSHNESS AND CHILD INTERNALIZING PROBLEMS

While a good deal of empirical attention has been paid to the association between both parenting and attachment factors and the development of externalizing problems, there are a number of reasons to expect that these factors might be related to internalizing problems in particular. Although in childhood, investigations of the correlates of harsh parenting have typically been in relation to child externalizing symptoms, ample support for an association between harshness and internalizing problems exists in retrospective studies of adults with anxiety and depression. Additionally, many theoretical perspectives on the etiology of depression and anxiety incorporate negative aspects of the mother-child relationship. And finally, links between parenting and child emotion regulation and between child emotion regulation and child internalizing problems provide a putative mechanism to explain an association between harsh parenting and internalizing problems.

A commonly used method of assessing associations among harsh parenting and the internalizing disorders of anxiety and depression involves self-report of the recalled parenting in childhood of depressed or anxious adolescents or adults (Gerlsma, Emmelkamp, & Arrindell, 1990; Rapee, 1997). Retrospective studies of this nature have generally found that clinically depressed or anxious individuals report their parents to have been more rejecting and controlling—a style sometimes referred to as “affectionless control”—than do normal controls (Crook, Raskin, & Eliot, 1981; Fendrich, Warner, & Weissman, 1990; Oakley-Browne, Joyce, Wells, Bushnell, & Hornblow, 1995; Parker, 1990; Rajshree & Waller, 2000; Sato et al., 1998).

Further, there is evidence that parental rejection, the component of affectionless control most similar to the concept of harshness, may be a more important variable in distinguishing between depressed and nondepressed individuals than parental control (Rapee, 1997).

This literature has been criticized, however, for its reliance on retrospective designs (Brewin, Andrews, & Gotlib, 1993; Gerlsma et al., 1990; Rapee, 1997) with potential sources of error that include low reliability and validity of autobiographical memory, the presence of general memory impairment associated with psychopathology, and specific mood-congruent memory biases associated with psychopathology. Although investigations into these contentions have provided some evidence that adult recall of salient details of childhood experience is generally accurate (Brewin et al., 1993) and several prospective studies have supported the link between adverse parent-child interactions and depression many years later (Burge & Hammen, 1991; Kerver, van Son, & de Groot, 1992; Koestner, Zuroff, & Powers, 1991; Lindelów, 1999), the majority of adult depression does not have its onset in childhood (Zahn-Waxler et. al., 2000), and more importantly, this body of work does not address the potential proximal risk that harsh parenting presents with respect to more broadly defined internalizing problems in early to middle childhood.

While the literature evidencing a link between adult depression and childhood experiences of rejecting parenting does not provide insight into processes in the development of internalizing symptoms in childhood, a variety of theories of depression do. For example, attachment theorists have argued that early experiences with caregivers set the stage for future relationships and experience of the self, behavioral models identify insufficient provision of positive reinforcers, and cognitive theories suggest that children's early interactions with parents may lead to negative views of the self, learned helplessness, or a self-deprecating

attributional style, all of which are components of the phenomenological experience of depression. Theories regarding anxiety are also relevant, proposing that harsh or overcontrolling parenting may relate to the interplay of conditioning, social learning, and cognitive processes in the development of anxiety problems.

According to attachment theory, the failure to form a stable and secure relationship with the primary caregiver or the experiencing of oneself as unlovable or incompetent, a message that is likely transmitted through maternal harshness, is seen as related to adult depression (Bowlby, 1980). Interactions that are characterized by insensitivity or lack of psychological availability on the part of caregivers are posited to give rise to internal working models of the attachment figure as unavailable, along with a complimentary working model of the self as unworthy and/or unlovable (Bretherton, 1990). These deficits in self may then lead the way to depression. Similarly, with respect to anxiety, lack of availability of the primary caregiver may lead to a lack of trust in the caregiver and a view of the world as unsafe, in turn giving rise to anxious symptoms as the infant becomes overly sensitized to signs of threat in relationships or the environment.

Cognitive impairments have also been hypothesized to derive from children's early interactions with harsh parents. According to Beck (1976; Kovacs & Beck, 1985), beginning in childhood, people develop a large number of cognitive schemata that organize different aspects of experience. Beck's model asserts that when these self-schemata are dysfunctional, individuals are predisposed to depression and that cognitive distortions in thinking, such as jumping to negative conclusions on the basis of little evidence, focusing on negative events, and ignoring positive events, are all employed in the service of supporting negative views of the self, the world, and the future. The repeated or pervasive experience of harsh, critical

parenting could provide one explanation for the development of such negative self-schemata. Kovacs and Beck (1985) argued that the very characteristics of these “depressogenic” schemata, such as the simplistic and “childish” content of their premises, provide evidence that they are relatively stable, developmentally early constructions. Additionally, there is empirical evidence that depressed, compared to nondepressed, children tend to display the same kinds of depressive cognitions as are observed in depressed adults, including less positive self-schemas, a negative attributional style, self-control deficits, cognitive bias, and helplessness (Hammen, 1988; Hammen & Zupan, 1984; Jaenicke et al., 1987; Kaslow, Adamson, & Collins, 2000; Kaslow, Rehm, Pollack, & Siegel, 1988; Kistner, Ziegert, Castro, & Robertson, 2001; Peterson & Seligman, 1984; Seligman et al., 1984). Dysfunctional cognitive biases also have a place in hypotheses about putative mechanisms in the development of anxiety. In this context, over-attention to threat, in the present case represented by harsh parenting, or interpretation of ambiguous situations as unsafe are hypothesized to fuel the development of problematic anxiety.

A role for harsh parenting in the etiology of depression and anxiety is also consistent with behavioral models. In the case of anxiety, fears and anxiety may emerge as a result of classical conditioning or experiences with lack of control over the environment (Chorpita & Barlow, 1998). Regarding depression, these models suggest that depressive behaviors may either be due to the balance of reinforcers in the environment as children grow up and/or be a consequence of parents’ faulty evaluation or attribution of their child’s behavior. For example, Lewinsohn’s (1985) behavioral theory of depression asserts that depressive behaviors may be

elicited by a low rate of response-contingent positive reinforcement. In the case of harsh parenting, the availability of positive reinforcement is undermined by the negative nature of parent-child interactions.

The learned helplessness model provides another behavioral explanation for the development of depression. According to this theory, depressed individuals no longer recognize contingencies between their behavior and outcomes in their environment, instead exhibiting passivity and learning deficits after exposure to uncontrollable negative events (Rosellini & Seligman, 1985; Seligman, 1974). Dysfunctional parent-child interactions marked by harshness could create such a lack of contingency between child behavior and his/her desired outcomes if feedback received by the child is more a reflection of a negative parent-child relationship than a parental response to actual child behavior. A reformulated helplessness model (Abramson, Seligman, & Teasdale, 1978) explicitly recognizes a role for causal attributions about the uncontrollability of events. According to this theory, a self-deprecating attributional style—whereby negative events are explained by causes that are internal, stable, and global—leads to learned helplessness and loss of self-esteem. Once again, harsh parenting fits this model in that consistent harsh feedback should foster negative attributions that are internal, stable, and global.

With respect to the effects of negative feedback, Cole (1990) presented a model of depression in childhood describing how repeated exposure to negative feedback may have adverse effects both on cognitive development and on the emergence of positive self-schemata. More specifically, Cole proposed that competency (or incompetency) feedback that children encounter across a wide variety of domains (e.g., academic, social, sports, physical attractiveness, conduct) facilitates or hinders children's positive self-perception (respectively),

thereby thwarting or promoting the development of depression. Studies in childhood and adolescence have provided some support for this model (Cole, 1991; Ohannessian, Lerner, Lerner, & von Eye, 1999). Along these same lines, low self-worth has been found to be highly related to depressed affect (Harter, 1999; Kaslow et al., 1988) and is generally viewed as deriving from critical evaluations or judgments about the adequacy of the self (Harter, 1988), a process in which parental approval versus rejection is believed to play a role (Harter, 1999).

Finally, several models of depression and anxiety hold that deficiencies in the regulation of emotion account for symptomatology. For instance, theories of adult depression view depression as occurring after an important loss of self-worth creates a self-regulatory cycle of excessive self-focus, self-derogation, negative affect, and further negative outcomes (Pyszczynski & Greenberg, 1987; Rehm, 1985). In infancy and earliest childhood, caregivers presumably serve as a primary source of emotion regulation through their sensitive but calm responding to child distress, and by modeling and shaping children's acquisition of regulation skills through parent-child interactions (Kopp, 1982; Maccoby & Martin, 1983; McCauley, Kendall, & Pavlidis, 1995). Subsequently, individual differences in the adequacy of the child's emotion regulatory abilities may be linked to child outcomes such as behavior problems (whether over- or under-regulated in nature). Indeed, a number of studies indicate that children's emotion regulation at least statistically mediates associations between parenting behaviors and child maladjustment (Bradley, 2000; Chang, Schwartz, Dodge, & McBride-Chang, 2003; Eisenberg et al., 2001; Shaw et al., 1997).

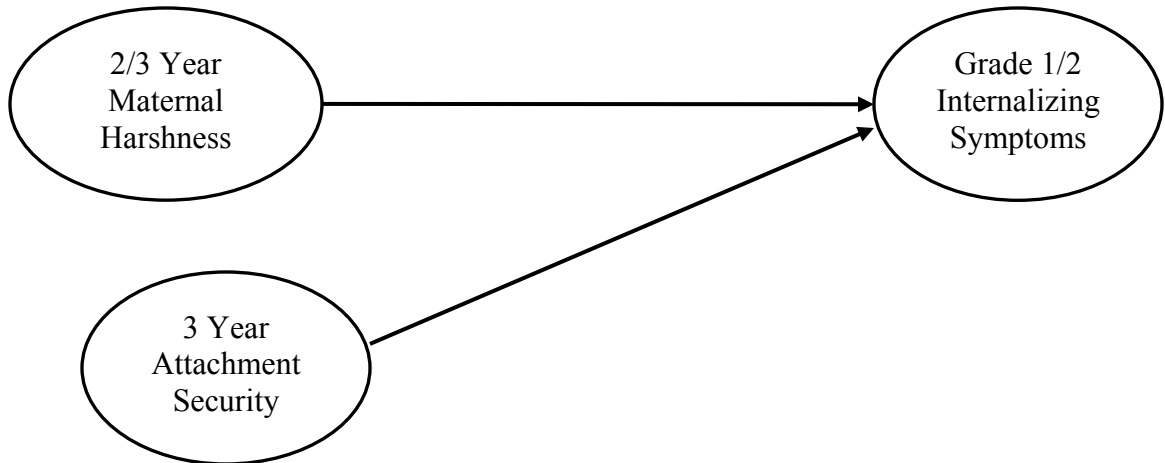
1.6 MATERNAL HARSHNESS, THE ATTACHMENT RELATIONSHIP AND CHILDREN'S INTERNALIZING PROBLEMS

Clearly a number of mechanisms may underlie the association between children's experience of harsh parenting and the potential for subsequent development of internalizing symptoms. While harsh parenting may have a direct impact on children (see Figure 1, Model A) by creating cognitive biases or damaging self-worth, it is also possible that harsh parenting is relevant only in the context of the attachment relationship and/or its impact on the affective bond between child and caregiver.

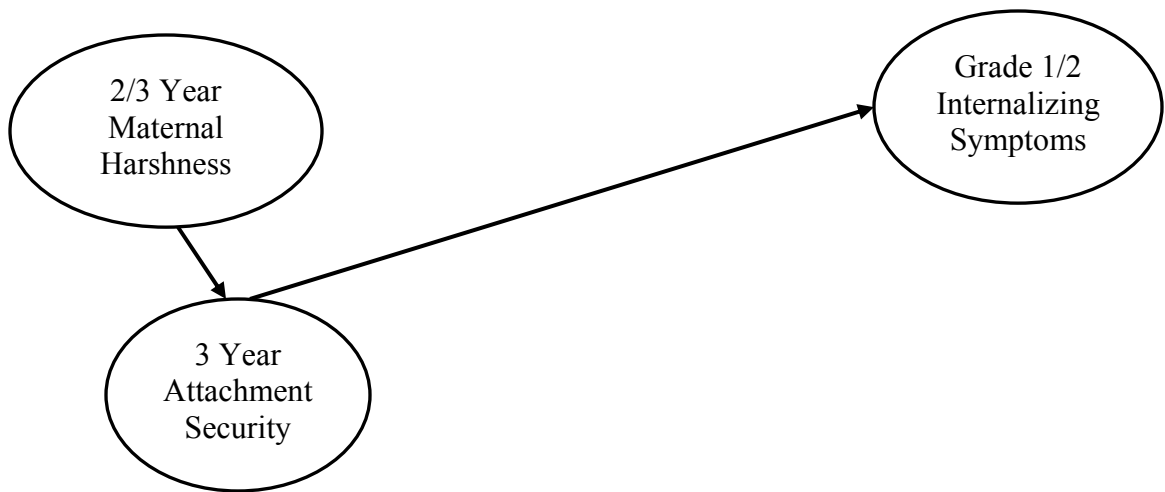
In the current study, it was hypothesized that relationships would be evident between harsh parenting and child internalizing problems, between harsh parenting and attachment insecurity, and between attachment insecurity and child internalizing problems. Further, attachment insecurity was expected to either statistically mediate or moderate the association between maternal harshness and internalizing problems. In the case of mediation (see Figure 1, Model B), attachment insecurity would at least partially account for any association between the two variables, maternal harshness and child internalizing problems. In this case, because the attachment relationship may be regarded as the context in which all mother-child interactions occur, maternal harshness may affect child internalizing primarily through its hypothesized influence on the quality of the child-mother attachment relationship.

Alternatively, the presence of a secure attachment relationship could serve as a buffer in the face of harshness; or conversely, insecurity would make a child especially vulnerable to expressions of maternal harshness. In other words, it was hypothesized that attachment security

Model A: Direct Effects



Model B: Mediator Effect



Model C: Moderator Effect

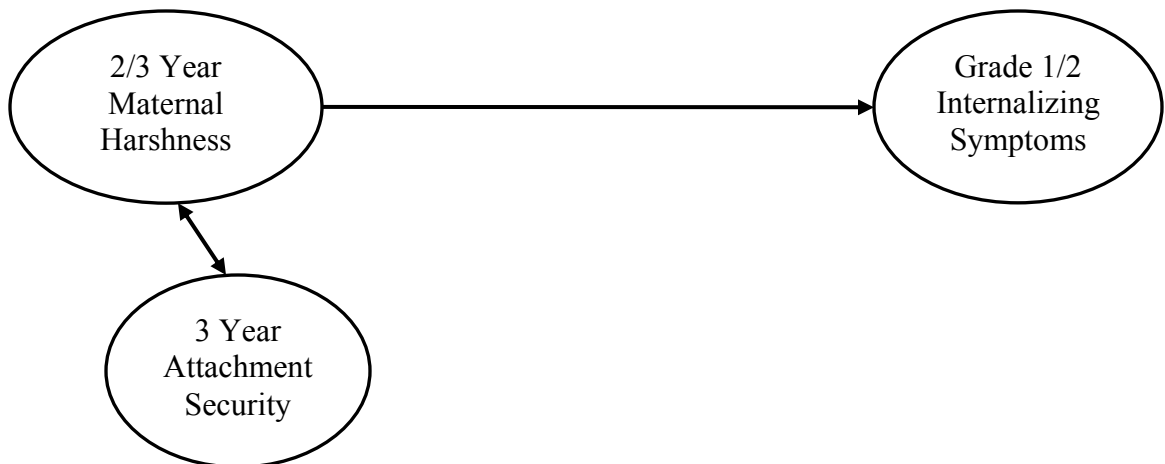


Figure 1. Models of potential pathways.

might also moderate the association between parenting behaviors and child internalizing problems (see Figure 1, Model C). In the case of a moderator pathway, attachment security would interact with maternal harshness such that the relationship between maternal behaviors and child internalizing problems would vary as a function of attachment security. For instance, it may be that an insecure attachment relationship makes discrete parenting behaviors more salient in the development of internalizing problems. Conversely, children enjoying the circumstance of a secure attachment relationship with their mothers may be more impervious to fluctuations in maternal parenting behaviors. Along these lines, it has been maintained that there may be some level or threshold of “good enough parenting” (i.e., amount of harshness exhibited) which encompasses a range of expressions of adequate child rearing above which differences are not quite as important (Scarr, 1992).

