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THE DIRECT AND INTERACTIVE EFFECTS OF NEIGHBORHOOD RISK AND
HARSH PARENTING ON CHILDHOOD EXTERNALIZING AND INTERNALIZING
BEHAVIOR

A Thesis

Submitted to the Graduate Faculty of the
University of New Orleans
in partial fulfillment of the
requirements for the degree of

Master of Science
In
Psychology

by

Kristin L. Callahan

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Abstract

The present study investigated the direct and interactional effects of neighborhood disadvantage and harsh parenting on concurrent assessments and change in externalizing and internalizing behavior in toddlerhood. The study included 55 mothers and their children; families completed in-home assessments when children were 2 and 3 years of age. Mothers' reports were used to measure neighborhood disadvantage and children's problem behaviors. Observer ratings derived from a clean up task were used to measure harsh parenting. Four hierarchical regression equations were computed to test each study hypothesis. Results indicated marginally significant effects of harsh parenting on externalizing problems at age 2. Surprisingly, harsh parenting and exposure to neighborhood risk did not significantly predict increases in externalizing behavior problems from age 2 to 3. Harsh parenting was marginally related to children's internalizing problems under conditions of high levels of neighborhood disadvantage and predicted increases in internalizing over time. The theoretical implications of the results are discussed.

Introduction

Ecological theories propose that environmental characteristics in which families and their children live affect children's development (Bronfenbrenner, 1986). As such, children's risk for externalizing and internalizing behavior problems may be affected by specific characteristics of the neighborhood and parenting contexts. Considering the environmental contexts in which children live has important practical and theoretical implications for children's adjustment (Bronfenbrenner, 1979). Environmental contexts, like parenting or neighborhood, may differentially affect children's risk for maladjustment. Quite possibly responsive parenting may offset some of the harmful effects of neighborhood disadvantage, but safe neighborhoods may not protect children against the harmful effects of harsh parenting. Additionally, the interactive effects of neighborhood and parenting characteristics may be such that children who are exposed to both a disadvantaged neighborhood and harsh parenting experience significantly more problem behaviors than children who are only exposed to one of the two environmental circumstances.

Low income, African-American children may be at particularly greater risk for developing problem behaviors in part because they are more likely to reside in socially disadvantaged neighborhoods (e.g., McLoyd, 1990) and to be exposed to harsh parenting (e.g., Deater-Deckard & Dodge, 1997). Both neighborhood disadvantage and harsh parenting have been linked to children's problem behaviors during middle childhood (Beyers, Bates, Pettit, & Dodge, 2003; Conger, Wallace, Sun, Simons, McLoyd, & Brody, 2002; Jones, Foster, Forehand, & Connell, 2005; Shaw, Winslow, Owens, Vondra, Cohn, & Bell, 1998; Weiss, Dodge, Bates, & Pettit, 1992). However, few studies

have considered both the direct and interactive effects of harsh parenting and neighborhood disadvantage on children's risk for experiencing externalizing and internalizing problem behaviors during the toddler years. The toddler period may be important because toddler aged children typically engage in high rates of problem behaviors, rates that are expected to decrease over time (Shaw, Gilliom, Ingoldsby, & Nagin, 2003). When these problem behaviors do not decrease during early childhood, risk for continuing and developing more serious and challenging behavior problems later in life is expected to increase (Keenan & Shaw, 1995).

The proposed study is designed to examine the direct and interactive effects of the family (i.e., parenting) and neighborhood contexts on change in children's externalizing and internalizing problems during the toddler period. Figure 1 depicts the hypotheses tested in this study. First, residing in a more socially disadvantaged neighborhood risk is expected to predict increases in child externalizing and internalizing behavior problems from age 2 to 3 (Figure 1, path a). Similarly, exposure to harsh parenting at age 2 is expected to predict increases in child problem behavior from age 2 to 3 (Figure 1, path b). Second, the interaction between neighborhood risk and harsh parenting is hypothesized to predict increases in problem behavior, such that under conditions of high neighborhood risk, harsh parenting will predict greater increases in problem behaviors than under conditions of low neighborhood risk (Figure 1, path c).

The following sections will review the empirical research related to these expectations. First, an overview of the developmental significance of the toddler period for risk for ongoing problem behavior will be provided. Next, the role of parenting quality on change in children's risk will be considered. Finally, empirical research

describing the direct and interactive effects of neighborhood context will be discussed.

Developmental significance of early childhood and the emergence of problem behaviors

Rapid changes in children's cognitive, language, locomotion, and social development occur during early childhood (Thompson, Easterbrooks, & Padilla-Walker, 2003). The toddler period (i.e., ages 1-3), in particular, is noted for dramatic increases in children's independence and exploration. During the toddler period, children begin to learn language (Ainsfeld, 1984), to regulate their behaviors and emotions (Kopp, 1989), and to internalize and comply with parental requests (Kochanska, 1995). Although children become increasingly able to demonstrate self control during the toddler years, this developmental period is not without regulation problems. That is, the toddler period also is noted for increases in children's willful defiance (Kochanska, 1995) and bouts of unregulated anger (Shaw & Bell, 1993).

Not surprisingly, problem behaviors first become an issue during the toddler years. Externalizing problems have been found to peak during the toddler years and decline thereafter (Shaw, Gilliom, Ingoldsby, & Nagin, 2003). The developmental timeline for internalizing may be slightly delayed with internalizing problems increasing more gradually and peaking during the preschool years (ages 3 to 4), perhaps because of children's increased ability to remember and anticipate negative events (Kaslow, Brown, & Mee, 1994; Vasey, Crnic, & Carter, 1994). Risk for more pervasive problems should occur when internalizing and externalizing problem behaviors do not demonstrate this expected decline (Compton, Burns, Egger, & Robertson, 2002; Kovacs & Devlin, 1998; Olson & Rosenblum, 1998; Shaw, Gilliom, Ingoldsby, & Nagin, 2003).

The presence of both externalizing and internalizing problems during early childhood seems to be associated with increased risk for problem behavior during later developmental periods. High rates of externalizing problems during early childhood has been linked to more antisocial behavior and associations with deviant peers in middle childhood and delinquency in adolescence (Brody, Ge, Conger, Gibbons, McBride Murry, Gerrard, & Simmons, 2001; Olweus, 1979). Early childhood externalizing problems also have been found to be astoundingly stable through adolescence (Campbell, 1995; Fagot, 1984; Olweus, 1979). Of great concern, adolescent externalizing behaviors have shown to be resistant to change and intervention efforts (Kazdin, 1995).

Comparatively fewer studies have considered the long-term effects of early internalizing problems on later adjustment. Temperamental characteristics, like behavioral inhibition, may increase children's risk for later internalizing problems (Sanson, Hempill, & Smart, 2004) and temperamental inhibition, particularly stranger wariness, seems to be stable from preschool to first grade (Asendorf, 1990) and from middle childhood through early adulthood (Gest, 1997). Thus, children who demonstrate more inhibition and wariness may be at increased risk for internalizing problems; however the longitudinal stability of internalizing problems from early childhood through adolescence remains largely unknown (Cicchetti & Toth, 1998; Ollendick & King, 1994). Perhaps the lack of behavioral stability in the appearance of internalizing problems from toddlerhood to later developmental periods, like adolescence, partially accounts for this gap. That is, the behavioral manifestation of externalizing problems is quite consistent over time (e.g. unregulated anger) while internalizing problems exhibited during toddlerhood may bear little resemblance to internalizing problems in adolescence.

