

RESEARCH ARTICLE

Parenting Techniques as a Mediator between Female Caregivers' Internalizing Symptoms and Externalizing Behaviors among Preschool-aged Children

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Behavior problems are commonly reported difficulties and one of the largest referral reasons parents seek therapeutic services for their child; thus, it is imperative to identify variables related to child behavior problems. The current study considered the mediating role of parenting techniques on the relation between primary female caregivers' internalizing (i.e., anxiety and depression) symptoms and child externalizing behavior (i.e., hyperactivity, aggression, attention problems) among preschoolers. Participants included 153 parents with children enrolled in a Head Start program in small city/rural areas. Results suggested that inconsistent discipline partially mediated the relation between caregivers' internalizing symptoms and child hyperactivity and aggression. Results also suggested that parental involvement partially mediated the relation between caregivers' internalizing symptoms and child attention problems. These findings demonstrated a mediational role of inconsistent discipline and parental involvement between caregivers' internalizing symptoms and child externalizing behavior and have implications for early intervention.

Keywords: aggression, behavior problems, parent-child relationship, parenting

Identification and early prediction of child externalizing behaviors is imperative, as these

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behaviors and associated disorders are a common behavioral challenge for educational providers (Lopez, Tarullo, Forness, & Boyce, 2000). Researchers have noted the progression of severity of behavior problems in a subgroup of children who display early behavior problems (Hinshaw & Lee, 2003; Loeber, Farrington, Stouthamer-Loeber, & Van Kammen, 1998; Patterson, Reid, & Dishion, 1992). Compared to older children, a higher frequency of externalizing behaviors, such as minor physical aggression, defiance, and temper tantrums, in preschool children is typical. However, developmentally, these behavior problems decline in frequency as children age and acquire better emotional and behavioral regulation skills (Tremblay, 2000). As such, an increase—or even a lack of the typical decrease—in externalizing behaviors warrants further assessment and possible intervention, as this early display of disruptive behavior has been linked to an increased use of community and school-based services for children with special needs and more serious psychopathology, including Attention-Deficit/Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), Conduct Disorder (CD), and Antisocial Personality Disorder (APD; American Psychiatric Association, 2000; Hinshaw & Lee, 2003). The importance of attending to externalizing behaviors early may prevent the later influence this psychopathology has at an individual, family, school, and societal level.

One direct method for intervention in this progression is to determine key variables in a child's life that may precipitate externalizing behaviors. By identifying and then targeting those variables, families, school personnel, and practitioners may curb the progression of the problematic behavior before it becomes too severe. Addressing this issue within a preschool population is particularly appropriate, given that early prevention efforts tend to show more benefits than targeting adolescents presenting with more severe behavior problems for intervention (Dishion & Patterson, 1992; Lochman & Wells, 2003). The current study focused on an investigation of the early relations between childhood externalizing behaviors, parenting techniques, and caregivers' symptoms of anxiety and depression—with a focus specifically on young children who attend Head Start.

The Relation of Parenting Techniques and Child Externalizing Behavior

Recent research has focused on parental characteristics that relate to child behavior problems, much of which was based on the seminal work of Gerald Patterson and colleagues' theory of the coercive family process (Patterson et al., 1992). Parenting techniques, in contrast to parenting style, have been an important construct because they are directly observable and relate to known treatment intervention components for behavioral problems. Research-to-date (as described below) has demonstrated the relation between child behavior and both adaptive and maladaptive strategies of parenting.

Seminal work in the relation of parenting techniques to child behavior initially focused on school-aged children, primarily elementary and middle school cohorts. Adaptive strategies such as parental involvement, monitoring of activities, and the use of praise and positive reinforcement have demonstrated a significant relation with fewer reports of ADHD and CD, physical aggression, delinquency, substance use, and covert behavior (Griffin, Botvin, Scheier, Diaz, & Miller, 2000; Lansford et al., 2011; Loeber et al., 1998), including a lasting association with conduct problems across an 8-year longitudinal study (Chronis et al., 2007). In a longitudinal study of childhood to early adolescent aggression, Haapasalo and Tremblay (1994) reported that children labeled as “fighters”—engaging in such behaviors during at least one

period over the course of kindergarten through age 14—also experienced less parental supervision than those children labeled as “non-fighters;” delinquency risk increased with both diminished parental supervision and increased harsher punishment. Studies with adolescents have indicated similar protective factors of parental involvement and monitoring on delinquent and high-risk behaviors (Carlo, Raffaelli, Laible, & Meyer, 1999; Laird, Criss, Pettit, Dodge, & Bates, 2008; Yang, Stanton, Li, Cottrel, Galbraith, & Kaljee, 2007). These findings highlighted the stability of this relation over time and emphasized the need to better understand this relation and intervene in early childhood.