Although both mediator and moderator models are plausible, it is also possible that harshness may have direct effects on the development of later internalizing problems. For instance, maternal harshness may directly undermine the child’s self-confidence (i.e., the child engages in egocentric interpretation of the mother’s harshness) as opposed to having an impact via the attachment relationship (i.e., harshness from the caregiver leads to insecurity in the mother-child relationship which, in turn, leads to child self-doubt; Bretherton & Munholland, 1999). The distinction between direct effects of maternal harshness and the effects of harshness as potentially mediated or moderated by the attachment relationship rests in the contrast between the immediate feedback received by the child and the pattern of interaction inherent in the history of the attachment relationship. More specifically, it is conceivable that a mother who shares a secure attachment relationship with her child through a history of sensitive parenting may demonstrate transient harshness toward the child under certain circumstances.

For example, parenting during the “terrible” twos and threes can be very challenging to parents. Mothers may experience increased irritability because of these demands, or alternatively, the mother’s maturity demands for her child may increase along with the child’s increasing assertion of autonomy during this period; maternal expectations may then increase too quickly and exceed the child’s developmental abilities. During times when the dyad must maneuver particularly difficult transitions, the mother may employ harsh parenting strategies that she had not previously used and presumably would stop using under different developmental circumstances (given an underlying secure attachment with her child).

1.7 MATERNAL HARSHNESS, THE ATTACHMENT RELATIONSHIP AND CHILDREN’S EXTERNALIZING PROBLEMS

Due to the limited literature relating early parenting and relationship factors to internalizing problems during early childhood, expectations of finding associations between maternal harshness, attachment insecurity, and later internalizing symptoms was generally theoretically driven. However, in the case of externalizing problems, previous research supports the prediction of a direct association between early maternal harshness and externalizing problems in first/second grade but would lead one to hypothesize that attachment insecurity would not be expected to show an association with externalizing problems in a community sample. While this investigation was intended to be primarily focused on internalizing problems, externalizing problems were included in all analyses for the sake of completeness.

1.8 NECESSARY CONSIDERATIONS IN INVESTIGATING A RELATIONSHIP BETWEEN HARSHNESS AND BEHAVIOR PROBLEMS

Although parenting behaviors and the parent-child relationship were the focus of the study, several additional factors must be considered, including factors inherent in the child, such as temperament, negative affect, and sex, as well as contextual risk factors such as low socioeconomic status (SES), marital status, and maternal depression that may have an impact through more general adverse family circumstances (Messman & Koot, 2001).

1.8.1 Child temperament and child negative affect

It is widely accepted that the quality of parent-child interactions is not determined by the parent alone; rather the child is an active participant whose dispositional qualities and behavior significantly contribute to interactions and to the parent-child relationship more generally (Bell, 1968; Maccoby & Martin, 1983; Parke & Buriel, 1998). Parenting behavior has been shown to be correlated with child characteristics such as temperament and negative affect (Dix, 1991; Eisenberg & Fabes, 1994; Lee & Bates, 1985). Difficult temperament (i.e., fussiness, irritability, low soothability) is, in fact, a modest risk factor for the development of behavior problems. With respect to mother-child attachment, however, security is generally not predicted by temperament, although the issue is controversial (Cassidy & Berlin, 1994). Temperamental characteristics may relate to attachment behaviors such as crying at separation but do not tend to relate to attachment classifications or to crying at reunion. Others have found that early infant difficult temperament predicted insecure attachment but only when moderated by

maternal sensitivity (Sussman-Stillman, Kalkoske, Egeland, & Waldman, 1996). Because of the likelihood that child temperament affects both parenting behaviors and child behavior problems, temperament was included as a potential covariate in the current study.

Additionally, because temperament was measured in infancy and because child behavior was expected to interact with maternal behavior, a measure of child negative affect observed within the same situations during which maternal harshness was assessed was also included in an effort to consider more proximal child effects and allow for the investigation of interactional processes. At least one recent study (Pauli-Pott et al., 2007) has demonstrated that child negative emotionality may be important in understanding the relation between mother-child attachment quality and later child behavior problems. In their investigation of these issues spanning infancy through late toddlerhood in a normative sample of 64 children in Germany, Pauli-Pott and colleagues (2007) reported finding that while child negative emotionality was not directly related to child behavior problems, it interacted with attachment quality such that there was a stronger association between attachment disorganization and behavior problems in infants high in negative emotionality. In the present study, child negative affect, assessed in two situations at both two and three years of age, was examined to determine whether it predicted child outcomes either directly or in conjunction with maternal harshness or attachment insecurity.

1.8.2 Child sex

Child sex is another factor specific to the child that could potentially influence associations between harshness and internalizing problems. To begin with, although prevalence rates of

behavior problems between boys and girls generally do not differ during the infancy and toddlerhood periods (Keenan & Shaw, 1997), beginning around age four, differences in these rates are sometimes documented. These changes, however, appear to be specific to externalizing behaviors. With respect to internalizing problems, girls and boys experience a similar rate of disorder throughout childhood up until the transition into adolescence (Keenan & Shaw, 1997; Offord, Boyle, & Racine, 1989).

Beyond differences in prevalence rates of behavior problems, sex differences in associations between behavior problems and parenting behavior have also been noted. The authors of one meta-analysis of parental caregiving and child externalizing behaviors concluded that, in nonclinical samples of preadolescents, caregiving-externalizing associations were stronger for boys than for girls (Rothbaum & Weisz, 1994). Similarly, Lewis and colleagues (1984) found no associations between insecure attachment and psychopathology for girls but did detect a relation between insecurity and later psychopathology for boys. In contrast, several investigators examining the relationship between harshness and behavior problems have found that girls seem to have more consistent patterns of association than boys (Conger, Conger, & Scaramella, 1997; Javo, Rønning, Heyerdahl, & Rudmin, 2004). Because of these divergent findings, the current study tested whether patterns of association differ as a function of sex by exploring these associations separately for girls and boys.

1.8.3 Maternal depression

Yet another consideration in attempting to understand associations among maternal harshness, mother-child attachment security, and child behavior problems is the potential influence of

maternal depression. Maternal depression is thought to be a risk factor for general child maladjustment as well as a predictor of later psychopathology in children and probably represents both genetic/ biological and environmental risks for children (Campbell, Cohn, & Meyers, 1995; DeMulder & Radke-Yarrow, 1991; Teti & Gelfand, 1991). Maternal depression has also been associated with both negative parenting behavior in mothers (Campbell et al., 1995; Cohn, Matias, Tronick, Connell & Lyons-Ruth, 1986; Field, 1992) and insecure attachment relationships in children (Radke-Yarrow, Cummings, Kuczynski & Chapman, 1985); however, in the absence of multiple risk factors these associations are not always found (e.g., Cohn & Campbell, 1992). In the current study, in an effort to avoid possible confounds, maternal depression was included as a potential covariate.

1.9 RATIONALE

This study investigated associations between harsh parenting, mother-child attachment security and child negative affect assessed in toddlerhood/preschool, and children's internalizing and externalizing symptoms as they reached school age, controlling for initial levels of such symptoms as necessary. Toddlerhood is an important developmental period when children increasingly assert their autonomy and begin to assume more responsibility in regulating their emotions and behavior. By late toddlerhood, as children's cognitive abilities grow in sophistication, their internal working models of the self are potentially more susceptible to direct feedback from caregivers. Feedback that is negative in tone and harsh in style would be expected to create internal working models of the self as unlovable and flawed and may contribute to the development of cognitive biases and hamper the development of adequate

self-regulatory skills. Consequently, deficits in regulatory skills and negative views of the self may predispose a child to the development of internalizing problems such as feelings of depression or anxiety.

Selection of the late toddlerhood time-period is also particularly well-suited to inform issues related to the prediction of attachment security. While there is a considerable amount of research available regarding antecedents of attachment security in infancy, far less is known about associations between maternal style and attachment post-infancy since methods for assessing patterns of attachment behavior have only recently moved beyond the 12- to 18-month range of the Ainsworth system (Stevenson-Hinde & Shouldice, 1995).

Internalizing symptoms, however, may not be reliably expressed and/or may be difficult to detect during earliest childhood. In this investigation, children's internalizing and externalizing symptoms were assessed as the children reached school age (Grades 1 and 2). Several factors motivated the selection of this time of assessment. First, internalizing problems were expected to be more observable because of children's improved ability to express their internal states by school age as opposed to during the toddler/preschool years. Second, behavior problems may be more evident due to the potentially stressful impact of the transition to school as children adjust to increased structure and expectations for behavior and encounter an environment where they are open to evaluation by teachers and peers. Finally, there is evidence with respect to parenting-externalizing associations that a critical shift takes place in the 5- to 6-year age range whereby the relationship between parenting and externalizing problems becomes stronger than in studies of younger children (Rothbaum & Weisz, 1994).

To create a more objective and representative indicator of maternal harshness, parenting was assessed observationally rather than by mother-report, and was measured in two different

mother-child interactions (a shared snack and a semi-structured play interaction) at two time points (2 and 3 years). Neither of these mother-child interactions was specifically intended to elicit harshness. The shared snack was a relaxed, naturalistic situation, but the informality likely helped to draw attention away from the videotaping taking place. The semi-structured play interaction, in contrast, did impose modest demands on mothers, but mothers were more likely to be aware of being videotaped in this setting. Given the low frequency and potential clinical relevance of rejecting behavior during a videotaped research session, it was expected that maternal behavior demonstrating harshness under these circumstances would be particularly telling with respect to the nature of the mother-child relationship.

1.10 GOALS OF THE STUDY

First, this study examined the relation between observed maternal harshness and attachment insecurity during the toddler/preschool years. Second, harshness and attachment insecurity in conjunction with child negative affect were tested as potential predictors of child behavior problems as children entered school. More specifically, both early maternal harshness and early child-mother attachment insecurity were assessed to determine whether they predicted child behavior problems in early grade school over and above child negative affect or through interaction with child negative affect. Also, because observed maternal harshness may be directly related to later internalizing symptoms, or any association with internalizing may be either mediated or moderated by child-mother attachment security, both mediator and

moderator models were tested. Finally, associations between early parenting, child negative affect, and later behavior problems were examined to determine whether patterns of results differed as a function of child sex.

Two additional qualifications were designed to clarify any associations between early parenting, the parent-child relationship, early child negative affect and the development of later behavior problems. The first dealt with the fact that early behavior problems (in the preschool and kindergarten years) tend to predict similar problems in later childhood (Kovacs & Devlin, 1998; Zahn-Waxler et al., 2000). To take these autoregressive effects into account, the current study tested whether harshness and attachment insecurity in toddlerhood predicted internalizing and externalizing symptoms in first/second grade after statistically controlling for early internalizing and externalizing problems. Likewise, since parenting style shows a moderate degree of stability over time (Dunn, Plomin, & Nettles, 1985; McNally, Eisenberg, & Harris, 1991), associations between earlier parenting and later behavior problems could potentially be explained by concurrent (i.e., later) parenting; therefore, analyses were conducted to establish whether early harshness and attachment insecurity predicted child internalizing and externalizing symptoms after controlling for concurrent later maternal harshness.

In summary, the study addressed three issues:

Aim 1: Concurrent and predictive relations between maternal harshness and attachment insecurity at ages 2/3 years

Aim 2: Associations among early maternal harshness, mother-child attachment insecurity, and child negative affect, and later child behavior problems in first/second grade

- a) relations among maternal harshness, child negative affect, and child behavior problems
- b) relations among attachment insecurity, child negative affect, and child behavior problems
- c) models of attachment insecurity as a mediator or moderator of associations between maternal harshness and child behavior problems

Aim 3: Differences in associations among the early parenting, attachment, and child variables and later child behavior problems as a function of child sex

1.11 HYPOTHESES

1. Observed maternal harshness assessed at 2 and 3 years will be associated with lower ratings of attachment security at 3 years.
2. Both observed maternal harshness and child-mother attachment insecurity will directly predict later behavior problems.
 - a. Observed maternal harshness in early childhood will predict children's internalizing and externalizing symptoms in first/second grade either alone or in interaction with child negative affect.
 - b. Child-mother attachment insecurity at 3 years will predict internalizing symptoms but not externalizing symptoms in first/second grade either alone or in interaction with child negative affect.

- c. Child-mother attachment insecurity will either mediate or moderate the association between observed maternal behavior and later internalizing problems.

Due to the mixed findings in the literature regarding sex differences in relations among parenting, attachment, and behavior problems, no hypothesis is offered. Analysis of sex differences was exploratory in nature. Finally, it must be reiterated that the primary focus is on the investigation of internalizing symptoms; however, for completeness both internalizing and externalizing symptoms were examined in all analyses.

2.0 METHOD

2.1 PARTICIPANTS

Participants consisted of a subset of families from the Pittsburgh site of the on-going, multi-site study of child development, the NICHD Study of Early Child Care (SECC). Recruitment of study families involved hospital visits to women giving birth during selected 24-hour sampling periods in 1991. A conditional-random sampling plan was then employed to select a subset of eligible families reflecting the economic, educational, and ethnic diversity of the catchment area at each site. Families were ineligible if infants were unhealthy or if mothers were under 18 years of age or did not speak English.

All mothers from the Pittsburgh site ($N = 122$) who participated in a mother-child interaction in the laboratory at child age 2 and/or 3 years and for whose children teacher-reports of behavior problems in first/second grade were available were included in the current study. Some data, however, were missing at each age for each measure. Overall, 111 mothers contributed complete data at the three assessments. Mothers with incomplete data did not differ significantly from mothers who completed all assessments in terms of age ($M = 27.86$ versus 29.45), years of education ($M = 14.36$ versus 14.68), or income ($M = 4.02$ versus 3.64; all $ps > .20$).

The sample was comprised of 58 boys and 53 girls. The racial composition was 73.0% Caucasian, 23.4% African American, and 3.6% other. Mothers ranged in age from 18 to 43 with a mean age of 29.45 ($SD = 5.48$). Overall, mothers were well-educated, having spent an average of 14.68 years in school ($SD = 2.20$); however, a range of schooling (10 – 21 years) was represented. With respect to income, 30.8% of the sample was below the poverty level as determined by an income-to-needs ratio. The majority of families were intact, with 72.3% stably married throughout the duration of the study. Another 17.8% had divorced at least once before the child was in first grade, and 9.9% were never married.

2.2 PROCEDURE

Mother-child dyads visited the laboratory when the children were 2, 3, and 6 years of age for a series of activities and assessments as part of a larger protocol. Relevant to the current study, each dyad participated in three interactions: a shared snack (2 and 3 years), a semi-structured play interaction (at each age), and a modified Strange Situation (3 years only). Teachers completed questionnaires when the children were in first and second grade to assess internalizing and externalizing symptoms. Basic demographic information was obtained at an initial home visit when the children were one month old and updated at subsequent contacts.