An additional challenge regarding the long term stability of internalizing problems is that externalizing and internalizing problems tend to co-occur during early childhood; thus, experiencing high levels of externalizing behavior problems may be a risk factor for internalizing problems (Gilliom & Shaw, 2004). Achenbach (1992) found CBCL correlations of .70 between externalizing and internalizing scores in a sample of clinically referred sample and .76 in a nonreferred sample of 2- and 3-year-old children. The considerable covariance between externalizing and internalizing behavior during childhood may be explained by common environmental components and overlapping trajectories (Gjone & Stevenons, 1997). More precisely, children who experience similar life experiences may respond in an undifferentiated way, showing externalizing behaviors at times and withdrawn, anxious, or fearful responses at other times. Co-occurrence of these behaviors in early childhood may foster the continuance of co-occurring externalizing and internalizing symptomology later in childhood (Egeland, Pianta, & Ogawa, 1996).

Neighborhood disadvantage as a risk factor for childhood problem behavior

One risk factor commonly associated with increased problem behavior during childhood is neighborhood disadvantage (e.g., Beyers, et al., 1994). Disadvantaged neighborhoods are typically defined by high levels of poverty and unemployment, crime, and residential overcrowding (Plybon & Kliewer, 2001). Residents of socially disadvantaged neighborhoods are often forced to fight for limited resources (Chase-Landsdale, & Gordon, 1996). Characteristically, families residing in low-income neighborhoods move frequently, fluctuating from more or less affluent neighborhoods. Frequent resident changes also may increase children's risk of poor behavioral

adjustment (Entwisle & Alexander, 1998; Wang, Haertel, & Walberg, 1994). The lack of residential stability and the exposure to multiple neighborhoods may decrease: a) feelings of connectedness with neighbors, b) neighborhood cohesion, and c) isolation among other neighborhood residents (Bates, Luster, & Vandenbelt, 2003; Pettit, 2004; Pettit, & McLanahan, 2003).

A number of characteristics associated with neighborhood disadvantage have been found to increase children's risk for developing externalizing problem behaviors. First, the rate of crime in a neighborhood has been linked to children's problem behavior; as rates of crime increase so to does children's risk for externalizing behavior problems (Dodge, Pettit, & Bates, 1994; Greenberg, Lengua, Coie, & Pinderhughes, 1999; Plybon, & Kliwer, 2001). Second, limited financial resources and the presence of low-income neighbors have been associated with more behavior problems (Boyle & Lipman, 2002; Duncan, Brooks-Gunn, & Klebanov, 1994). Additionally, exposure to neighborhood violence has been linked to increases children's risk for externalizing behavior problems (Bates, Luster, & Vandenbelt, 2003; Linares, Heeren, Bronfman, Zuckerman, Augustyn, & Tronick, 2001). Finally, after controlling for family socioeconomic status, children who live in neighborhoods with fewer affluent neighbors, lower levels of neighborhood support, and high unemployment rates experienced more childhood behavior problems (Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993; Greenberg, Lengua, Coie, & Pinderhughes, 1999; Kohen, Brooks-Gunn, Leventhal, & Hertzman, 2002; McCarty & McMahan, 2003).

The relationship between neighborhood disadvantage and the development of internalizing behavior problems during early childhood is rarely considered. Two

characteristics of disadvantaged neighborhoods that have been linked to internalizing problems are neighborhood violence and low support. Specifically, African-American mothers of 3- to 5-year old children who fear crime in their neighborhoods and who report higher rates of co-witnessing violence with their children have children who exhibit more internalizing behavior problems (Linares, Heeren, Bronfman, Zuckerman, Augustyn, & Tronick, 2001). Furthermore, mothers with decreased social support networks were found to have children with more internalizing disorders during later childhood (Dennisi, Parke, Coltrane, Blacher, & Borthwick-Duffy, 2003; Hammen & Brennan, 2001). Quite possibly mothers rely on extended support networks when neighborhood cohesion is low.

Taken together, the effects of neighborhood on the development of problem behaviors is more consistently evaluated in terms of children's risk for externalizing problems than internalizing problems. Initial evidence suggests that neighborhood disadvantage increases children's risk for both types of problem behaviors. Unfortunately, much of this empirical research focuses on the middle childhood and adolescent developmental periods. The FAST-Track project is a notable exception, although their measures of early childhood exposure to risk rely on completely on retrospective reports from mothers (e.g., Dodge, Bates, & Pettit, 1994). The present study evaluated the expectation that 2-year-old children residing in socially and economically disadvantaged neighborhoods would experience greater increases in externalizing and internalizing problems from age 2 to 3 (see Figure 1, path a).

Harsh parenting and the emergence of childhood problem behaviors

In addition to neighborhood characteristics, the quality of parents' interactions

with their children during early childhood has been linked repeatedly to children's behavioral, social, and emotional adjustment (Bates, Luster, & Vandenberg, 2003; Marchland & Hock, 1998; Mistry, Vandewater, Huston, & McLoyd, 2002; Shaw, Gilliom, Ingoldsby, & Nagin, 2003; Shaw, Winslow, Owens, Vondra, Cohn, & Bell, 1998). According to interactional theorists, harsh and inconsistent parenting during early childhood initiates a cascade of adjustment problems, such as self control difficulties and lower levels of social competency during middle childhood, to academic and peer problems during early adolescence, and to risk-taking behaviors during adolescence (Compton, Burns, Egger, & Robertson, 2002; Mistry, Biesanz, Taylor, Burchinal, & Cox, 2004; Olson & Rosenblum, 1998; Patterson, Reid, & Dishion, 1992; Scaramella, Conger, Simons, & Whitbeck, 1998).

In the present study, harsh parenting is defined as parenting that is emotionally negative (i.e., angry and hostile) and behaviorally controlling (Scaramella & Leve, 2004). Such harsh parenting may include mothers' use of negative physical behaviors (e.g., hitting, pushing, grabbing child) and derogatory, over controlling, or restrictive statements. Frequently, high levels of harsh discipline and control have been associated with increases in behavior problems during early childhood (Gilliom & Shaw, 2004; Pettit, Laird, Dodge, Bates, & Criss, 2001; Scaramella & Conger, 2003; Silk, Sessa, Morris, Steinberg, & Avenevoli, 2004; Shaw, Winslow, Owens, Vondra, Cohn, & Bell, 1998; Weiss, Dodge, Bates, & Pettit, 1992) and middle childhood (Campbell, 1995; Patterson, Reid, Dishion, 1992; Rothbaum & Weisz, 1994; Shaw, Winslow, Owens, Vondra, Cohn, & Bell, 1998). Consistent with this work, children who experience harsher parenting at age 2 are expected to experience increases in externalizing problems from

age 2 to 3 (see Figure 1, path b).

The role of harsh parenting on the development of internalizing problems is less well defined and developed. Exposure to harsh discipline has been found to increase the likelihood that children will develop internalizing problems among preschool-aged children from low-income families (Shaw, Keenan, Vondra, Delliquadri, & Giovannelli, 1997) and among early adolescence (Davies & Windle, 2001). Moreover, high rates of negative maternal control have been shown to precede internalizing trajectories (Gilliom & Shaw, 2004). These preliminary findings suggest that harsh parenting may increase children's feelings of anxiousness and wariness and, over time, increase children's risk for developing more severe internalizing problems. Consequently, harsh parenting is expected to produce increases in internalizing problems from age 2 to 3 (see Figure 1, path b).

Interactive effects of exposure to harsh parenting and neighborhood disadvantage on risk for emerging problem behaviors

While both neighborhood disadvantage and harsh parenting are expected to independently increase children's risk for externalizing and internalizing problems, quite possibly parenting may differentially affect children depending on the characteristics of the neighborhood in which the family resides. Repeatedly, neighborhood disadvantage has been linked to harsher parenting. For instance, parents who live in poor neighborhoods have been found to be less warm and more controlling (Furstenberg, 1993; Klebanov, Brooks-Gunn, & Duncan, 1994), less supportive (Duncan, Brooks-Gunn, & Klebanov, 1994), and less nurturing (Ceballo & McLoyd, 2002; Mistry, Vandewater, Huston, & McLoyd, 2002) during interactions with their children. In

addition, children residing in high-risk neighborhoods have been found to be at greater risk for experiencing physical maltreatment (Coulton, Korbin, Su, & Chow, 1995).

While children residing in more disadvantaged neighborhoods may experience harsher parenting, recent evidence suggests that exposure to warm and supportive parenting may offset some of the harmful effects of neighborhood disadvantage. That is, Pettit, Bates, and Dodge (1997) found that high levels of parental warmth protected children residing in economically deprived neighborhoods such that children who received more supportive parenting (warmth, proactive teaching, inductive discipline, and positive involvement) had fewer behavior problems than children receiving less supportive parenting. In contrast, maternal hostility was found to interact with neighborhood cohesion and support, such that children exposed to both high levels of hostility and low levels of neighborhood cohesion and support had the highest levels of externalizing behavior problems during first and second grades (Silk, Sessa, Morris, Steinberg, & Avenevoli, 2004).

Internalizing problems may emerge in a similar way, such that mother's use of controlling and harsh parenting behaviors may create feelings of helplessness and complacency, particularly when children live in a disadvantaged neighborhood. The present study extends both of these studies by considering the direct and interactive effects of neighborhood disadvantage and harsh parenting during the toddler period. More neighborhood disadvantage when combined with harsh parenting is expected to predict the greatest increase in children's externalizing and internalizing problems from age 2 to 3 (see Figure 1, path c).

Ethnicity, neighborhood, and harsh parenting

Exposure to neighborhood risk and harsh parenting is not distributed equally across racial and ethnic populations. A disproportionate number of African-American children live in poverty in the United States and are routinely exposed to more social stressors than their same aged European American children (Beyers, Bates, Pettit, & Dodge, 2003; Brooks-Gunn & Duncan, 1997; McLoyd, 1990, 1998). African-American families from all income levels are more likely to reside in high-risk neighborhoods and are less likely to leave these neighborhoods than other racial and ethnic groups (Gramlich, Laren, & Sealand, 1992; Jargowsky, 1997; South & Crowder, 1997). Quite disturbingly, African-American children and adolescents disproportionately reside in dangerous neighborhoods (Deater-Deckard, Dodge, Bates, & Pettit, 1998).

In addition to being exposed to more disadvantaged neighborhoods, recent evidence indicates that African-American children receive harsher physical discipline and more authoritarian or restrictive parenting than European American children of the same age (Deater-Deckard, Dodge, Bates, & Pettit, 1996; Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Furstenberg, Cook, Eccles, Elder, & Sameroff, 1999; Shumow, Vandell, & Posner, 1998).

Harsh and controlling parenting seems to differentially impact African-American and European American children. That is, exposure to even low levels of harsh parenting among European American children has been linked to the development of problem behaviors; the same is not true for African-American children (Deater-Deckard, Dodge, Bates, & Pettit, 1996).

One reason for the differential effects of harsh parenting on children's adjustment

may be that harsh parenting practices seem to be viewed less negatively among African-American families than European American families (Deater-Deckard & Dodge, 1997). African-American parents who use a strict parenting style may feel as though they are increasing children's ability to cope with the often cruel realities of racial discrimination (Julian, McKenry, & McKelvey, 1994). Alternatively, harsh parenting may protect children raised in disadvantaged neighborhoods from the immediate dangers of the neighborhood (e.g., Wilson, 1987). That is, harsh parenting may ensure immediate obedience and compliance and help to keep children safe (e.g. Kelley, Power, & Wimbush, 1992; Wilson, 1987). Evidence also indicates that experiencing strict discipline in combination with high levels of warmth, communication, and support may be associated with the most positive outcomes for African-American children (Bartz & Levine, 1978; Brooks-Gunn & Duncan, 1997). Important for the present study, harsh parenting and strict control are not likely the same. The negative emotions associated with harsh parenting are quite distinct from strict control. Thus, the combined effects of behaviorally harsh and emotionally negative parenting and neighborhood disadvantage may predict increases in children's problem behaviors across all racial groups.

To summarize, the proposed study will consider the direct and interactive effects of neighborhood disadvantage and harsh parenting on increases in externalizing and internalizing problems during the toddler period and among a sample of low income, predominantly African-American families. Specifically, the following hypotheses will be empirically evaluated:

1. Neighborhood disadvantage, harsh parenting, and their interaction measured when children are 2 years of age will be statistically and significantly associated