2.3 MEASURES

2.3.1 Demographics

Based on maternal interview data collected at each visit, an income-to-needs ratio was computed by dividing total family income by the appropriate poverty threshold for each household size. Family income was represented by the average of these ratios over the seven years of the study. Maternal education was operationally defined as the number of years of schooling at the time of recruitment. Based on mother-report throughout the study, marital status was defined categorically with mothers who were continuously married or partnered by the same partner for the duration of the study coded as 1, and mothers who were divorced, only intermittently partnered, or were never married coded as 0.

2.3.2 Maternal harshness

2.3.2.1 Snack During their visits to the lab at 2 and 3 years, each dyad engaged in a 10-minute snack situation which was videotaped through a one-way mirror. Mother and child dyads were left alone together in a room with an adult-size chair, a child-size chair, and a table upon which a tray was set containing cheese, crackers, Cheerios, and juice, along with cups, napkins and wipes. Mothers were told that they could share the snack with their child and that the experimenter would be back shortly.

The 10-minute snack situation was coded in three segments of three, three, and four minutes, respectively. Maternal harshness was defined as any display of physical reprimand, criticism, shaming, annoyance, punitiveness, or negative tone of voice, and the rating scale was designed to be sensitive to even minor expressions of negativity toward the child. For each segment, harshness was rated in terms of frequency and intensity on a 5-point scale where 1 represented a complete absence of harshness; 2 was coded for any single minor display of harshness; 3 was coded for more than one minor display of harshness or one instance of mild physical harshness (e.g., pulls or grabs the child's hand away from something); 4 was coded for displays of harshness on three occasions, for more than one instance of minor physical harshness or for any expression of threat; and 5 was assigned to mothers who displayed a high level of harshness either through consistent low-level negativity/harshness, intermittent moderate harshness or by one or more instances of notably intense harshness (e.g., exaggerated shaming, criticizing or denigrating or any physical harm). Despite the sensitivity of the coding system, maternal harsh behaviors occurred with relatively low frequency so the scale was collapsed to 3-point ratings (1 = *no harshness*, 2 = *one minor display of harshness*, 3 = *more than one minor display or any major displays of harshness*).

All snack interactions were double-coded from videotapes by two independent coders. One coder was blind to the identity of all the dyads while a second coder was familiar with the children or the mothers in some cases but did not administer the procedures. Interrater reliability was high at both time points, with coders in exact agreement 92% of the time at 2 years and 93% of the time at 3 years. Kappas were .82 and .78 for the 2- and 3-year data, respectively. All discrepancies were reviewed and resolved by the two coders.

2.3.2.2 Semistructured play Mother and child were videotaped at both 2 and 3 years and in first grade during a 15-minute semistructured interaction during which mothers were asked to present their children with each of three boxes containing age-appropriate toys. Mothers were instructed to have their children play with the toys from each of the three containers in a specified order. At 2 years the three boxes contained a storybook, a toy stove and related objects, and a toy house (in that order). At 3 years the boxes held stencils, paper and markers; dress-up clothes and a cash register; and Duplo blocks with a pictured model that could be copied. Finally, at first grade the three interaction tasks consisted of an Etch-a-Sketch to be operated jointly by the child and mother to draw a picture of a house and tree, a pattern block activity involving the child's use of colored shapes to fill in three geometric cutout frames, and a card game 'One-up; One-down' which entails the mother and child taking turns placing cards face up on a pile and slapping the pile when the card turned up is exactly one less or one greater than the previous card.

Videotapes were coded at a central non-data collection site and scored by teams of coders who were blind to other mother and child measures. Maternal negative, hostile behavior was rated on a scale ranging from *not at all characteristic* to *highly characteristic* of the interaction, encompassing both qualitative and quantitative evaluations. At 2 years, maternal negative regard reflected in such behaviors as disapproval, criticism, sarcasm, facial or body tension, negative voice, roughness, or harsh punishment was rated on a 4-point scale. At 3 years and at first grade, a 7-point scale was used to code maternal hostility displayed as the mother's expressions of anger and her discounting or rejecting behavior toward her child (ratings of 1-7 represented *very low, low, moderately low, moderate, moderately high, high,*

and *very high* levels of hostility, respectively). Changes in the ratings employed at the two ages were intended to be conceptually consistent while reflecting developmental change.

Intercoder reliability for the entire NICHD SECC sample was assessed by double-coding a randomly selected subsample (20%) of the tapes. Correlations between raters for the 2-, 3-, and 6-year data were .61, .70, and .78, respectively. As during the snack interaction, maternal harshness (negative regard/hostility) was a low-frequency occurrence during the 3-boxes interaction. Therefore, ratings were collapsed to 3-point scales where a score of 1 (*no harshness*) was assigned to all original scores of 1 from either the 4- or 7-point scale, a score of 2 was assigned to all scores over 1 up to one standard deviation above the mean (1.32, 1.50, and 1.76 for the 2-, 3-, and 6-year data, respectively), and a score of 3 was assigned to all scores one standard deviation above the mean or greater.

2.3.3 Attachment

At 3 years mothers and children also participated in a modified Strange Situation (based on Cassidy, Marvin, & the MacArthur Working Group on Attachment, 1992) during their laboratory visits. During this procedure, mother and child were videotaped in a playroom containing a basket of toys, a chair for the mother and beanbag chair for the child, and a schoolhouse with small plastic figures. After an initial 3 minutes of unstructured interaction, the mother was signaled to leave for 3 minutes, returned for a 3-minute reunion, left for a second separation lasting 5 minutes, and re-entered the playroom for a final 3-minute reunion. In cases where the child was distressed during either of the two separations, the mother

returned to the room early. Videotapes were rated at a central site by a team of three coders trained to reliability by Dr. Jude Cassidy. Coders were blind to other mother and child measures.

The child's behavior during the procedure was classified according to the system developed by the MacArthur Working Group on Attachment (Cassidy et al., 1992) which closely resembles the Ainsworth system while taking into account developmental change to make it more fitting for preschool-age children. According to this system, children are classified as secure (B) or insecure (A, C, and D); however, the quality of attachment security was also coded as a continuous variable on a scale of 1 - 9 where 1 was coded for children who were deemed *definitely insecure* and 9 was coded for those judged as *definitely secure*. With respect to the complete sample from the NICHD Study of Early Child Care, the intraclass correlation for the 9-point scale was .81.

2.3.4 Behavior problems

Child internalizing and externalizing problems were assessed by teacher-report with *Teacher Report Form* (TRF; Achenbach 1991) in first and second grades. Additionally, mothers reported on early child internalizing and externalizing symptoms on the 99-item *Child Behavior Checklist-2/3* (CBCL; Achenbach, 1992) when children were 2 and 3 years of age. The CBCL and TRF are well-established questionnaire measures with robust psychometric properties. The CBCL was chosen based on empirical precedent. Teacher-report was selected because it has

been argued that mother-reports run the risk of demonstrating bias and some evidence suggests that teacher data may better predict long-term outcomes (Bank, Duncan, Patterson, & Reid, 1993).

Both the CBCL and TRF provide scores for an internalizing scale (composed of items assessing somatic, withdrawn, and anxious/depressed behaviors) and an externalizing scale (encompassing aggressive and delinquent behaviors) based on responses indicating the degree to which each behavior is characteristic of the child (0 = *not true*, 1 = *sometimes true*, 2 = *very true*). The CBCL yields both raw scores and T scores based on normative percentiles. For statistical analyses, use of raw scores is generally recommended; however, due to norming based on separate samples for boys and girls, use of T scores is advised with samples including both sexes (Achenbach et al., 1987). Therefore, in the current study T scores were used in all analyses with the exception of those analyses where boys and girls were considered separately, in which cases raw scores were employed.

2.3.5 Child temperament

Child temperament was measured with a modified version of the *Infant Temperament Questionnaire* (ITQ; Carey & McDevitt, 1978) at 6 months. Mothers responded to 43 items (abridged from the 95-item ICQ) related to the dimensions of activity, approach, adaptability, intensity, and mood, rating items on a scale of 1-6 from *almost never* to *almost always* where higher scores reflect a more “difficult” temperament. This questionnaire showed a high degree of internal consistency with Cronbach’s alpha equal to .81.

2.3.6 Child negative affect

Child displays of negative affect were rated from observations of the child in the same interactions (snack, semistructured play) during which ratings of maternal harshness were obtained.

2.3.6.1 Snack Again, the 10-minute snack situation, as described above, was coded in three segments of three, three, and four minutes, respectively. Child negative affect was defined as any display of negative affect, including anger, distress, or sadness as evidenced by such behaviors as frowning, crying, whining, complaining, yelling, or tantruming, and the rating scale was designed to be sensitive to even minor expressions of negative affect by the child. For each segment, child negative affect was rated in terms of frequency and intensity on a 5-point scale where 1 represented a complete absence of negative affect; 2 was coded for any single minor display of negative affect; 3 was coded for more than one minor display of negative affect or one instance of more exaggerated negative affect; 4 was coded for displays of negative affect on three occasions or for an extended display of more exaggerated negative affect, such as prolonged crying; and 5 was assigned to children who displayed a high level of negative affect either through consistent low-level negative affect, intermittent moderate negative affect or by one or more instances of notably intense negative affect (e.g., screaming, throwing, or kicking in anger).

Despite the sensitivity of the coding system, displays of child negative affect occurred with relatively low frequency so the scale was collapsed to 3-point ratings (1 = *no negative affect*, 2 = *one or two displays of minor to moderate negative affect*, 3 = *more than two minor*

to moderate displays or any one major display of negative affect by the child). Interrater reliability was adequate at both time points, with coders in exact agreement 85% of the time at 2 years and 93% of the time at 3 years. Kappas were .82 and .78 for the 2- and 3-year data, respectively. All discrepancies were reviewed and resolved by the two coders.

2.3.6.2 Semistructured play Child negativity was also coded during the three-boxes task described above. Videotapes of the interactions were scored by teams of coders who were blind to other mother and child measures. At 2 years, child's negative mood was rated on a 4-point scale ranging from *not at all characteristic* to *highly characteristic* of the interaction, encompassing both qualitative and quantitative evaluations. At 3 years a 7-point scale was used to code negativity of the child (ratings of 1-7 represented *very low, low, moderately low, moderate, moderately high, high, and very high levels of negativity*, respectively). Changes in the ratings employed at the two ages were intended to be conceptually consistent while reflecting developmental change. Intercoder reliability was assessed by double-coding a randomly selected subsample (20%) of the tapes for the entire NICHD SECC sample. Intercoder agreement was .79 at 2 years and .74 at 3 years. Similar to the snack setting, child negative affect occurred with low frequency in this context and both the 4- and 7-point scales were collapsed to a 3-point scale with a score of 1 (*no negative affect*) assigned to an original score of 1, a score of 2 assigned to ratings over 1 up to one standard deviation above the mean (1.41 and 1.65, at 2 and 3 years, respectively), and 3 assigned to ratings one standard deviation above the mean or greater.

2.3.7 Maternal depression

Maternal depression was assessed by maternal report of symptoms at 1, 6, 15, 24, 36, 54, and 72 months with the *Center for Epidemiological Studies Depression Scale* (CES-D, Radloff, 1977). Depression scores were moderately correlated over time (r s ranging from .39 to .57, all p s < .001); therefore, the mean of the seven scores was used. Cronbach alphas were high at each assessment, indicating good internal consistency for this measure (range = .88 to .91).

2.4 DATA REDUCTION

Maternal harshness was moderately to highly correlated across time segments at both 2 and 3 years (r s ranging from .50 to .75, all p s < .001). A repeated measures ANOVA was performed to determine whether the average scores for maternal harshness changed across the three time segments of the snack situation at each time point. At 2 years, the change over time was marginally significant ($F(2, 105) = 2.93, p = .06$), and at 3 years it was not statistically significant ($F(2, 96) = 2.17, p = .12$). At 2 years, mothers showed an increase in observed harshness over the course of the snack (means of 1.23, 1.32, and 1.37 for the three segments). Since the change was slight and in the direction one might predict, increasing with the duration of the snack, scores were averaged across the three coding segments at each time point.

Scores for child negative affect were also correlated across time segments at each age (r s ranging from .35 to .63, all p s < .001), and repeated measures ANOVAs showed that child displays of negative affect differed across time at 2 years ($F(2, 105) = 3.44, p = .04$) but not at 3 years ($F(2, 96) = .52, p = .60$). More specifically, children's scores were lower during the

middle segment of the interaction at age 2 (means of 1.31, 1.24, and 1.40 for the first, second and third segment, respectively). Again, since changes over the course of the snack were minor and could be explained by the child's initial transition into the new situation and/or their ability to manage the duration of the snack, scores were averaged across the three coding segments at both ages.

The relation between harshness scores during the snack and the semi-structured play was also examined. Because of moderate to high correlations (r s ranging from .43 to .65, all p s < .001), a composite harshness variable was created averaging harshness during snack and negative regard and hostility during play across the 2- to 3-year period ($\alpha = .78$). A composite child negative affect variable was created in the same manner (r s ranging from .28 to .52, all p s < .005; $\alpha = .74$). Finally, TRF scores from first and second grade which were also moderately to highly correlated (internalizing $r = .33$, externalizing $r = .68$) were combined to form a mean Grade 1/Grade 2 composite in an effort to help reduce subject loss and create a more robust measure.

3.0 RESULTS

Results are presented in four sections: Descriptive Statistics, Covariate Analyses, Hypothesis Testing, and Exploratory Analyses. In the Hypothesis Testing section, results are presented to address the first two aims of the study: 1) the relation between maternal harshness and attachment insecurity, 2a) associations between early maternal harshness and child negative affect and first/second grade behavior problems, 2b) associations between early attachment insecurity and child negative affect and later behavior problems, and 2c) the possibility that attachment insecurity either mediates or moderates associations between early maternal harshness and grade school behavior problems. For these and subsequent analyses both internalizing and externalizing symptoms are examined. To address the third aim, Exploratory Analyses investigate the question of sex differences by examining whether associations among variables for those questions described above with respect to the sample as a whole look the same for boys and girls when investigated separately. For all variables, skewness and kurtosis were within acceptable limits (Field, 2000), and cases of extreme outliers ($n = 3$) were replaced by scores of two standard deviations above the mean.

3.1 DESCRIPTIVE STATISTICS

Means and standard deviations for all major study variables are presented in Table 1. Bivariate correlations among these same independent and dependent variables can be found in Table 2.

Table 1. *Descriptive Statistics for Major Study Variables*

Variable	<i>N</i>	Mean	<i>SD</i>	Range
Maternal Harshness	111	1.46	.60	1.00 – 3.00
Child Negative Affect	111	1.39	.50	1.00 – 4.00
Attachment Security Rating	99	4.65	1.84	1.00 – 7.50
TRF Internalizing T-Score	110	48.19	7.67	36.00 – 65.00
TRF Externalizing T-Score	110	49.98	8.06	39.00 – 75.00
Maternal Depression	111	10.09	7.67	0 – 33.50
Early CBCL Internalizing T-Score	111	50.70	8.53	33.50 – 73.00
Early CBCL Externalizing T-Score	111	51.88	7.61	33.00 – 73.50
Child Temperament	110	3.13	.39	2.27 – 4.72
Grade 1 Maternal Harshness	108	1.63	.74	1.00 – 3.00

Table 2. *Correlation Matrix*

Variable	2	3	4	5	6	7	8	9	10	11	12	13	14
1) Early Maternal Harshness	.42***	-.24*	.28**	.18 [†]	.32**	.28**	.50***	.35***	.34***	-.46***	-.41***	.31***	-.35***
2) Early Child Negative Affect		-.28**	.05	.18 [†]	.19*	.22*	.15	.29**	.27**	-.23*	-.22*	.01	-.18
3) Attachment Security Rating			-.15	-.24*	-.07	-.01	-.18 [†]	-.23*	-.17	.21*	.22*	-.04	.19 [†]
4) TRF Internalizing T-Score				.34***	.08	.07	.12	.16 [†]	.24*	-.11	-.05	.24*	-.11
5) TRF Externalizing T-Score					.10	.26**	.10	.22*	.39***	-.23*	-.10	.25**	-.17 [†]
6) Child Temperament						.30**	.04	.41***	.32***	-.33***	-.17 [†]	.15	-.23*
7) Mean Maternal Depression							.19*	.43***	.39***	-.26**	-.31**	.36***	-.40***
8) Grade 1 Maternal Harshness								.11	.05	-.27**	-.38***	.21*	-.27**
9) Early Internalizing T-Score									.73***	-.33**	-.36***	.22*	-.33***
10) Early Externalizing T-Score										-.35***	-.14	.24**	-.23*
11) Maternal Age											.44***	-.36***	.44***
12) Maternal Education												-.21*	.64***
13) Marital Status													-.33**
14) Income-to-Needs Ratio													

[†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

When “at-risk” was described as a T-score on teacher-reported behavior problems equal to or greater than 60, 8.2% of children had elevated TRF internalizing scores and 10.0% had elevated TRF externalizing scores. The mean attachment security rating was 4.65 ($SD = 1.84$). A univariate ANOVA demonstrated that security ratings distinguished secure children (B classification: $M = 6.10$, $SD = .77$) from insecure children (A classification: $M = 2.70$, $SD = .45$; C classification: $M = 2.89$, $SD = .99$; D classification: $M = 2.97$, $SD = 1.84$), $F(3, 99) = 98.85$, $p < .001$, lending criterion validity to this measure.

3.2 ANALYSES TO IDENTIFY COVARIATES

3.2.1 Demographic factors

Preliminary bivariate correlations revealed associations between demographic variables and several of the independent variables. As can be seen in Table 2, child negative affect and the attachment security rating were associated with maternal age and maternal education such that older, more educated mothers tended to have children who demonstrated less negative affect and were rated as more securely attached. Maternal harshness was also related to maternal age and education and in addition was associated with the family’s income-to-needs ratio and the mother’s marital status. Mothers who displayed higher levels of harshness were younger, poorer, less educated, and less likely to be married.

Preliminary analyses were also conducted to determine the relation between TRF internalizing and externalizing scores and these same demographic variables. TRF internalizing scores were related only to marital status. Higher levels of internalizing symptoms were

displayed by children whose mothers were unmarried. With respect to TRF externalizing symptoms, higher scores were correlated negatively with maternal age and positively with mother's marital status. Children whose mothers were unmarried and younger were rated higher on externalizing symptoms as perceived by their teachers.

Based on these preliminary analyses, maternal age, maternal education, income-to-needs ratio, and marital status were treated as covariates in all analyses involving maternal harshness. Further, maternal age and maternal education were included as covariates in any analyses involving child negative affect and the ratings of attachment security. With respect to the dependent variables, marital status was treated as a covariate for all analyses that included TRF internalizing and externalizing scores. In addition, when the dependent variable was the TRF measure of child externalizing symptoms, maternal age was also included as a covariate.

3.2.2 Additional covariates

Beyond demographics, several other factors (maternal depression, child temperament, early internalizing and externalizing symptom levels as reported by mothers when children were 2 and 3 years old, and concurrent early grade school maternal harshness) were considered as potential covariates due to their putative association with the development of behavior problems in early childhood as outlined in the study's rationale. Due to limited sample size, however, in an effort to preserve power and avoid Type II errors, these factors were included in hypothesis-testing statistical models only when significantly related to the respective dependent

variables, rather than based solely on theoretical grounds. Therefore, Pearson correlations were computed to determine when to include these factors as covariates and are also presented in Table 2.

Both maternal depression and early CBCL scores were associated with mean Grade 1/Grade 2 TRF externalizing scores; however, neither was related to mean Grade 1/Grade 2 TRF internalizing scores. Neither child temperament nor maternal harshness observed in first grade was related to Grade 1/Grade 2 teacher-reported behavior problems whether internalizing or externalizing. In contrast to its lack of correlation with the teacher-reported dependent variables, child temperament was correlated with other demographic indices (maternal age, income-to-needs ratio) and mother-reported risk factors (maternal depression), making its meaning questionable; therefore, it was not included as a covariate in any analyses. Hence, only maternal depression and early CBCL externalizing scores were included as covariates and then only in analyses in which TRF externalizing scores were the dependent measure.

3.3 HYPOTHESIS TESTING

To assist in the interpretation of any significant interactions in these analyses, following Aiken and West (1991), all single continuous predictor variables (i.e., maternal harshness, child negative affect, and attachment security rating) were centered and interaction terms were formed by multiplying these centered predictors together as needed.

3.3.1 Aim 1: Association between 2/3-year maternal harshness and 3-year attachment security ratings

To address the first aim of the study, a linear regression was conducted to test for an association between maternal harshness and attachment security ratings. A significant relation emerged between observed maternal harshness and observer ratings of 3-year attachment security, $R^2 = .06$, $F(1, 97) = 5.72$, $p = .02$, with mothers who displayed more maternal harshness having children who were rated as less securely attached. When the same regression was conducted with the inclusion of a block of demographic covariates (maternal age, maternal education, income-to-needs ratio, and marital status) entered in Step 1 followed by maternal harshness in Step 2, however, the relation between harshness and ratings of attachment insecurity was no longer significant, demonstrating that these psychosocial factors accounted for the same overlapping variance as the maternal harshness variable, $F(1, 92) = 1.73$, $p = .19$, change in $R^2 = .02$.

3.3.2 Aim 2a: Associations among early maternal harshness, early child negative affect and first/second grade behavior problems

The second aim of the current study was to test for an association between maternal harshness as observed during the toddler/preschool years and teacher-reported behavior problems in early grade school, taking into account child negative affect and its potential interaction with maternal harshness. Looking first at internalizing symptoms, a hierarchical linear regression,

controlling for maternal age, maternal education, income-to-needs ratio, and marital status, was conducted to test for a relationship between early harshness and later TRF internalizing scores. The four covariates were entered into the regression equation in Step 1, followed by child negative affect in Step 2 and early maternal harshness in Step 3. In Step 4 the interaction term between child negative affect and early maternal harshness was entered to determine whether these variables potentiated each other in predicting TRF internalizing scores.

Table 3 displays the R^2 , change in R^2 , overall F , df , and significance of the F change for each step in the model. Neither the inclusion of the covariates in Step 1, nor the addition of child negative affect in Step 2 resulted in a significant increase in R^2 . The addition of maternal harshness in Step 3, however, accounted for a significant 6% of the variance in TRF internalizing scores, $F(1, 102) = 2.29, p = .01, R^2 = .13$. Finally, the interaction between child negative affect and maternal harshness entered in Step 4 did not contribute to the prediction of internalizing symptoms over and above the main effect for maternal harshness.

To examine the relation between early maternal harshness and later externalizing symptoms, a similar hierarchical linear regression was conducted and is summarized in Table 4. Again, the four demographic covariates were entered as a block in Step 1. Two additional covariates, maternal depression and early externalizing symptoms (mean of 2- and 3-year-old CBCL externalizing T-scores), were entered in Steps 2 and 3, respectively. Child negative affect was added to the regression in Step 4, followed by maternal harshness in Step 5 and, finally, the child negative affect \times maternal harshness interaction term in Step 6. The entry of the demographics block and the early CBCL externalizing scores accounted for 9% and 7% of the variance in mean early grade school TRF externalizing scores, respectively. Neither child

Table 3. *Prediction of First/ Second Grade Teacher-Reported Internalizing Symptoms from Observed Early Maternal Harshness*

Step and Independent Variables	R^2	R^2 Change	Overall F	Df	Sig. F Change
1. Demographics	.06	.06	1.59	4, 104	.18
2. Early child negative affect	.06	.00	1.31	1, 103	.64
3. Early maternal harshness	.12	.06	2.29	1, 102	.01
4. Early harshness x early child negative affect interaction term	.13	.01	2.17	1, 101	.24

Notes. Demographics refer to the variables Maternal Age, Maternal Education, Income-to-Needs Ratio, and Marital Status entered together as one block. All early scores refer to the mean of 2- and 3-year scores.

Table 4. *Prediction of First/Second Grade Teacher-Reported Externalizing Symptoms from Observed Early Maternal Harshness*

Step and Independent Variables	R^2	R^2 Change	Overall F	df	Sig. F Change
1. Demographics	.09	.09	2.53	4, 104	.04
2. Mean maternal depression	.11	.02	2.64	1, 103	.09
3. Early CBCL externalizing t-score	.18	.07	3.81	1, 102	.004
4. Early child negative affect	.19	.01	3.35	1, 101	.42
5. Early maternal harshness	.19	.00	2.92	1, 100	.73
6. Early harshness x early child negative affect interaction term	.23	.04	3.22	1, 99	.03

Notes. Demographics refer to the variables Maternal Age, Maternal Education, Income-to-Needs Ratio, and Marital Status entered together as one block. All early scores refer to the mean of 2- and 3-year scores.

negative affect nor early maternal harshness was related to TRF scores; however, the interaction between them was a significant predictor of externalizing scores, $F(1, 99) = 3.22, p = .03$, accounting for 4% of the variance.

For all significant interactions presented here, probing of the interaction term, including post hoc testing of the simple slopes, was accomplished using the techniques described by Aiken and West (1991). A plot of the child negative affect \times maternal harshness interaction is depicted in Figure 2. For children whose mothers were observed to be relatively less harsh, externalizing symptoms were not notably affected by whether or not the child was rated as lower or higher on displays of early negative affect. However, when mothers were more harsh, children expressing higher levels of negative affect showed significantly higher externalizing scores in early elementary school, $B = 4.68, t(99) = 2.17, p = .03$.

To summarize, maternal harshness observed during the toddler/preschool years was directly related to teacher-rated internalizing symptoms in early grade school. Further, early maternal harshness interacted with child negative affect to predict Grade 1/ Grade 2 externalizing symptoms such that maternal harshness and child negative affect appeared to exacerbate each other, predicting higher levels of externalizing behavior in school as perceived by teachers.

3.3.3 Aim 2b: Associations among 3-year attachment security rating, early child negative affect and first/second grade behavior problems

A parallel aim of the study was to test for an association between ratings of attachment insecurity at age three and behavior problems as reported by teachers when children were in

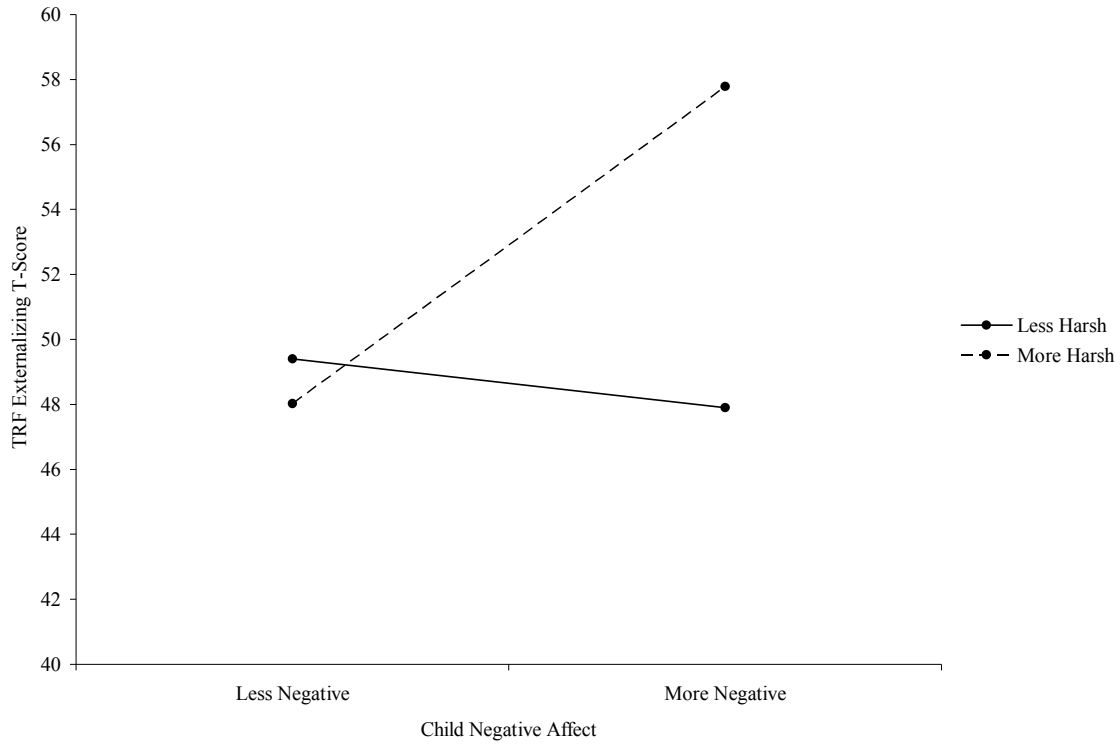


Figure 2. First/second grade TRF externalizing T-scores as a function of maternal harshness and child negative affect.

first and second grade. To determine the relation between attachment insecurity and later internalizing symptoms, a hierarchical linear regression was conducted with the covariates maternal age, maternal education, and marital status entered in Step 1, followed by child negative affect in Step 2, attachment security rating in Step 3, and the interaction between child negative affect and attachment security rating in Step 4. The attachment security rating contributed a nonsignificant 2% of variance in predicting internalizing scores, $F(1, 91) = 1.29$, $p = .18$. Another 2% of the variance in scores was accounted for by the interaction between attachment security rating and child negative affect, but this also was not statistically significant, $F(1, 90) = 1.43$, $p = .14$. In fact, none of the variables entered into the regression model were statistically significant predictors of first/second grade TRF internalizing scores.

A similar hierarchical linear regression was conducted to predict teacher-reported externalizing symptoms from the attachment security rating. Again, covariates were entered first with maternal age, maternal education, and marital status entered together in Step 1, maternal depression entered in Step 2, and early externalizing symptoms (mean of 2- and 3-year-old CBCL externalizing T-scores) entered in Step 3. Child negative affect was added to the regression in Step 4, followed by attachment security rating in Step 5 and, finally, the child negative affect \times attachment security interaction term in Step 6. Only early CBCL externalizing scores significantly predicted first/second grade TRF externalizing scores, contributing an R^2 change of .07. Similar to the results regarding internalizing symptoms, neither the attachment security rating, $F(1, 89) = 3.09$, $p = .07$, change in $R^2 = .03$, nor the interaction between attachment security rating and child negative affect, $F(1, 88) = 2.74$, $p = .68$, were significant predictors of teacher-reported externalizing symptoms in first/second grade.

With respect to Aim 2b then, ratings of attachment insecurity at age three were not significant predictors of either internalizing or externalizing symptoms as reported by teachers when children were in first/second grade.

3.3.4 Aim 2c: Mediator and moderator models

The third aim of this research was to test whether attachment security ratings might mediate the association between maternal harshness and early grade school behavior problems. However, because the correlation between attachment security ratings and either the internalizing or the externalizing scales was not significant, the conditions for testing mediation were not met (Baron & Kenny, 1986).

Because there was a significant relationship between maternal harshness and child attachment security ratings, it was, however, possible to test for a moderator effect. To test a moderator model, a hierarchical linear regression was conducted with the four demographic covariates entered as a block in Step 1, followed by child negative affect in Step 2, attachment security rating in Step 3, and maternal harshness in Step 4. In the final step (Step 5), an attachment security rating \times maternal harshness interaction term was added to determine whether this interaction explained any variance in TRF scores over and above either maternal harshness or the attachment security rating alone.