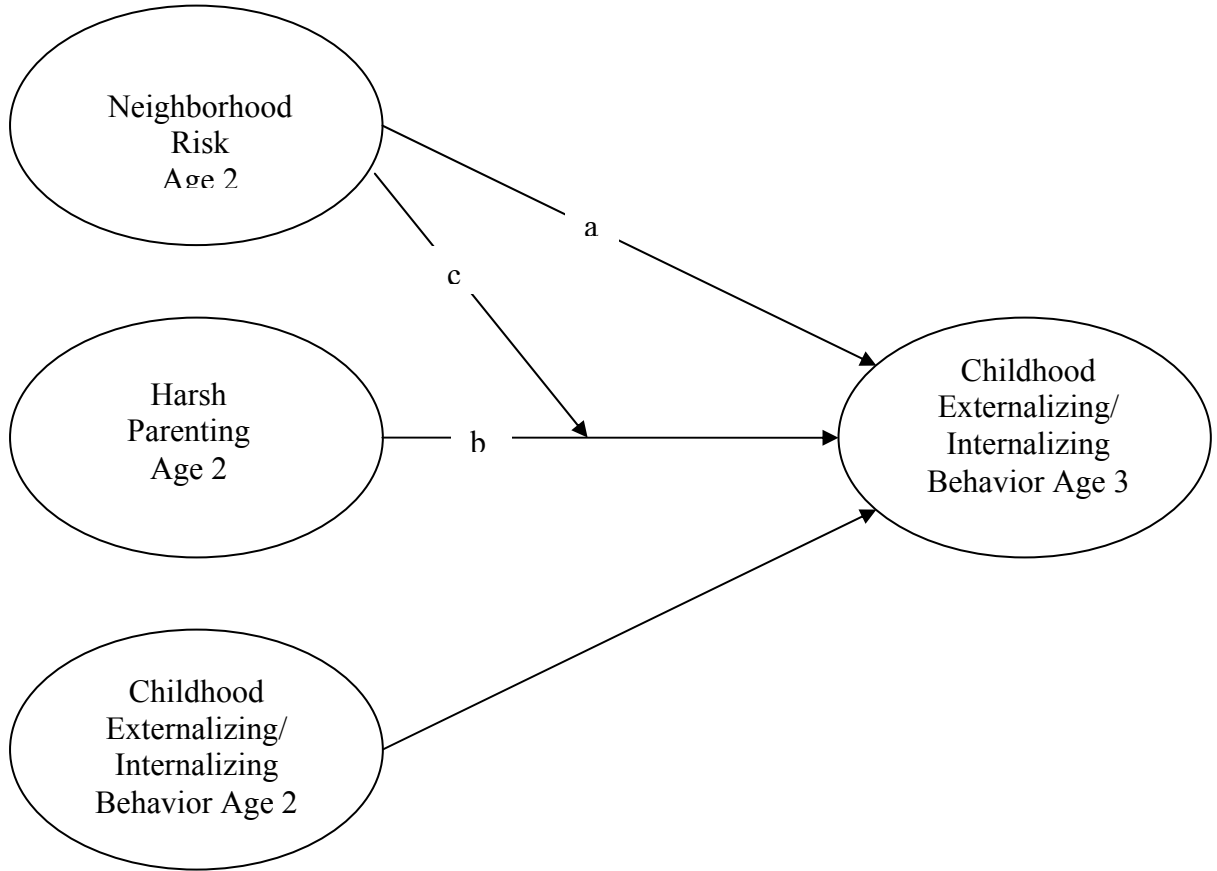
with:

- a) Externalizing scores at age 2 and
- b) Change in externalizing scores from age 2 to 3.

2. Neighborhood disadvantage, harsh parenting, and their interaction measured when children are 2 years of age will be statistically and significantly associated with

- a) Internalizing scores at age 2 and
- b) Change in internalizing scores from age 2 to 3.

Figure 1. *Direct and interactional effects of neighborhood risk and harsh parenting on childhood externalizing and internalizing behavior problems.*



Method

Sample

Participants were 55 mothers and their children who were recruited from Jefferson Parish Head Start Centers. Mother and child participated in in-home assessments when children were 2 and 3 years of age. As shown in Table 1, mothers' ages ranged from 18 to 40 ($M = 26.32$, $SD = 5.13$) and children averaged 2.39 years of age at the first assessment. Participants were African-American (83.6%), European-American (14.5%), or Indian/Middle Eastern, (1.8%). Of the 2-year old children assessed, 64% were female. Mothers had on average, three children ($SD = 1.32$) and each household supported, on average, 5 people. In terms of level of education, 29% of mothers had not graduated from high school, 10.9% received their GED after dropping out of high school, and 18.2% were currently in school at the time of first assessment. Only 34.5% of the mothers were married at the time of the first assessment. Median family income per year was \$11,700 and median per capita income per family was \$2,328.

Table 1.

Family demographic characteristics of the participating families (n = 55)

	Mean	SD
Mother's Age	26.31	5.1
% of Mothers' married	34.5%	
% of Mothers' never married	47.3%	
Number of Children	3	1.3
Child Gender		
% Female	63.6%	
% Male	36.4%	
Ethnicity %		
African-American	83.6%	
Caucasian	14.5%	
Indian/Middle Eastern	1.8%	
Mother Education		
Not graduating high-school	29%	
Received GED	10.9%	
Not currently in school	81.8%	
Median Family Income (\$)	11,700	
Median Per Capita Income (\$)	2,328	

Procedures

Mothers and children were recruited from Jefferson Parish Head Start Centers when mothers sought to enroll one of their children in Head Start. Only mothers with a child who would turn 2 years of age during the first assessment period (September, 2003 to September, 2004) were eligible to participate. Of the mothers who met these criteria, 55 participated. All 55 completed the first, age 2, assessment and 37 mothers completed the second, age 3, assessment. Eighteen families did not complete the wave 2 assessment. One family did not participate because they moved to Japan. Seventeen families were lost because of the length of the evacuation and the inability to contact the remaining families after hurricane Katrina.

All interviews took place in mothers' home or at an alternate place of their choosing (e.g. Head Start). Each assessment took approximately two hours to complete. Mothers received a \$50 gift certificate to Winn Dixie or Wal-Mart for completing the 2-year-old assessment and a \$75 gift certificate to Wal-Mart for completing the 3-year-old interview. At each assessment children received a small toy worth \$10. During the 2-year-old interview, two research assistants completed the visit, an interviewer and a cameraperson. The 3-year-old interview also included the older Head Start child; consequently, three research assistants traveled to families' homes, an interviewer, a cameraperson, and a babysitter.

During each interview, mothers and children completed a set of structured interactional tasks and mothers completed a booklet of questions. The observational activities were completed first and only the observational activity relevant to the present project will be described. At the end of the 2-year-old observational portion of the

interview, mothers and children were presented with a bin filled with toys and are told to play with all of the toys. The toys included: a Mr. Potato Head, bug beads, stackable cups, and plastic musical instruments (maracas and tambourine). After playing together for 5 minutes, the interviewer returned to the play area and played with the mothers and children long enough to make sure all of the toys were dumped out of the toy bin (i.e., creating a standard mess). The interviewer informed mothers and children that it was time to clean up the toys. Mothers were told to make sure that their children cleaned up all of the toys on their own, but mothers could offer any necessary assistance. The toys were cleaned up when the cups were put inside each other, all of the Mr. Potato Head pieces placed back inside the potato, and all the toys placed in the bin. Mothers and children had 5 minutes to complete the activity.

After the clean up task, mothers completed a questionnaire and answered questions about their neighborhood and their children's behavior problems. Interviewers offered mothers' assistance completing the questionnaires and questions were read when necessary. Mothers answered questions independently otherwise.