With respect to TRF internalizing scores, the last two steps of the regression equation resulted in a significant change in the R^2 (see Table 5). Mothers who were observed to be

Table 5. *Test of Attachment Insecurity as a Moderator of Maternal Harshness in Predicting First/Second Grade Teacher-Reported Internalizing Symptoms*

Step and Independent Variables	R^2	R^2 Change	Overall F	df	Sig. F Change
1. Demographics	.06	.06	1.42	4, 93	.23
2. Early child negative affect	.06	.00	1.17	1, 92	.65
3. Attachment security rating	.08	.02	1.29	1, 91	.18
3. Early maternal harshness	.13	.05	1.98	1, 90	.02
4. Early harshness x attachment security rating affect interaction term	.17	.04	2.33	1, 89	.04

Notes. Demographics refer to the variables Maternal Age, Maternal Education, Income-to-Needs Ratio, and Marital Status entered together as one block. All early scores refer to the mean of 2- and 3-year scores.

harsher had children rated by teachers as having more internalizing symptoms. Further, the interaction between harshness and attachment security rating was also significant, $F(1, 89) = 2.33, p = .04$, explaining 4% of the variance and suggesting that child attachment security moderated the relationship between early maternal harshness and internalizing symptoms in school.

As can be seen in Figure 3, probing of this interaction revealed that for those children who experienced higher levels of maternal harshness, internalizing scores were higher regardless of whether the child was relatively more or less securely attached to the mother. In contrast, for those children who experienced less maternal harshness, the presence of a more secure attachment relationship was associated with notably lower TRF internalizing scores, $B = -.77, t(89) = -1.69, p = .05$.

With respect to externalizing problems, a moderator model was not tested because neither maternal harshness nor attachment security rating was directly associated with first grade TRF externalizing scores.

In summary, no support for any statistical mediation of attachment security was found. In contrast, a moderator model was supported but only in the case of internalizing scores. Specifically, attachment security moderated the association between early maternal harshness and later teacher-reported internalizing symptoms such that more security was associated with lower internalizing scores but only in the absence of maternal harshness. This moderating effect was significant even after controlling for demographic risk factors and child negative affect.

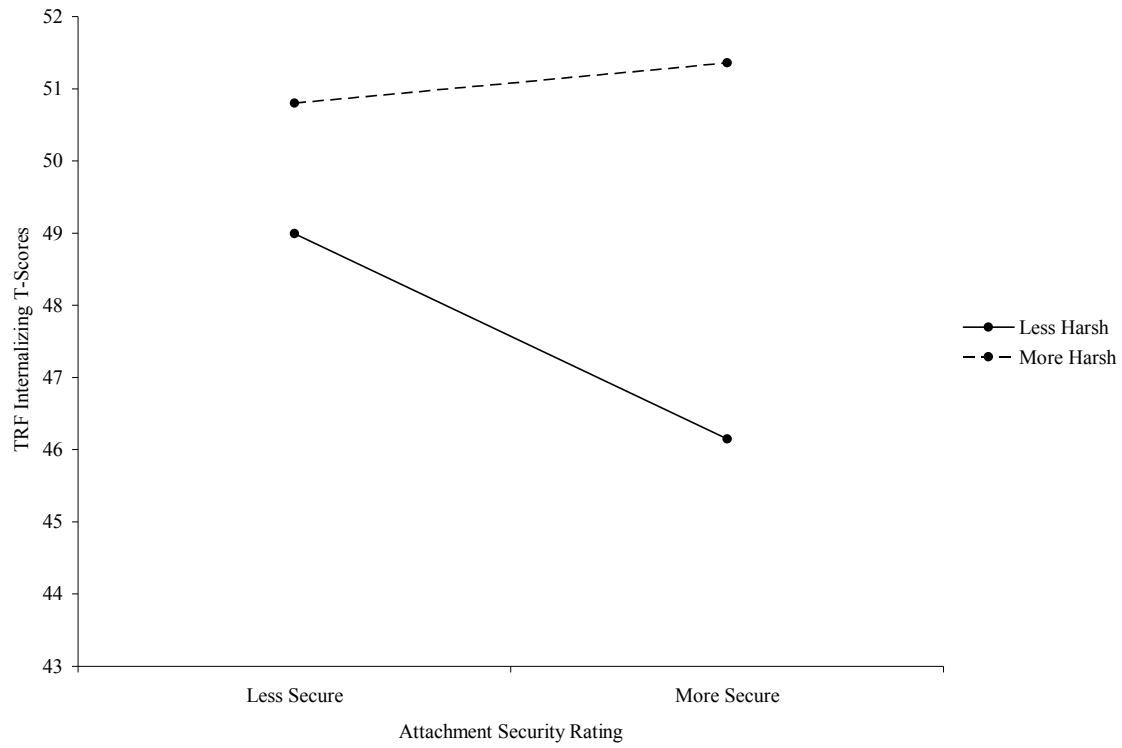


Figure 3. First/second grade TRF internalizing T-scores as a function of maternal harshness and attachment security rating.

3.4 EXPLORATORY ANALYSES

3.4.1 Aim 3: Differences in associations as a function of child sex

Table 6 shows the means and standard deviations of major study variables separately for boys and girls. For all analyses where boys' and girls' were considered independently, TRF raw scores rather than T-scores were used. A series of *t*-tests revealed that there were no statistically significant group differences between the means of boys versus girls for any of the study variables. In terms of elevated scores, TRF internalizing T-scores were 60 or higher for 6.9% of the boys compared to 9.6% of the girls. In contrast, on the externalizing scale, 13.8% of boys had elevated scores while only 5.8% of girls did. With respect to attachment security, 60.8% of boys and 66.6% of girls were classified as secure. Chi square analyses showed none of these group differences to be statistically significant.

3.4.1.1 Maternal harshness: Patterns for girls and boys To investigate whether associations among maternal harshness, child negative affect, and TRF internalizing scores showed different patterns for girls and boys, the data file was split by sex, and a hierarchical linear regression was performed with the demographic covariates entered together in Step 1, followed by child negative affect, maternal harshness, and a child negative affect by harshness interaction term in Steps 2, 3, and 4, respectively. Table 7 presents the R^2 , change in R^2 , overall

Table 6. *Descriptive Statistics for Girls and Boys*

Variable	<i>N</i>	Boys			<i>n</i>	Girls		
		Mean	<i>SD</i>	Range		Mean	<i>SD</i>	Range
Maternal Harshness	58	1.39	.54	1.00-3.00	53	1.54	.66	1.00-3.00
Child Negative Affect	58	1.39	.53	1.00-4.04	53	1.39	.46	1.00-2.25
Attachment Security Rating	51	4.61	1.85	1.00-7.50	48	4.69	1.85	1.00-7.50
TRF Internalizing Score	58	4.21	3.94	0-21.00	53	4.88	4.29	0-19.00
TRF Externalizing Score	58	6.34	5.93	0-24.50	53	4.41	5.68	0-36.00
Maternal Depression	58	9.47	7.14	0-30.75	53	10.77	8.22	.50-33.50
Early CBCL Externalizing Scores	58	14.46	6.25	2.00-31.00	53	13.65	6.57	1.00-34.00

Table 7. *Regressions: Prediction of First/Second Grade Teacher-Reported Internalizing Total Scores for Girls and Boys*

Step and Independent Variables	R^2	Boys				Girls				
		R^2 Change	Overall F	df	Sig. F Change	R^2	R^2 Change	Overall F	df	Sig. F Change
1. Demographics	.06	.06	.84	4, 52	.51	.10	.10	1.29	4, 48	.29
2. Early child negative affect	.06	.00	.66	1, 51	.89	.10	.00	1.07	1, 47	.61
3. Early maternal harshness	.10	.03	.88	1, 50	.17	.26	.16	2.76	1, 46	.003
4. Early harshness x early child negative affect interaction term	.17	.08	1.45	1, 49	.04	.28	.02	2.56	1, 45	.26

Notes. Demographics refer to the variables Maternal Age, Maternal Education, Income-to-Needs Ratio, and Marital Status entered together as one block. All early scores refer to the mean of 2- and 3-year scores.

F , df , and significance of the F change for each step in the model. Maternal harshness was a significant predictor of Grade 1/ Grade 2 internalizing scores, but only for girls, $F(1, 46) = 2.76, p = .003$, contributing a 16% increase in the R^2 .

For boys, while there was no main effect for maternal harshness, the interaction between harshness and child negative affect was significant in predicting internalizing symptoms, $F(1, 49) = 1.45, p = .04$, explaining 8% of the variation in TRF scores. Probing of this interaction showed that when mothers were less harsh, it was only those boys who were rated higher on negative affect who had higher internalizing scores. However, for boys experiencing more maternal harshness, internalizing scores were higher regardless of whether or not they had been rated as displaying relatively more negative affect, $B = -3.14, t(49) = -2.12, p = .04$. Figure 4 displays the interaction.

The same question was addressed with respect to externalizing scores with the insertion of early externalizing symptoms (CBCL total scores) as an additional covariate prior to the entry of child negative affect, maternal harshness, and the child negative affect by harshness interaction term. Due to the small n 's created by splitting the overall sample size and because it was not significantly associated with TRF scores in any of the earlier analyses, the covariate maternal depression was not included in the analysis. The results for this regression model are presented in Table 8. Earlier mother-reported externalizing symptoms (ages 2 and 3 years) were the best predictor of Grade 1/Grade 2 externalizing problems for both boys, $F(1, 51) = 3.88, p = .002$, and girls, $F(1, 47) = 3.69, p = .007$, accounting for 15% and 12% of the variance in TRF scores for boys and girls, respectively. In addition, for girls only, the interaction between maternal harshness and child negative affect significantly predicted externalizing scores, $F(1, 44) = 2.96, p = .05$, with an R^2 change of .06.

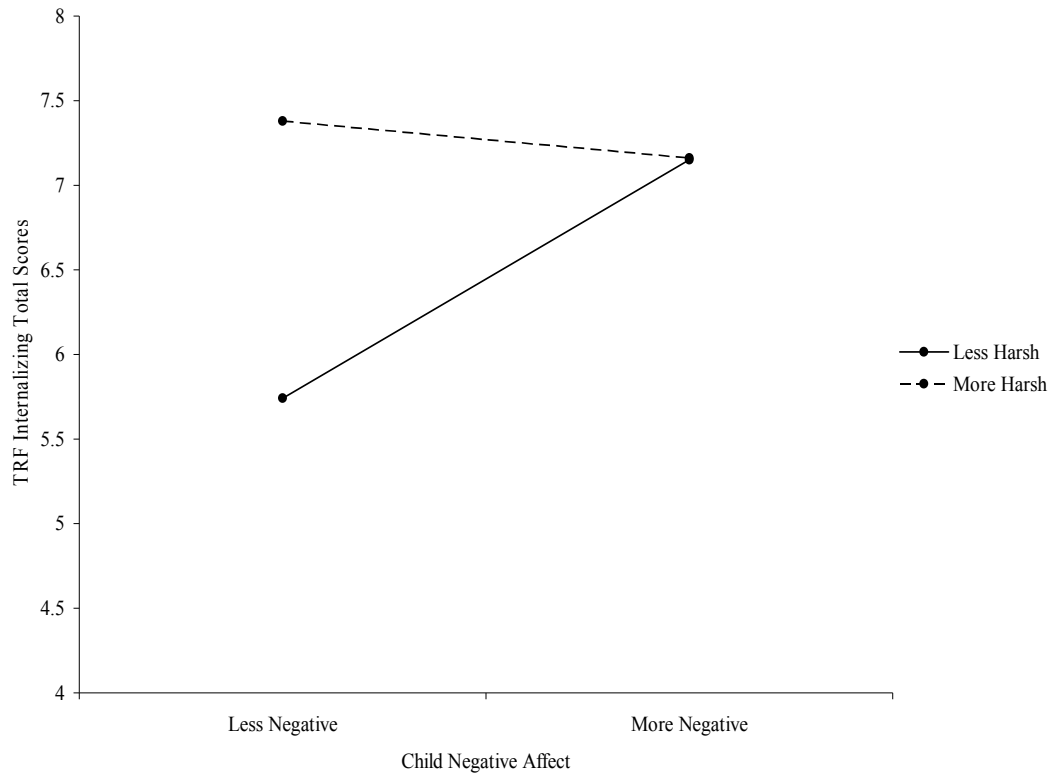


Figure 4. Boys' first/second grade TRF internalizing total scores as a function of maternal harshness and child negative affect.

Table 8. *Regressions: Prediction of First/Second Grade Teacher-Reported Externalizing Total Scores for Girls and Boys*

Step and Independent Variables	R^2	Boys				Girls				
		R^2 Change	Overall F	df	Sig. F Change	R^2	R^2 Change	Overall F	df	Sig. F Change
1. Demographics	.12	.12	1.84	4, 52	.13	.16	.16	2.30	4, 48	.07
2. Early CBCL externalizing t-score	.28	.15	3.88	1, 51	.002	.28	.12	3.69	1, 47	.007
3. Early child negative affect	.28	.00	3.23	1, 50	.61	.28	.00	3.03	1, 46	.74
4. Early maternal harshness	.29	.01	2.79	1, 49	.54	.29	.00	2.60	1, 45	.59
5. Early harshness x early child negative affect interaction term	.29	.00	2.44	1, 48	.62	.35	.06	2.96	1, 44	.05

Notes. Demographics refer to the variables Maternal Age, Maternal Education, Income-to-Needs Ratio, and Marital Status entered together as one block. All early scores refer to the mean of 2- and 3-year scores.

This interaction (see Figure 5) mirrored the results found earlier for the sample as a whole. In this case, girls' negative affect was not related to teacher-rated externalizing problems in the absence of maternal harshness; however, in the presence of harshness, externalizing scores increased dramatically when girls showed more negative affect, $B = 5.27, t(44) = 2.07, p = .04$.

3.4.1.2 Attachment security: Patterns for girls and boys As with maternal harshness, associations between attachment insecurity, child negative affect, and first and second grade behavior problems were examined separately for girls and boys following the same analyses used to investigate the sample as a whole. Table 9 presents the 4-step hierarchical linear regression predicting TRF internalizing scores. One significant result was revealed: for boys there was a significant interaction between negative affect and attachment security rating, $F(1, 42) = 1.21, p = .03$, explaining an additional 11% of variation in internalizing scores on top of a non-significant 6% contribution by the block of demographics.

Probing of this interaction, depicted in Figure 6, showed that teachers viewed boys as displaying more internalizing symptoms when they were at the same time less securely attached to their mothers and showed more negative affect, $B = 6.03, t(44) = 2.08, p = .03$. Boys who were rated as more securely attached to their mothers, however, did not evidence an increase in TRF internalizing scores even when rated higher on negative affect.

In predicting externalizing symptoms from earlier attachment separately by sex, a 5-step regression model was conducted, and similar to results for the sample as a whole, the only significant predictor of TRF scores was earlier CBCL externalizing scores for both boys, $F(1, 44) = 3.35, p = .004$, change in $R^2 = .16$, and girls, $F(1, 42) = 3.30, p = .01$, change in $R^2 = .12$.

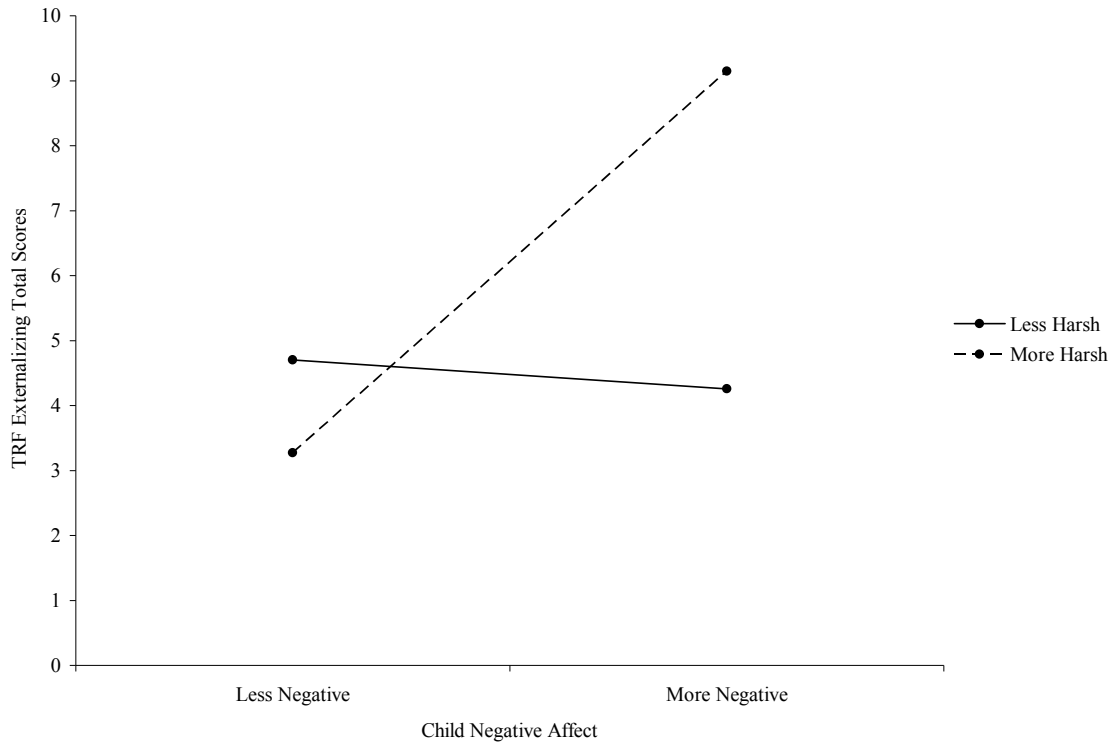


Figure 5. Girls' first/second grade TRF externalizing total scores as a function of maternal harshness and child negative affect.

Table 9. Regressions: *Prediction of First/Second Grade Teacher-Reported Internalizing Total Scores from 3-Year Attachment Security Rating for Girls and Boys*

Step and Independent Variables	Boys					Girls				
	R^2	R^2 Change	Overall F	df	Sig. F Change	R^2	R^2 Change	Overall F	df	Sig. F Change
1. Demographics	.06	.06	.72	4, 45	.58	.10	.10	1.16	4, 43	.34
2. Early child negative affect	.06	.00	.57	1, 44	.90	.10	.00	.96	1, 42	.63
3. Attachment security rating	.06	.00	.47	1, 43	.88	.11	.01	.86	1, 41	.52
4. Early negative affect x attachment security rating interaction term	.17	.11	1.21	1, 42	.03	.12	.01	.81	1, 40	.44

Notes. Demographics refer to the variables Maternal Age, Maternal Education, Income to Needs Ratio, and Marital Status entered together as one block. All early scores refer to the mean of 2- and 3-year scores.

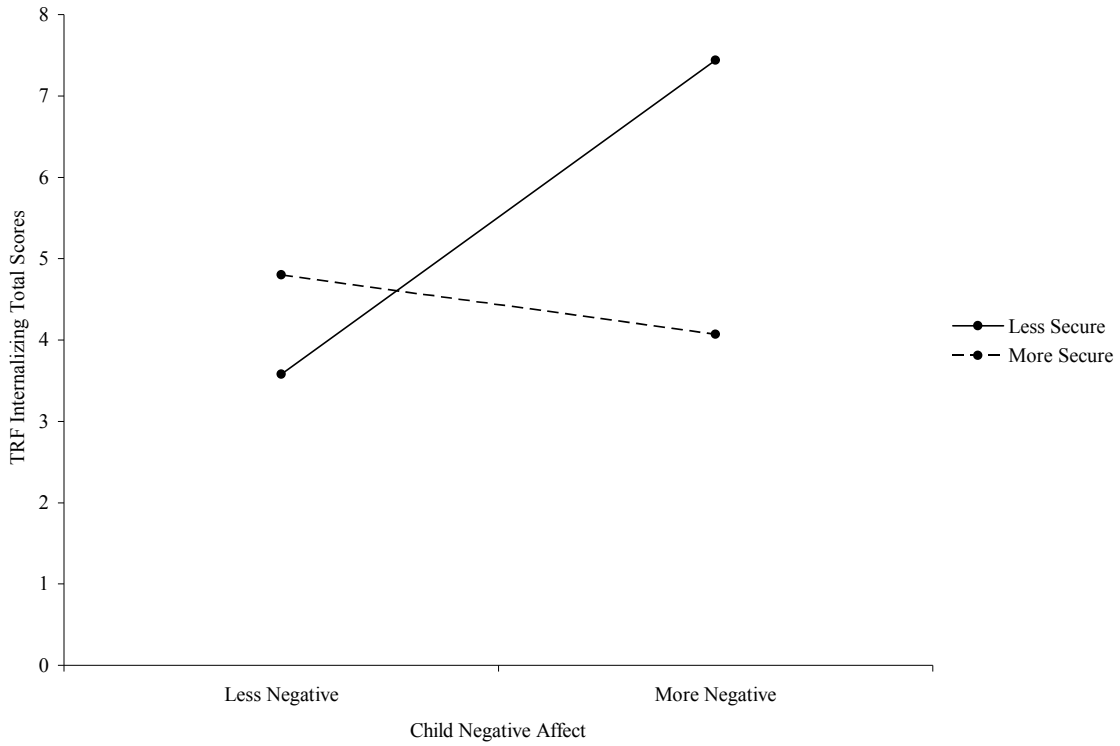


Figure 6. Boys' first/second grade TRF internalizing total scores as a function of attachment security rating and child negative affect.

3.4.1.3 Mediator and moderator models: Patterns for girls and boys As with the analyses of the sample as a whole, the conditions for testing whether attachment security mediated links between maternal harshness and children's behavior problems were not met because attachment security was not related to behavior problems for either girls or boys. To determine whether a moderator model could be tested, a linear regression was conducted to verify an association between maternal harshness and attachment security ratings. A significant relationship arose between observed maternal harshness and observer ratings of 36-month attachment security for girls, $R^2 = .11$, $F(1, 46) = 5.44$, $p = .02$, but not for boys, $R^2 = .02$, $F(1, 49) = .98$, $p = .33$.

A moderator model considering the interaction between attachment insecurity and maternal harshness was subsequently tested by conducting a hierarchical linear regression with the four demographic covariates entered first as a block, followed by child negative affect in Step 2, attachment security rating in Step 3, and maternal harshness in Step 4. In the final step (Step 5), the attachment security rating \times maternal harshness interaction term was added. Table 10 shows the results of this analysis. For boys, only the interaction term was significant, $F(1, 41) = 1.80$, $p = .004$. In contrast, only a significant main effect for maternal harshness was found for girls, $F(1, 40) = 2.26$, $p = .003$. These effects accounted for 16% and 17% of the variation in TRF internalizing scores for boys and girls, respectively.

Post hoc probing of this interaction revealed that for those boys experiencing less harshness, the presence of a more secure attachment relationship was associated with a buffering effect on internalizing scores. In contrast, for those boys who experienced higher levels of maternal harshness, the presence of a more secure attachment relationship was related

Table 10. Regressions: *Test of Attachment Insecurity as a Moderator of Maternal Harshness in Predicting First/Second Grade Teacher-Reported Internalizing Symptoms for Girls and Boys*

Step and Independent Variables	R^2	Boys				Girls				
		R^2 Change	Overall F	df	Sig. F Change	R^2	R^2 Change	Overall F	df	Sig. F Change
1. Demographics	.06	.06	.72	4, 45	.58	.10	.10	1.16	4, 43	.34
2. Early child negative affect	.06	.00	.57	1, 44	.90	.10	.00	.96	1, 42	.63
3. Attachment security rating	.06	.00	.47	1, 43	.88	.11	.01	.86	1, 41	.52
4. Early maternal harshness	.10	.04	.64	1, 42	.21	.28	.17	2.26	1, 40	.003
5. Security rating x early maternal harshness interaction term	.26	.16	1.80	1, 41	.004	.32	.04	2.33	1, 39	.14

Notes. Demographics refer to the variables Maternal Age, Maternal Education, Income-to-Needs Ratio, and Marital Status entered together as one block. All early scores refer to the mean of 2- and 3-year scores.

to exacerbated internalizing symptoms, $B = 1.01$, $t(89) = 2.20$, $p = .05$. Surprisingly, it was the boys who were rated as *more* securely attached who were most affected by maternal harshness, having the highest internalizing scores of any group. This interaction is depicted in Figure 7.

3.4.1.4 Summary: Patterns for girls and boys To summarize, the main effect of maternal harshness on internalizing symptoms that was demonstrated in the sample as a whole only held true for girls. Specifically, girls whose mothers were more harsh toward their children at ages 2 and 3 were rated by teachers in early grade school as having more internalizing symptoms. No direct associations were found between attachment security ratings and either internalizing or externalizing symptoms regardless of sex.

There were, however, a number of interactions when boys and girls were considered separately. Considering both internalizing and externalizing symptoms, child negative affect interacted with maternal harshness to predict first/second grade TRF scores; however, the patterns of effect were quite different in the case of boys and girls and internalizing and externalizing symptoms. For boys, higher levels of maternal harshness were related to more internalizing symptoms regardless of child negative affect. In contrast, for girls, higher levels of maternal harshness were only problematic with respect to externalizing symptoms and only when coupled with higher ratings of child negative affect. In addition, for boys, in the absence of maternal harshness, lower ratings of child negative affect were associated with fewer internalizing symptoms.

There was also a significant interaction between attachment security and child negative affect in predicting boys' internalizing symptoms. When boys were rated as more securely

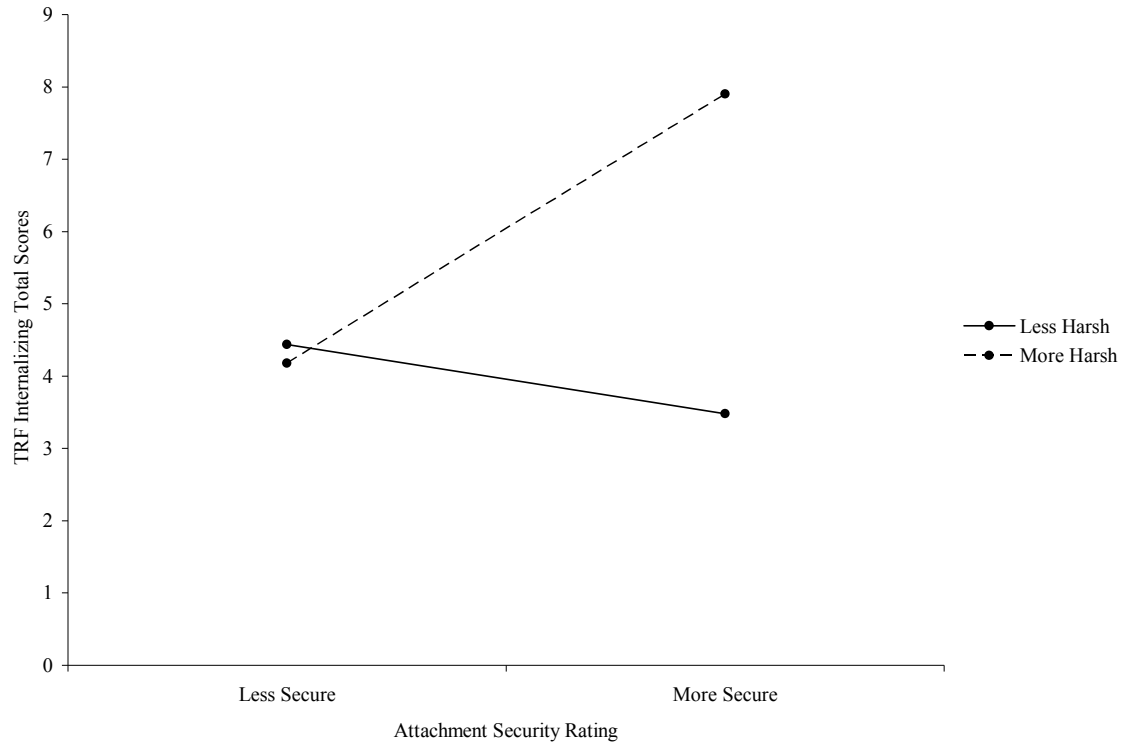


Figure 7. Boys' first/second grade TRF internalizing total scores as a function of maternal harshness and attachment security rating.

attached to their mothers, ratings of negative affect were not related to internalizing scores. However, lower ratings of attachment security were associated with higher internalizing scores when boys showed relatively more negative affect. Finally, also for boys, attachment security interacted with maternal harshness such that a more secure mother-child attachment was protective in the absence of harshness but was associated with amplified internalizing symptoms when harshness was present.

3.4.2 Regression models with sex as a variable

In order to verify that these differences between the two sets of data (boy/girl) observed in the analyses above reflected significantly different regression coefficients, a series of Chow-tests, used to determine whether a model differs for subgroups of a population (Chow, 1960), were computed. The resulting *F*-test statistics indicated that the pattern of results did differ for boys versus girls (*F*s ranging from 3.63 to 11.13, all *p*s < .01); therefore, further analyses were conducted to investigate whether sex played a statistically significant role in influencing associations regarding the development of behavior problems. More specifically, all of the regressions presented in the hypothesis testing section above concerning the sample as a whole were re-run with sex included as a variable (entered in the step immediately following the last covariate entry) and also included in interaction terms with the predictor variables child negative affect, maternal harshness, or attachment security rating depending on the analysis. Because sex was not a significant predictor of behavior problems in any of these regressions, and only one interaction emerged, just the significant result is presented here; however, the entire series of these regression equations can be found in the Appendix.

The 5-step linear regression model that revealed a significant interaction is shown in Table 11. None of the first four steps in the model (demographics, child sex, child negative affect, attachment security rating) contributed significantly to the R^2 ; however, child sex and attachment security rating interacted to significantly predict first/second grade internalizing symptoms, $F(1, 89) = 2.08, p = .005$, accounting for 8% of the variation in TRF scores.

Because child sex was not a continuous variable, in order to interpret this interaction effect attachment security rating was changed to a binary variable using a median split so that a univariate analysis of variance (ANOVA) could be performed. While only marginally significant ($F(1, 89) = 2.85, p = .09$), results of this ANOVA suggested that attachment security had little effect on internalizing scores for girls (less secure $M = 49.06, SD = 6.51$; more secure $M = 48.65, SD = 8.23$), yet for boys, being more securely attached ($M = 45.50, SD = 8.21$), as opposed to less securely attached ($M = 49.46, SD = 6.92$), was associated with lower TRF internalizing scores. Figure 8 depicts this relationship.