Later trained observers used the Mother-Child Interactional Coding System (MCICS; Sohr-Preston & Scaramella, 2003) to code mothers' behaviors observed during the 2-year old clean up activity. All coding of these observational tasks was completed using the computerized Observational Coding System (OCS; Triangle Research Collaborative, 2003). Trained coders rated the frequency of mothers' parenting behaviors by marking in real time the occurrence of each behavioral code. Prior to rating interactions, each coder received 20 hours of training and had to pass a written examination upon completion of training. Once coders achieved a minimum of 70%

agreement with the same standard coder and a score of 85% or higher on the exam, they were permitted to code. In order to measure consistency across raters, two raters coded 25% of all videotaped interactions. Percent agreements and inter-observer reliability estimates using Cohen's kappa were used to evaluate inter-rater reliability estimates.

Measures

Neighborhood disadvantage and harsh parenting were measured at the 2-year-old assessment. Children's externalizing and internalizing problems were measured twice, at the 2-year-old and 3-year-old assessments. The measures used to evaluate each construct are described below.

Neighborhood disadvantage. Neighborhood disadvantage was measured using mothers' self reports at the first assessment. Mother's reports on the *Me & My Neighborhood Questionnaire* were used to measure neighborhood risk (Pitt Mother & Child Project, 1999). This 24-item questionnaire contains two subscales; one measuring perceived neighborhood dangerousness and another measuring neighborhood belongingness/support.

Neighborhood dangerousness subscale consisted of 19 items that measured the frequency with which dangerous events occurred in their neighborhood during the past year. Events were rated on a 4-point scale (0 = never, 1 = once, 2 = a few times, and 3 = a lot). Sample events included: "During the past year, how often did a gang fight occur near your home?", "During the past year, how often did you see people dealing drugs near your home?", and "During the past year, how often was a family member stabbed or shot?" (see Appendix A for a complete list of all items). Items were recoded to create an index of the variety of dangerous events to which families were exposed. Mothers

reported that an event occurred at least once, the item was recoded as '1'. If an event never occurred, the event was coded '0'. Events were summed to create an index of the total number of dangerous events that occurred within their neighborhoods during the past year. Higher scores reflect more exposure to a greater variety of dangerous events during the past year. Scores could range from 0 to 19; the average number of dangerous events mothers reported experiencing when children were 2 years of age was 5.3 (SD = 4.5).

The belongingness subscale from the *Me & My Neighborhood Questionnaire* was used to measure mothers' sense of neighborhood support. Mothers read each of the 5 belongingness items and evaluated how much each item described how much support they received from their neighborhood. Items were rated on a 7-point Likert scale (1 = not at all true, 7 = very true). Sample items included: "The friendships and connections I have with people in my neighborhood mean a lot to me", "The neighborhood I live in is a big part of who I am", and "Living in my neighborhood gives me a feeling of belonging" (see Appendix B for a complete listing). Scores were recoded such that higher scores indicate *less* neighborhood support and cohesion. Responses on the 5 items were averaged to create an overall low support score. Internal consistency was measured using Cronbach's alpha. Results indicated that the neighborhood support scale demonstrated strong internal consistency ($\alpha = .81$). The average neighborhood support score was 4.9 (SD = 2.1), indicating that most mothers perceived relatively low levels of neighborhood support.

To create an overall measure of neighborhood disadvantage, the two scores were correlated. The two subscales were statistically and significant correlated ($r = .32$, $p <$

.05), indicating that each subscale measured a unique but related dimension of neighborhood disadvantage. A neighborhood disadvantage composite was created by standardizing the neighborhood dangerousness and the low support score and averaging these two scores (M = 0; SD = 1.3).

Harsh Parenting. Observational ratings of mothers' parenting behaviors during the 2-year-old clean up task were used to measure harsh parenting. Specifically, observer ratings of five distinct behaviors were used to measure mothers' harsh parenting and included: negative physical behaviors, manipulations, restrictive commands, harsh commands, and criticisms. Negative physical behaviors were defined as any painful, harsh, intrusive, or controlling (e.g., slaps or sharp pulls) physical contacts initiated by mothers. Manipulations included statements that offer false explanations, impossible incentives, or threaten punishment in an attempt to persuade children to comply with mothers' request. Restrictive commands were verbal statements instructing children what not to do. Harsh commands included orders, demands, or directions given in an angry or harsh tone of voice. Criticisms were defined as verbal statements that criticize or demean children's behavior or children's character.

Coders rated each occurrence of these five parenting behaviors. Frequencies were computed by summing the total number of times mothers used each parenting behavior. Next, for ease of interpreting the scores, a rate-per-minute score was computed by dividing the frequency score by the length of the task (5 minutes for the clean-up task). On average, mothers used negative physical behaviors frequently, or at rate of 5.5 occurrences per minute (SD = 6.7). Harsh commands occurred an average of .67 times per minute (SD = 2.5). On average, mothers criticized their child behavior .20 times per

minute (SD = .52), used restrictive commands 5.4 times per minute (SD = 3.9), and used manipulations .13 times per minute (SD = .47). A harsh parenting rate-per-minute composite score was created by averaging the five individual indicators of harsh parenting. Overall, mother's averaged 1.3 (SD = .93) harsh parenting behaviors per minute. In other words, the majority of mothers used between 1 and 2 harsh parenting behaviors each minute or 7.5 harsh parenting behaviors during the entire 5-minute task.

Externalizing Behavior Problems. The externalizing subscale derived from the *Child Behavior Checklist* (CBCL; Achenbach, 1994) was used to measure mothers' perceptions of their children's externalizing behavior problems at the 2- and 3-year-old assessments. Mothers rated 26 items on a 3-point Likert scale (0 = not true, 1 = sometimes/somewhat true, 2 = very true/mostly true) indicating how much each statement described their children during the past 2 months. Externalizing scores were computed by summing across the 26 items at each point in time. The subscale demonstrated strong internal consistency at both points in time as measured with Cronbach's alpha (age 2 $\alpha = .90$; age 3 $\alpha = .92$). The mean externalizing score at age 2 was 15.2 (SD = 8.5) and at age 3 was 13.1 (SD = 8.1). High externalizing scores likely reflect an inability to control angry reactions and are symptomatic of poor behavioral control (Kochanska, 1993, 1995).

Internalizing Behavior Problems. Twenty-five items from the CBCL were used to measure internalizing problems (see Appendix C). Mothers rated each item in terms of how much the statement reflected children's behavior during the past 2 months. Items were rated on a 3-point Likert scale ranging from not true (0) to very true (2). Internalizing scores were created by summing across the 25 items at each point in time

(age 2 mean = 10.3, SD = 6.7; age 3 mean = 10.2; SD = 6.2). The internalizing subscale demonstrated strong internal consistency at both points in time (age 2 α = .86; age 3 α = .84).

Table 2. *Means and standard deviations of study constructs.*

	Mean	Standard Deviation	Minimum	Maximum
Wave 1 (n = 55)				
Neighborhood Disadvantage	0	1.3	-4.0	3.9
Harsh Parenting Rate-per-minute	1.3	.93	0	4.4
Externalizing Behavior Problems: Age 2	15.2	8.5	1	34
Internalizing Behavior Problems: Age 2	10.3	6.7	0	24
Wave 2 (n = 37)				
Externalizing Behavior Problems: Age 3	13.1	8.1	0	31
Internalizing Behavior Problems: Age 3	10.2	6.2	1	26

Results

Before testing the specific hypotheses, two sets of analyses were computed. First, given the large number of missing cases, scores from families with two waves of data were compared with those families with only one wave of data using Analysis of Variance procedures (ANOVA). Second, correlational analyses were computed to ensure that the constructs were related as expected. Finally, hierarchical regression analyses were computed to test the expected direct and indirect effects of harsh parenting and neighborhood risk on change in externalizing and internalizing problem behaviors.

Missing data analysis: Mean comparisons. One-way ANOVAs were computed to determine if the means of the age 2 study construct varied significantly across those participants with and without age 3 data. No statistically significant differences emerged, indicating no statistical evidence for group differences.

Correlational analyses. Initial support for study hypotheses was first evaluated using correlational analyses. As shown in Table 3, neighborhood disadvantage and harsh parenting rate-per-minute scores were not significantly correlated ($r = .00$). Both the neighborhood disadvantage and harsh parenting scores were statistically and significantly correlated with age 2 child externalizing scores ($r = .28$, $r = .24$, respectively) and internalizing scores ($r = .27$, $r = .13$, respectively) but not age 3 (see Table 3). Interestingly, the magnitude of the neighborhood disadvantage correlations with age 2 and 3 externalizing and internalizing problems were similar; thus, variations in the sample size across the two waves of data may partially explain the lack of statistical significance at age 3. In contrast, although the magnitude of the harsh parenting rate-per-minute score and externalizing problem scores were similar at both points in time,

differences emerged with internalizing scores. Specifically, the correlation between harsh parenting and age 3 internalizing problems was three times stronger than the age 2 internalizing problems. Not surprisingly, externalizing and internalizing behaviors at both ages were statistically significantly and positively correlated (see Table 3).

Table 3. *Correlations among study constructs.*

	1	2	3	4	5
1. Neighborhood Disadvantage	1.00				
2. Harsh Parenting Rate-per-minute	.00	1.00			
3. Externalizing Problems: Age 2	.28*	.24	1.00		
4. Externalizing Problems: Age 3	.21	.23	.69**	1.00	
5. Internalizing Problems: Age 2	.27*	.13	.75**	.55**	1.00
6. Internalizing Problems: Age 3	.24	.39*	.48**	.73**	.57**

⁺ p < .10, * p < .05, ** p < .01

Hypothesis Testing. Finally, the hypotheses evaluating the direct and interactive effects of neighborhood risk and harsh parenting on concurrent and longitudinal change in children’s externalizing and internalizing behaviors from age 2 to 3 were evaluated. A neighborhood disadvantage x harsh parenting interaction term was computed by centering each variable and multiplying them as suggested by Baron and Kenny (1986). Four hierarchical regression equations were computed, two estimating children’s externalizing and internalizing problems at age 2 and two estimating change in problem

behaviors from age 2 to 3. As summarized in Table 4, the first set of regression equations evaluated the concurrent effects. Table 5 summarizes the results of the analyses estimating the magnitude of the effects of the independent variables on change in externalizing and internalizing behaviors from age 2 to 3.

Main and interactive effects of neighborhood disadvantage and harsh parenting on problem behavior at age 2.

Evaluations of the contemporaneous effects of neighborhood disadvantage and harsh parenting on age 2 problem behavior were computed using hierarchical multiple regression analysis. In the first step of each equation, the main effects of neighborhood disadvantage and harsh parenting were entered. Statistically significant beta coefficients and a statistically significant R^2 would indicate that the main effects accounted for significant portions of the variance associated with the age 2 problem behavior score. The interaction term was entered into the second step of the equation; similarly, a statistically significant beta and a statistically significant change in R^2 would provide initial support for the hypothesis.

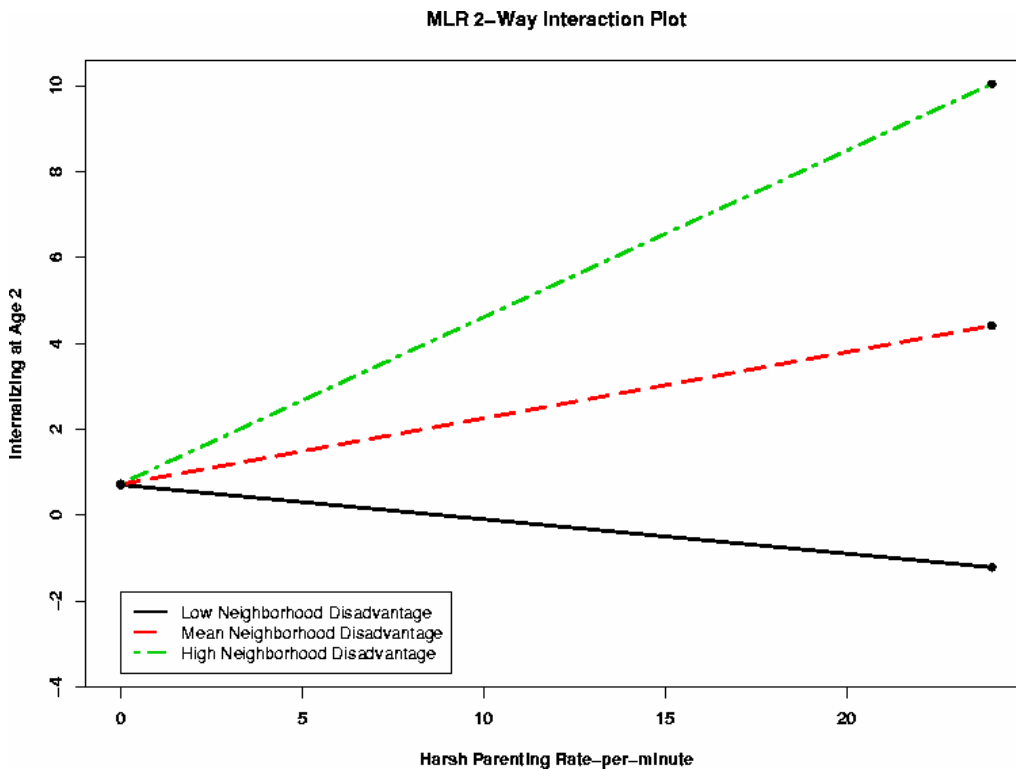
Externalizing Problems: Age 2. In the first step of the equation, neighborhood disadvantage and harsh parenting were entered. Only the beta associated with harsh parenting was marginally statistically significant ($\beta = .26$; $p < .10$). The R^2 associated with this step was not statistically significant. Thus, although harsh parenting is somewhat related to externalizing problems at age 2, harsh parenting did not explain significant portions of the variance associated with externalizing problems. In the second step, the interaction term was entered; no statistically significant beta coefficient or change in R^2 emerged.