3.4.3 Differences as a function of poverty and ethnicity

A brief investigation of how poverty and/or ethnicity may have differentially affected the above results suggested that while there were significant differences between poor and non-poor and between African American and White families on all major study variables, associations among variables may not have differed as a function of poverty or ethnicity. More specifically, families who were poor and/or African American had mothers who were more depressed and showed more harshness and whose children were less securely attached, showed more negative

Table 11. *Prediction of First/ Second Grade Teacher-Reported Internalizing Symptoms from Attachment Security Rating and Child Sex*

Step and Independent Variables	R^2	R^2 Change	Overall F	df	Sig. F Change
1. Demographics	.06	.06	1.42	4, 93	.23
2. Child sex	.06	.00	1.15	1, 92	.73
3. Early child negative affect	.06	.00	.98	1, 91	.66
4. Attachment security rating	.08	.02	1.11	1, 90	.18
5. Attachment security rating x child sex interaction term	.16	.08	2.08	1, 89	.005

Notes. Demographics refer to the variables Maternal Age, Maternal Education, Income-to-Needs Ratio, and Marital Status entered together as one block. All early scores refer to the mean of 2- and 3-year scores.

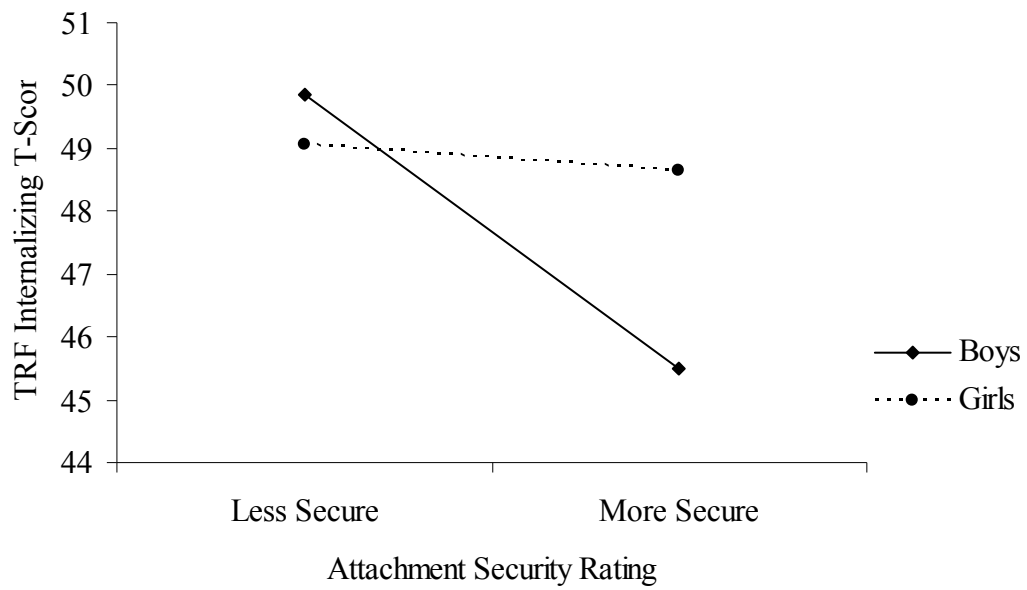


Figure 8. First/second grade TRF internalizing T-scores as a function of child sex and attachment security rating.

affect, and had more behavior problems as rated by teachers in first/second grade (see Tables 12 and 13 for means, standard deviations, and *t*-test statistics). Unfortunately, low statistical power prevented the models from being adequately tested; however, when analyses were run splitting the sample based on ethnicity and also based on poverty status, notable changes in the pattern of results were not observable.

Table 12. *Descriptive Statistics for Poor and Non-Poor Families*

Variable	Poor			Non-Poor			<i>df</i>	<i>t</i>
	<i>n</i>	Mean	<i>SD</i>	<i>n</i>	Mean	<i>SD</i>		
Maternal Harshness	35	1.87	.72	76	1.27	.43	109	-5.46***
Child Negative Affect	35	1.54	.64	76	1.32	.40	109	-2.16*
Attachment Security Rating	27	3.87	2.08	72	4.94	1.67	97	2.64**
TRF Internalizing <i>T</i> -Score	34	50.73	7.81	76	47.05	7.38	108	-2.38*
TRF Externalizing <i>T</i> -Score	34	53.98	9.65	76	48.18	6.55	108	-3.68***
Maternal Depression	35	13.98	7.63	76	8.30	7.04	109	-3.84***
Early CBCL Externalizing Scores	35	16.37	7.57	76	13.02	5.51	109	-2.64**

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 13. *Descriptive Statistics for African American and White Families*

Variable	African American			White			<i>df</i>	<i>t</i>
	<i>n</i>	Mean	<i>SD</i>	<i>n</i>	Mean	<i>SD</i>		
Maternal Harshness	26	1.88	.69	81	1.33	.52	105	-4.35***
Child Negative Affect	26	1.60	.68	81	1.33	.68	105	-2.35*
Attachment Security Rating	22	3.66	1.97	75	4.89	1.72	95	2.86**
TRF Internalizing <i>T</i> -Score	25	50.16	8.32	81	47.48	7.54	104	-1.52
TRF Externalizing <i>T</i> -Score	25	56.38	9.77	81	47.83	6.45	104	-5.09***
Maternal Depression	26	12.70	6.89	81	9.20	7.73	105	-2.06*
Early CBCL Externalizing Scores	26	54.79	8.82	81	51.13	8.82	105	-2.15*

* $p < .05$, ** $p < .01$, *** $p < .001$

4.0 DISCUSSION

Both harsh parenting and insecure attachment have been recognized as potential antecedents of behavior problems in children. Previous research, however, has typically investigated these factors separately and has tended to focus on the development of externalizing rather than internalizing problems. This study examined the relationship between observed maternal harshness and attachment insecurity in the toddler/preschool years as well as associations among these same early parenting and relationship variables, early child negative affect, and child behavior problems in grade school (Grade 1/Grade 2) with particular attention to internalizing symptoms. Table 14 presents a summary of all study findings both for the sample as a whole and for boys and girls separately. In general, early parenting and relationship variables were better predictors of internalizing problems than of externalizing problems, and more often than not, prediction of problems was best realized when considering the interaction of parenting variables with child variables.

Three primary issues for investigation were previously outlined in the study: 1) the relation between maternal harshness and attachment security, 2) associations among these measures of early parenting and the mother-child relationship, early child negative affect, and later behavior problems as assessed by teachers in first/second grade, and 3) exploratory analyses examining differences in associations among these factors as a function of child sex. However, aside from the result regarding the relation between maternal harshness and child-

Table 14. *Summary of Significant Predictors of Teacher-Reported Behavior Problems*

		TRF Scale	
		Internalizing	Externalizing
Overall Sample	Harshness		Demographics
	Harshness x Attachment		Earlier Externalizing Scores
	Child Sex x Attachment		Harshness x Child Negative Affect
Separately by Child Sex			
Boys	Harshness x Child Negative Affect		Earlier Externalizing Scores
	Attachment x Child Negative Affect		
	Harshness x Attachment		
Girls	Harshness		Earlier Externalizing Scores
			Harshness x Child Negative Affect

mother attachment security, all the effects for the sample as a whole were qualified by the sex-specific effects found during the exploratory analyses. In fact, examining the sample as a whole, looking at boys and girls together, obscured some findings and weakened others. Therefore, with the exception of the association between harshness and attachment security, the overarching effects will not be discussed further; rather, findings will be considered only in the context of the sex-specific effects.

4.1 RELATIONSHIP BETWEEN MATERNAL HARSHNESS AND ATTACHMENT SECURITY

A significant relationship between early maternal harshness and attachment insecurity was revealed; however, psychosocial factors were also at play. More specifically, mothers who were observed to be more harsh during interactions with their children when they were two and three years old had children who were rated at age three as less securely attached to them, but this link was partially accounted for by mothers' age, education, income, and marital status. This is consistent with the notion that maternal interactive behavior is closely tied to contextual factors including socioeconomic status (Maccoby & Martin, 1983; Parke & Buriel, 1998). Indeed, in the current study, maternal age, maternal education, income-to-needs ratio, and marital status were all at least moderately correlated with ratings of maternal harshness, suggesting the possibility that these contextual risk factors may generate stress that compromises mothers' abilities to parent in a more warm and positive manner. Along these lines, research has demonstrated that younger mothers, those with fewer years of education, and those with lower incomes are more controlling, restrictive, and punitive than their higher-SES

counterparts (Parke & Buriel, 1998), and it is the strains and stresses of lower-class life that are hypothesized to overburden potentially sensitive mothers (Conger, Conger, Elder, Lorenze, Simons, & Whitbeck, 1992; De Wolff & van IJzendoorn, 1997; McLeod & Shanahan, 1993).

In the larger data set from which the current study was drawn, maternal sensitivity was a significant predictor of attachment security (NICHD Early Child Care Research Network, 1999). The question here was whether maternal harshness might offer an alternative lens for the prediction of attachment insecurity; however, contrary to expectations, the association between harshness and insecurity was limited. It was expected that mother's harsh, negative, or critical behavior toward toddlers might activate the young child's attachment system to build internal working models of the self as flawed and the caregiver as aversive, potentially leading to an insecure attachment. It may be that the degree and context of harshness observed in the study was too restricted to be a robust predictor of attachment, or it could be that harshness was only relevant for children with certain types of temperamental styles.

In support of the former supposition, maternal harshness as defined in the current study but measured at age two during a different mother-child interaction with the same sample did significantly predict 3-year attachment insecurity over and above child temperament and concurrent (3-year) maternal harshness (Holt & Campbell, 2004). The measure of maternal harshness that did predict attachment was obtained during a "no toys" interaction in which mothers were asked to fill out questionnaires while in the company of their toddlers in a room devoid of toys. This context was likely to have been more demanding for mothers, perhaps creating enough stress to evoke displays of harshness while still maintaining a more casual atmosphere and potentially reducing awareness of videotaping due to its unstructured nature.

4.2 ASSOCIATIONS AMONG MEASURES OF EARLY PARENTING, THE MOTHER-CHILD RELATIONSHIP, EARLY CHILD NEGATIVE AFFECT, AND LATER BEHAVIOR PROBLEMS

4.2.1 Maternal harshness and internalizing problems

With respect to the relationship between early maternal harshness and later behavior problems, several associations emerged. First, as anticipated, there was a direct association between mothers' displays of harshness toward children during toddlerhood/preschool and children's internalizing symptoms during early grade school as rated by their teachers, but this association was specific to girls, accounting for 16% of the variance in internalizing scores. Mothers who were observed to interact with their toddler-/preschool-age girls in a more negative, critical and controlling manner during relatively relaxed laboratory procedures had daughters whose teachers perceived them as displaying more internalizing problems in first/second grade. This association was significant over a period of five years and likely represents a conservative estimate of effect size given that it signifies the association after statistically controlling for demographic factors and early child negative affect. This finding adds to a rather limited literature suggesting that maternal negativity and harshness are associated with children's internalizing symptoms (Muris et al., 2003; Roelofs, Meesters, Huurne, Bamelis, & Muris, 2006). Harshness even in this relatively relaxed situation may be suggestive of maternal harshness in the home setting that is cogent enough to generate anxiety and social withdrawal and create vulnerability in girls for internalizing difficulties years later.

For boys, there was also an association between maternal harshness and internalizing problems; however, the effect was moderated by boys' negative affect. More specifically, when mothers were less harsh, their sons' internalizing symptoms reflected the degree to which they displayed relatively more or less early negative affect themselves. In contrast, when mothers were more harsh with their sons, internalizing scores were consistently higher regardless of child negative affect. This effect accounted for 8% of the variation in boys' teacher-rated internalizing symptoms and demonstrated that boys look best when they exhibit limited negative affect and are paired with mothers who are less harsh with them. When either high child negative affect or high maternal harshness is present or when both risk factors in combination are at play, internalizing scores are elevated.

4.2.2 Maternal harshness and externalizing problems

Contrary to predictions, early maternal harshness was not directly related to later externalizing problems. This finding is discrepant from those of other studies that have demonstrated relationships between negative maternal behavior and externalizing problems in young children (Shaw et al., 1994; Campbell et al., 1996; Jacob & Johnson, 1997; Pettit et al., 1997). In the current study, in all analyses investigating externalizing symptoms, the best predictor of first/second grade TRF externalizing scores was earlier externalizing symptom levels. It may be that associations between harshness and externalizing problems were not identified due to the attempt to view these relations over time. More specifically, it may be that the early symptom

levels (at ages 2 and 3) were related to the concurrent maternal harshness; however, in controlling for early symptom levels a link with grade school externalizing problems was eradicated.

Another possible explanation for the lack of association between maternal harshness and externalizing problems in this study relates to issues of the assessment of harshness. Although previous research has demonstrated a clear association between harsh parenting and externalizing problems, different operational definitions of harshness from the one used in this study and the different contexts in which harshness was assessed may account for these discrepancies. Some of the strongest evidence for a direct link between harshness and externalizing outcomes derives from research on discipline styles (Deater-Deckard, Dodge, Bates, & Pettit, 1996; Patterson, 1982; Rothbaum & Weisz, 1994; Weiss, Dodge, Bates, & Pettit, 1992). In the current study maternal harshness, while in theory defined as encompassing physical reprimand, was observed to occur with low frequency and in a milder manner. For example, during the snack many of the instances of harshness involved simply a critical tone of voice in response to a child being messy. These instances may be better described as negativity, or may be tapping irritability or intrusiveness rather than harshness, and therefore may not be comparable to studies assessing more glaring forms of harshness, especially those that occur in the context of disciplinary encounters.

Although there was no main effect for maternal harshness with respect to externalizing problems, the interaction between maternal harshness and child negative affect did predict teacher's perceptions of externalizing symptoms for girls. More specifically, externalizing scores were not predicted by child negative affect in the absence of maternal harshness; however, when mothers were more harsh with their daughters, higher child negative affect was

associated with higher externalizing scores. In other words, girls showing more negative affect were at greater risk when paired with harsher mothers. This interaction between negative maternal behavior and negative child emotionality suggests a dyadic process and is most consistent with a transactional model of development. One could imagine how, for example, maternal harshness and child negative affect might play out in coercive cycles. Coercive parent-child relationships have been defined as relationships where both mothers and children respond to each other in ways that strengthen and reinforce the same problematic responses from each person in the dyad (Dodge, 1982; Patterson, 1982). For instance, temperamentally difficult or highly negative children may elicit high rates of maternal negativity or harshness, which may partially contribute to their likelihood of developing externalizing problems. Subsequently, these children may continue to experience negativity or harshness from their mothers who are responding to their problematic behavior.

These girls with higher levels of negative affect may not have the resources to navigate a rearing environment with frequent negative or critical feedback; therefore, the “goodness of fit” (Thomas & Chess, 1980) between mother and daughter may be particularly poor for these children. Once again, this is consistent with models of risk for child maladjustment that view outcomes as a result of transactional processes, wherein risks may vary in their influence as they interact with other variables.

4.2.3 Attachment security and behavior problems

Attachment insecurity by itself was not a significant predictor of early grade school behavior problems whether internalizing or externalizing for either girls or boys. As hypothesized, there

was no main effect for early attachment insecurity in predicting externalizing symptoms in grade school. This finding is partly in line with previous research that has not consistently shown a relationship with externalizing problems in low-risk samples (Bates, Bayles, Bennett, Ridge, & Brown, 1991; Bates et al., 1985; Fagot & Kavanagh, 1990; Goldberg, Lojkasck, Minde, & Corter, 1990). In contrast, however, numerous studies have established a link when investigating attachment insecurity and externalizing problems in high-risk samples, including low income samples, samples of single, young, or adolescent mother, and maltreatment samples (e.g., Erickson et al., 1985; Munson et al., 2001; Shaw et al., 1996). This absence of a direct association is consistent with models that suggest multiple risk factors are necessary in generating pathways to any particular problem or disorder.