Internalizing Problems: Age 2. To consider the effects of neighborhood disadvantage, harsh parenting, and their interaction on childhood internalizing scores at age 2, an additional hierarchical regression equation was computed in the same way. The beta coefficients associated with the main effects were not statistically significant. In the second step, a marginally statistically significant beta coefficient associated with the interaction term emerged. Given the small sample size, this interaction term is likely meaningful and was plotted (e.g., Cohen, Cohen, West, & Aiken, 2003). Figure 2 graphically depicts this interaction. Consistent with expectations, harsh parenting was unrelated to children’s internalizing problems except under conditions of high levels of neighborhood disadvantage.

Table 4. *Results of the hierarchical multiple regression equations estimating the main and interactive effects of harsh parenting and neighborhood disadvantage at age 2.*

	Externalizing Problems		Internalizing Problems	
	β	ΔR^2	β	ΔR^2
Step 1: Main Effects				
1. Harsh Parenting Rate-per-minute	.26+		.18	
2. Neighborhood Disadvantage	.17		-.02	
		.13		.08
Step 2: Interaction				
Harsh Parenting * Neighborhood Disadvantage	.13		.35+	
		.01		.05
Overall R^2		.14		.13
+ $p < .10$, * $p < .05$				

Figure 2. *Interaction between neighborhood disadvantage and harsh parenting on age 2 internalizing behaviors.*



Effects of neighborhood disadvantage and harsh parenting on change in problem behaviors from age 2 to 3.

In order to evaluate whether neighborhood disadvantage, harsh parenting, and their interaction were associated with change in problem behaviors, a second set of hierarchical regression equations were computed. The same procedures used in the concurrent analyses were used in the longitudinal analyses, except that the age 2 problem behavior score was entered in the first step, the main effects in the second, and the interaction effects in the third. As with the previous analyses, statistically significant beta coefficients and statistically significant increases in the amount of variance (change in

R²) would support expectations.

Change in Externalizing Problems. After controlling for earlier levels of externalizing problems at age 2, results indicated that there were no statistically significant main effects for harsh parenting or neighborhood disadvantage on externalizing behavior problems at age 3 (see Table 5). Additionally, no statistically significant interaction term between harsh parenting and neighborhood disadvantage emerged (see Table 5). Moreover, only age 2 externalizing problems accounted for statistically significant portions of the variance associated with age 3 externalizing problems, as indicated in the lack of statistically significant change in R². Taken together, no statistical support emerged for this study hypothesis.

Change in Internalizing Problems. In contrast to the externalizing model, the beta associated with harsh parenting was marginally statistically significant, after controlling for age 2 internalizing behavior problems. The beta coefficient associated with neighborhood disadvantage was not statistically significant. This step did account for marginally statistically significant portions of the variance as noted in the marginally significant change in R² ($\Delta R^2 = .11$; see Table 5). The beta associated with the interaction term and the R² associated with this step were not statistically significant.

Table 5.

Results of the hierarchical regression analysis considering the effects of harsh parenting and neighborhood disadvantage on change in problem behaviors.

	Externalizing Problems: Age 3		Internalizing Problems: Age 3	
	β	ΔR^2	β	ΔR^2
Step 1: Control				
Problem Behavior at age 2	.65*		.47*	
		.47*		.32*
Step 2: Main Effects				
1. Harsh Parenting Rate-per-minute	.10		.32+	
2. Neighborhood Disadvantage	.15		.11	
		.02		.11+
Step 3: Interaction				
Harsh Parenting * Neighborhood Disadvantage	-.08		.08	.05
		.00		.00
Overall R ²		.49*		.43*

+ p < .10, * p < .05

Discussion

Previous studies have emphasized the importance of harsh parenting and neighborhood disadvantage on children's risk for developing more serious internalizing and externalizing problems during middle childhood and adolescence, but few studies have considered these effects during early childhood. Given the high residential mobility, yet relatively low rates of permanent mobility to more affluent neighborhoods (Entwisle & Alexander, 1998; Wang, Haertel, & Walberg, 1994), exposure to disadvantage neighborhoods and harsh parenting likely begins well before middle childhood and adolescence. The goal of the present study was to consider the direct and interactive effects of exposure to dangerous, unsupportive neighborhoods and harsh, controlling parenting during the toddler years on risk for externalizing and internalizing problems. The model depicted in Figure 1 provided the framework for the study hypotheses. Findings related to harsh parenting will be described first, followed by a discussion of the role of neighborhood on emerging problem behavior during toddlerhood. Finally, the limitations and implications for future studies will be considered.

Harsh parenting and the emergence of externalizing problems and internalizing problems during toddlerhood.

Repeatedly, harsh parenting has been linked to externalizing problems during toddlerhood, but considerably less evidence has considered the role of harsh parenting on emerging internalizing problems. Regarding the effects of harsh parenting on concurrent levels of problem behaviors, only a marginally significant association for externalizing problems emerged. In contrast, harsh parenting was associated with increases in internalizing problems from age 2 to 3. These results are surprising given that previous

studies repeatedly report that harsh parenting predicts increases in children's externalizing behaviors during the toddler period (e.g., Pettit, Laird, Dodge, Bates, & Criss, 2001; Scaramella & Conger, 2003; Shaw, Winslow, Owens, Vondra, Cohn, & Bell, 1998; Weiss, Dodge, Bates, & Pettit, 1992). Several explanations may account for these findings.

First, consistent with research among African-American families, harsh parenting may have less of an impact on the development of externalizing problems among children from African-American families. That is, Deater-Deckard and Dodge (1997) argue that harsh parenting practices may be viewed less negatively by parents and children in African-American families. Consistent with these recent findings, the lack of statistical significance of harsh parenting on change in externalizing problems may be meaningful and may indicate that children as young as toddler-age may not respond to harsh and controlling parenting negatively.

Second, the lack of statistically significant over time associations regarding externalizing problems could be due to how parenting was measured. In the present study, harsh parenting was measured using micro-social indicators of the frequency of mothers' use of 5 different controlling and restrictive behaviors. Previous studies have measured harsh parenting with retrospective reports (e.g., Bates, Pettit, Dodge, & Ridge, 1998), self report questionnaires (e.g., Galambos, Barker, & Almeida, 2003), global observational ratings (e.g., Scaramella & Conger, 2003), and interval coding (e.g., Shaw et al., 1998). Each of these types of measurement strategies have resulted in findings that harsh parenting predicts externalizing problems, even with very small samples (e.g., Scaramella & Conger, 2003). Thus, the use of micro-social coding methods may be less

responsible for the pattern of statistical findings than the way the construct was conceptualized.