Another potential explanation for the lack of direct association between early attachment insecurity and later behavior problems relates to the way attachment security was measured in the current study. Because of a limited sample size, a continuous rating of attachment security was utilized in place of the standard categorical A, B, C, and D classifications. In previous research that has tended to find associations between attachment security and later adjustment, relations emerged when examining group differences in attachment classification rather than attachment status or degree of attachment security. More specifically, there some work suggests that insecure avoidant (A) or resistant (C) children are more prone to internalizing problems whereas disorganized (D) children may be at greater risk to develop externalizing problems (Green & Goldwyn, 2003; Lyons-Ruth et al., 1997). It should be noted, however, that the continuous measure of attachment security used in the current study does not lack validity, as results demonstrated that the ratings of attachment security were proportionately and appropriately related to secure versus insecure attachment

classifications. Rather, the issue appertains to the inability of the continuous measure to distinguish among the various forms of insecure attachment, preventing associations between specific classifications and specific behavior problems from being determined.

Although main effects models were not supported by the data, there were two significant interactions involving attachment security. The first was an interaction between attachment security ratings and ratings of child negative affect for boys and is discussed next. The second interaction represents a moderating effect of attachment security with respect to the association between maternal harshness and child internalizing problems, again for boys, and is discussed in the following section. With respect to the interaction between attachment security and child negative affect in predicting boys' internalizing problems, attachment security appeared to serve as a buffer: while higher levels of early negative affect were related to higher internalizing scores for boys who were less securely attached to their mothers, negative affect was not related to internalizing symptoms for boys who enjoyed a more secure attachment relationship. It may be the case that boys demonstrating higher negative reactivity can be more easily calmed by interacting with a sensitive and responsive mother; maternal sensitivity is a well-established component of a secure attachment relationship (De Wolff & van IJzendoorn, 1997).

4.2.4 Mediator and moderator models

Although it was hypothesized that attachment insecurity might mediate the relation between early maternal harshness and later behavior problems, in the present study it was not possible to test a mediator model because there was no association found between attachment insecurity

(the proposed mediator) and behavior problems (the outcome). Therefore, the data did not support a mediation model. It was, however, possible to test a moderator model with respect to internalizing symptoms because the conditions for moderation were met: harshness (the predictor) was related to both attachment insecurity (the proposed moderator) and to internalizing symptoms (the outcome).

Results revealed that attachment insecurity was indeed a moderator of the association between early maternal harshness and later internalizing symptoms. Again for boys only, maternal harshness interacted with attachment insecurity in predicting internalizing problems. In this instance, attachment moderated the association between early maternal harshness and later internalizing problems such that for those boys experiencing less harshness, the presence of a more secure attachment relationship appeared to be protective in that it was associated with lower internalizing scores. In contrast, for those boys who experienced higher levels of maternal harshness, the presence of a more secure attachment relationship was related to higher internalizing symptoms. Surprisingly, it was the boys who were rated as *more* securely attached who were most affected by maternal harshness, having the highest internalizing scores of any group.

This finding is in some ways similar to those of Radke-Yarrow, McCann, DeMulder, Belmont, Martinez, and Richardson (1995) who examined associations between attachment and child behavior problems in the context of such high-risk conditions as maternal psychopathology, marital discord, and major interpersonal loss. Radke-Yarrow and her colleagues (1995) found that when mothers were severely depressed, child attachment security, rather than insecurity, was associated with child behavior problems including anxiety, depressed affect, and disruptive-oppositional behavior. Closer examination of the interactions

of these dyads suggested that dependent affective closeness may have been the key in conveying risk to the children of these depressed mothers, and the authors interpreted their findings as evidence that under certain conditions, attachment security becomes risk rather than protection. In the present study, mother-child attachment was studied in the context of a normative community sample where high-risk conditions were not present. However, it is possible that the dyadic interactions of mothers and those children experiencing maternal harshness in the context of a secure attachment relationship were characterized by a dependent emotional closeness. In any case, attachment security appeared to make the experience of maternal harshness more salient, perhaps magnifying the message of criticism and negativity when received within the context of a positive attachment relationship. Alternatively, securely attached boys may have become anxious and/or sad when their expectations for warm responsiveness were violated.

4.3 DIFFERENCES IN ASSOCIATIONS AS A FUNCTION OF CHILD SEX

Together, these results clearly demonstrate that processes are different for boys and girls. Interestingly, several of the interactions that emerged during exploratory analyses were specific to boys' internalizing problems. Although internalizing problems tend to be viewed as more closely tied to the female gender due to their increased prevalence in girls in later childhood, adolescence, and adulthood (Keenan & Shaw, 1997; Keiley et al., 2003; Kovacs & Devlin, 1998), in the present study it was boys who appeared more vulnerable to increased internalizing symptoms as a function of child negative affect, early harsh parenting, and insecure child-mother attachment. In contrast, despite the bias for associating externalizing problems with the

male gender, again due to a documented higher prevalence of externalizing problems in boys (Keiley et al., 2003; Rothbaum & Weisz, 1994), the only significant finding related to parenting or relationship factors with respect to externalizing symptoms in the current study was specific to girls.

It appears that both maternal harshness and attachment security matter for boys; however, the associations are complex and consistently moderated by child characteristics. More specifically, for boys the effects of both harshness and attachment insecurity were conditional on child negative affect, making it clear that a transactional model is represented. For girls, on the other hand, the link between harshness and internalizing was direct: teacher-reported symptom levels were predicted by early maternal harshness regardless of girls' negative emotionality. This may be attributable to daughters' more readily identifying with their (same-sex) mothers and therefore being more vulnerable to their criticism and negativity, or it may be that girls are exhibiting a greater focus on or sensitivity to interpersonal relationships.

Because these divergent findings were noted for boys and girls when considered separately, sex was also investigated as a predictor in the current study to determine whether it played a statistically significant role in influencing associations regarding the development of behavior problems. No sex differences were noted, however, with the exception of one significant interaction between child sex and mother-child attachment security in predicting internalizing problems. Specifically, this interaction suggested that a secure attachment relationship might be protective for boys in that higher security ratings were associated with teacher-rated internalizing scores that were lower for boys but not girls. Again, this is

consistent with evidence that boys may be more vulnerable to risks and more amenable to advantages in the rearing environment (Belsky et al., 1998; Erickson et al., 1985; Speltz, Greenberg, & DeKlyen, 1990).

4.4 DISCUSSION OF EXTERNALIZING AND INTERNALIZING FINDINGS

In comparing the findings for internalizing problems versus externalizing problems, several comments are warranted. First, in the present study, in all cases, externalizing problems were best predicted by earlier externalizing symptom levels. In fact, 2-/3-year-old CBCL scores were correlated .39 with Grade 1/Grade 2 TRF scores, suggesting moderate stability for these problems even across informants. Second, for girls, school-age externalizing symptoms were predicted from toddler/preschool experiences of maternal harshness only when considered in conjunction with child negative affect. In other words, externalizing problems were only predicted by parenting factors as they interacted with child negative affect, highlighting the active role played by the child in the course of development.

In the present study, a direct association between early maternal harshness and later behavior problems was found only with respect to internalizing symptoms for girls. Unfortunately, due to the issue of multicollinearity, the question of whether this relationship between early harsh parenting and school-age symptom levels was truly specific to internalizing problems was not resolved. Despite this limitation, the finding of a harshness-internalizing link could be considered consistent with the notion that early self development plays a role in the emergence of internalizing symptoms. By late toddlerhood, the child's

emerging recognition and understanding of the self (Harter, 1999; Kagan, 1981) coupled with their ever-expanding cognitive abilities may make them particularly susceptible to negative, critical or harsh feedback from important others in their life.

4.5 STRENGTHS AND LIMITATIONS

Several strengths of the current study lend confidence to the findings reported herein. First, the measure of child behavior problems was by teacher report rather than mother report. This avoids introducing potential bias as mother reports of child problems may in part reflect their own annoyance or negativity (part of the operational definition of maternal harshness in this study) or signify a negative mother-child relationship. Use of teacher-rated scores avoids this risk and makes it possible that effect sizes may be conservative rather than inflated. A second strength of the study relates to the assessment of maternal harshness and child negative affect: both maternal and child behaviors were assessed observationally in multiple situations and at more than one time point, making for a more reliable estimate of the constructs being assessed and again avoiding the potential for reporter bias. Another point to note is that in the present study, significant associations were detected over and above demographics, and in the case of externalizing problems, also above and beyond earlier externalizing symptom levels. Finally, looking at boys and girls separately helps to untangle the issue of for whom relations between parenting and behavior problems are likely to hold true.

A primary limitation of the current study was that the measure of child negative affect was derived from the same situation in which mothers' harshness was observed. Because of this, children's displays of negative affect may partly be in response to and therefore a

reflection of mothers' expressions of harshness and vice versa. Indeed, these measures were also correlated .42 with one another, demonstrating that they were not independent. This lack of independence makes it difficult to draw conclusions about the true nature of these associations, but it also highlights the dyadic nature of these interaction situations.

It should be noted, as well, that the study is based on a normative community sample. Therefore, in most cases, clinically significant behavior problems are not present. While, this may make the results more readily generalizable to a larger population, it does not inform as to whether these associations among harsh parenting and mother-child attachment security and child outcomes are meaningful in any clinical sense. Similarly, although there was no clear evidence that either ethnicity or poverty may have been differentially related to the associations among harshness, attachment security, child negative affect, and behavior problems, these questions were not formally tested due to limitations of statistical power, and findings cannot be generalized to minority or very high risk samples. Finally, although it is acknowledged that genetic/biologic components have their part in the development of behavior problems and, further, that the correlation between child negative affect and maternal harshness in the present study suggest the possibility of either gene-gene or gene-environment correlations, this issue was not considered in the current study.

4.6 DIRECTIONS FOR FUTURE STUDY

While shedding some light on the interplay of parenting and relationship factors during the toddler/preschool years and the later development of behavior problems, findings from the present study highlight the need to continue to try to understand under what conditions one can

expect a relation between harsh parenting or attachment insecurity and behavior problems and for whom these relations hold true. Future studies are needed that utilize observations over time to investigate the manner in which child factors and parenting factors interact, both directly and through the mother-child attachment relationship, as the findings here suggest a complex transactional model. In the present study, only two-way interactions were investigated because of limited power due to a modest sample size. However, to more fully understand the potential associations among these factors, higher order interactions should be examined, including the interplay of child negative affect, maternal harshness, attachment insecurity, and child sex. As previously noted, research suggests that girls and boys are differentially prone to internalizing versus externalizing difficulties (Keenan & Shaw, Kovacs & Devlin, 1998), and in the present study there was evidence that influences on the development of these problems might also differ as a function of sex. Larger studies are needed to further disentangle this issue of sex differences. Finally, it will be important in future work to seek to understand the processes or mechanisms by which early rearing experiences translate into later maladjustment. For example, both internal working models and emotion regulation have been suggested to mediate associations between parenting and relationship variables and child behavior problem outcomes.

4.7 SUMMARY

In considering parenting and relationship factors in the toddler-/preschool-age child's world as they relate to behavior problems during the early grade school years, this study identified maternal harshness as an important predictor of later behavior problems, particularly those of

an internalizing nature. Mother-child attachment security was also associated with internalizing problems but only when considered in conjunction with early maternal harshness or child negative affect. These results then emphasize the utility of research that does not look at maternal parenting behaviors and the mother-child attachment relationship as an “either-or” proposition. These findings also underscore the importance of addressing developmental questions using transactional models that take into account both mother and child contributions to child development. Finally, this study has yielded interesting findings about differences in associations among negative parenting, the mother-child attachment relationship, and the development of behavior problems as a function of child sex. This is an area of research that is fraught with inconsistencies and unanswered questions. Further efforts to study differential associations with behavior problems for girls and boys will be important for expanding understanding of developmental psychopathology.

APPENDIX

REGRESSIONS WITH SEX AS A PREDICTOR

Table 15. *Prediction of First/ Second Grade Teacher-Reported Internalizing Symptoms from Early Maternal Harshness and Child Sex*

Step and Independent Variables	R^2	R^2 Change	Overall F	df	Sig. F Change
1. Demographics	.06	.06	1.59	4, 104	.18
2. Child sex	.06	.00	1.29	1, 103	.71
3. Early child negative affect	.06	.00	1.10	1, 102	.64
4. Early maternal harshness	.12	.06	1.95	1, 101	.01
5. Maternal harshness x Child sex interaction term	.12	.00	1.70	1, 100	.78

Notes. Demographics refer to the variables Maternal Age, Maternal Education, Income-to-Needs Ratio, and Marital Status entered together as one block. All early scores refer to the mean of 24- and 36-month scores

Table 16. *Prediction of First/ Second Grade Teacher-Reported Externalizing Symptoms from Early Maternal Harshness and Child Sex*

Step and Independent Variables	R^2	R^2 Change	Overall F	df	Sig. F Change
1. Demographics	.09	.09	2.53	4, 104	.04
2. Early CBCL externalizing	.18	.09	4.47	1, 103	.001
3. Child sex	.18	.00	3.72	1, 102	.67
4. Early child negative affect	.19	.01	3.30	1, 101	.37
5. Early maternal harshness	.19	.00	2.87	1, 100	.79
6. Maternal harshness x Child sex interaction term	.19	.00	2.56	1, 99	.60

Notes. Demographics refer to the variables Maternal Age, Maternal Education, Income-to-Needs Ratio, and Marital Status entered together as one block. All early scores refer to the mean of 24- and 36-month scores

Table 17. *Prediction of First/Second Grade Teacher-Reported Internalizing Symptoms from Attachment Security Rating and Child Sex*

Step and Independent Variables	R^2	R^2 Change	Overall F	Df	Sig. F Change
1. Demographics	.06	.06	1.42	4, 93	.23
2. Child sex	.06	.00	1.15	1, 92	.73
3. Early child negative affect	.06	.00	.98	1, 91	.66
4. Attachment security rating	.08	.02	1.11	1, 90	.18
5. Attachment security rating x Child sex interaction term	.16	.08	2.08	1, 89	.005

Notes. Demographics refer to the variables Maternal Age, Maternal Education, Income-to-Needs Ratio, and Marital Status entered together as one block. All early scores refer to the mean of 24- and 36-month scores

Table 18. *Prediction of First/ Second Grade Teacher-Reported Externalizing Symptoms from Attachment Security Rating and Child Sex*

Step and Independent Variables	R^2	R^2 Change	Overall F	df	Sig. F Change
1. Demographics	.09	.09	2.26	4, 93	.07
2. Early CBCL externalizing	.18	.09	3.99	1, 92	.002
3. Child sex	.18	.00	3.32	1, 91	.69
4. Early child negative affect	.19	.01	2.94	1, 90	.40
5. Attachment security rating	.21	.02	2.98	1, 89	.09
6. Attachment security rating x Child sex interaction term	.21	.00	2.66	1, 88	.58

Notes. Demographics refer to the variables Maternal Age, Maternal Education, Income-to-Needs Ratio, and Marital Status entered together as one block. All early scores refer to the mean of 24- and 36-month score

Table 19. *Prediction of First/ Second Grade Teacher-Reported Internalizing Symptoms from Child Sex, Attachment Security Rating and Maternal Harshness*

Step and Independent Variables	R^2	R^2 Change	Overall F	df	Sig. F Change
1. Demographics	.06	.06	1.42	4, 93	.23
2. Child sex	.06	.00	1.15	1, 92	.73
3. Early child negative affect	.06	.00	.98	1, 91	.66
4. Attachment security rating	.08	.02	1.11	1, 90	.18
5. Maternal harshness	.13	.05	1.72	1, 89	.02
6. Child sex x attachment security x harshness interaction term	.14	.01	1.63	1, 88	.33

Notes. Demographics refer to the variables Maternal Age, Maternal Education, Income-to-Needs Ratio, and Marital Status entered together as one block. All early scores refer to the mean of 24- and 36-month score

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