Alternatively, the codes used to measure harsh parenting may not actually measure harsh parenting. When considering the rate of mothers' use of each of the 5 harsh parenting codes, mothers used restrictive commands and negative physical behaviors most often. Both of these parenting behaviors involve a level of intrusive control. Thus, the actual composition of the harsh parenting construct used in this study may be more consistent with early indicators of psychological control. Psychological control has been defined as negative parenting practices that "constrain, invalidate, and manipulate a child's psychological and emotional experience and expression" (pg. 3314, Barber, 1996). Largely, the harsh parenting construct included in this study fits within this definition of psychological control (i.e., restrictive commands, negative physical behaviors, manipulation, criticism, and harsh commands). Importantly, high levels of physical and behavioral control as well as restrictive behaviors used by parents do not seem to be directly associated with externalizing behaviors (Aunola & Nurmi, 2005; Galambos, Barker, & Almeida, 2003), but rather seem to be associated with internalizing problems during early childhood (Morris, Silk, Steinberg, Sessa, Avenevoli, & Essex, 2002). Consistent with the results from the present study, psychological control has not been found to predict change in externalizing behavior, but such psychologically controlling parenting practices seems to increase children's risk for developing internalizing behavior over time (Hetherington & Martin, 1986).

Neighborhood disadvantage as a context for amplifying risk for problem behaviors

Neighborhood disadvantage has repeatedly been linked to the emergence of problem behaviors during middle childhood and adolescence (e.g., Bates, Luster, & Vandenberg, 2003; Beyers, et al., 1994; Linares, Heeren, Bronfman, Zuckerman, Augustyn, & Tronick, 2001; Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993; Greenberg, Lengua, Coie, & Pinderhughes, 1999; Kohen, Brooks-Gunn, Leventhal, & Hertzman, 2002; McCarty & McMahon, 2003). Few studies have considered the influence of neighborhood disadvantage during early childhood. No evidence for direct neighborhood effects emerged in the present study; however, a marginally statistically significant interaction emerged when considering internalizing problems. Given the difficulty of finding evidence for statistical interaction, particularly with small samples (e.g., Aiken, West, Cohen & Cohen, 2003), this finding will be interpreted with some caution.

As Figure 2 illustrates, neighborhood disadvantage was associated with higher levels of age 2 internalizing problems only when combined with high rates of harsh parenting. If children do indeed respond to the measure of harsh parenting used in the present study in a way more consistent with psychological control, then the combination of psychologically controlling parenting and dangerous neighborhoods may provide a context that is well suited for emerging problem behaviors. The findings associated with neighborhood disadvantage may be best discussed in combination with the role of parenting on children's risk for problem behaviors.

Taken together, the results from this study may suggest a single pathway of problem behaviors that has early roots in internalizing problems. That is, mothers' use of harsh, intrusive control during early childhood may increase children's levels of acting

out, or externalizing problems in the moment. When such parenting is used in a context of a disadvantaged neighborhood, children's risk for developing problems associated with anxiety, fear, and withdrawal may increase over time. Such a pathway may be restricted to situations in which harsh, psychologically controlling parenting is viewed as socially acceptable and neighborhood danger is high. Mothers who perceive low levels of support and high levels of neighborhood disadvantage may use more psychological and behavioral control to ensure children's safety (Wilson, 1987). Given the high threat of danger in the neighborhood, mothers may feel particularly justified using whatever means to control their children's actions. Consistent with this idea, the more normative a parenting behavior is viewed within a culture, the more frequently that behavior is likely used (e.g., Deater-Deckard & Dodge, 1997). Thus, the combination of harsh, intrusive parenting and residing in disadvantaged neighborhoods may provide a setting in which children's risk for entering onto a problem behavior pathway increases dramatically. Such contexts may increase children's risk for internalizing problems during early childhood, problems that may be related to later and more severe externalizing problems. Future research investigating contextual variations in the roots of internalizing problems clearly is needed.

Limitations and Implications

The current study is not without limitations. First, the small sample size due to the effects of hurricane Katrina decreases the likelihood of significant associations and predictions between harsh parenting, neighborhood disadvantage, and childhood behavior problems, as well as decreased the variability on these measures. Marginally significant associations and predictions may have become statistically significant with a larger

sample size. Larger samples also may have resulted in increased effect sizes and measurement variability. Second, a single source of information was used for each construct. Increasing the number of indicators used to create each construct may have provided more accurate assessments and more variability associated with each construct. Third, the sample is quite homogenous. Most families reported experiencing a lot of dangerous events; greater variety in the types of neighborhoods children resided may have increased the likelihood of detecting main and interactive neighborhood effects.

The present study does represent an important downward extension of the literature on neighborhood disadvantage and harsh parenting into toddlerhood. Effects for harsh parenting and neighborhood disadvantage did emerge. In contrast to existing literature, the pattern of statistical significance indicated that harsh parenting was associated with increases in internalizing problems only. Different theoretical pathways may be required to explain the process by which externalizing and internalizing problems develop among African-American children from at-risk neighborhoods. African-American children seem to be at the greatest risk for developing externalizing and internalizing behavior problems because they are more likely to live in disadvantaged neighborhoods (e.g., McLoyd, 1990) and to be exposed to harsh parenting (e.g., Deater-Deckard & Dodge, 1997). Unfortunately, low-income African-American families with young children are understudied in terms of developmental processes that reduce risk for problem behaviors and, surprisingly, are rarely the focus of community prevention and intervention efforts. Future research that evaluates the efficacy of theoretical models delineating pathways of problem behaviors using more socioeconomically diverse samples is needed.

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Appendices

1. Me and My Neighborhood Questionnaire
2. Child Behavior Checklist

2. Human Subjects Approval Form.

University Committee for the Protection
of Human Subjects in Research
University of New Orleans

Form Number: 7AUG04
(please refer to this number in all future correspondence concerning this protocol)
Principal Investigator Laura Scaramella Title: Associate Professor
Faculty Supervisor: _____ *(if PI is a student)*
Department: Psychology College: Science
Project Title: The mothers and preschoolers study: Wave 2
Date Reviewed: 8/02/04

Dates of Proposed Project Period From 8/15/04 to 8/14/05


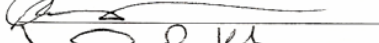
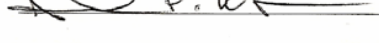
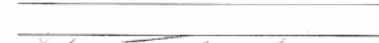



**approval is for one year from approval date only and may be renewed yearly.*

Note: Consent forms and related materials are to be kept by the PI for a period of three years following the completion of the study.

- | Approval Status | Date |
|---|------|
| <input checked="" type="checkbox"/> Full Committee Approval | |
| <input type="checkbox"/> Expedited Approval | |
| <input type="checkbox"/> Continuation | |
| <input type="checkbox"/> Rejected | |
| <input type="checkbox"/> The protocol will be approved following receipt of satisfactory response(s) to the following question(s) within 15 days: | |

add mandated reporter right to remove data

Committee Signatures:

	Laura Scaramella, Ph.D. (Chair)
	Pamela Jenkins, Ph.D.
	Anthony Kontos, Ph.D.
	Betty Lo, M.D.
	Richard B. Speaker, Ph.D.
	Gary Talarchek, Ph.D.
	L. Allen Witt, Ph.D.

Vita

Kristin Callahan was born in Atlanta, Georgia and graduated from University of Georgia in May of 2003 with a B.S. in Psychology, an A.B. in Sociology, and an A.B. in Criminal Justice. As a research to Dr. Laura Scaramella, Kristin is currently studying how contextual factors influence the development of children's externalizing and internalizing behavior problems.