Recently, research has focused on several parenting techniques related to behavior in preschool populations. Adaptive parenting techniques have demonstrated an association with the stability of appropriate preschool behavior for children between 2 and 4 years (Trentacosta et al., 2008). In addition, parental involvement has been shown to mediate the relation between economic hardship and childhood externalizing behaviors both during the preschool years (Trentacosta et al., 2008) as well as in the educational context for 2nd through 7th graders (Bolger, Patterson, Thompson, & Kupersmidt, 1995). Therefore, children in families with economic disadvantage but with parents possessing strong, adaptive parenting techniques may be less at-risk for displaying behavior problems. Such findings have underscored the need to examine other possible parenting techniques that may relate to child outcomes for children living in economically disadvantaged environments, including children attending Head Start programs.

Intervention studies with focus on improving parenting skills also have documented the improvement of child behavior when parenting practices involve less harsh discipline and increased positive discipline (e.g., Eyberg & Boggs, 1998; Nixon, 2002; Webster-Stratton, 1998). Many of these studies of preschool populations, as well as elementary populations, assessed positive and involved parenting within the context of parenting styles or as global composites. Parenting styles have provided a helpful understanding of a family’s milieu; however, definitions of styles are often a proxy for the specific behaviors that define parenting. Given that one goal of this body of research was early intervention, measuring the constructs as parenting techniques and specific skills have allowed for objective measures of change and provided parents, as well as facilitators of treatment, an operational definition of targeted behaviors.

A growing body of literature has examined the relation between parenting techniques and behaviors associated with school and learning readiness, such as memory and receptive vocabulary, in the preschool population (e.g., Culp, Hubbs-Tait, Culp, & Starost, 2000; Mantzicopoulos, 1997). Head Start programs, with their focus on parental involvement, also have reported high levels of parental engagement in the classroom (Henrich, 2010) as well as opportunities to foster learning experiences at home, which have greatly influenced not only educational experience and parental empowerment in their child’s education (Arnold, Zeljo, Doctoroff, & Ortiz, 2008; Levett, 2006) but likely also a positive parent-child interaction.

In addition to adaptive parenting strategies, certain discipline techniques (e.g., harsh or corporal punishment, coercion techniques) as well as parental inconsistency of adaptive techniques (Shelton, Frick, & Wootton, 1996), have demonstrated associations with maladaptive child behaviors in the preschool population. Brook, Zheng, Whiteman, and Brook (2001) reported in a sample of 2-year-old toddlers that control of the child through guilt and coercion demonstrated a stronger correlation with toddler aggression than warm parenting techniques, such as affection, consistency, and satisfaction with child. In a sample of Head Start families, harsh and inconsistent discipline, harsh maternal discipline, and critical statements made by the

mother to her child were all significantly related to preschool conduct problems (Webster-Stratton & Hammond, 1998). The link between harsh discipline, as operationalized in a variety of ways, has demonstrated stability in its relation with preschool externalizing behavior.

These findings are also present for school-aged children yielding additional support for the importance of early intervention. Specifically, discipline strategies, especially physical punishment and punitive, maladaptive verbal reasoning was related to increased delinquency and physical aggression across age, with more covert misbehaviors during earlier development and higher frequencies of ADHD and CD during later development (Loeber et al., 1998; McLoyd & Smith, 2002; Stormshak et al., 2000). More recent research also has linked inconsistent discipline to a higher frequency of disruptive behavior, attention problems, and conduct problems in school-aged children, including community, at-risk, and clinical samples (Barry, Dunlap, Lochman, & Wells, 2009; Shelton et al., 1996; Stanger et al., 2004; Sutton, Cowen, Crean, & Wyman, 1999; Wootton, Frick, Shelton, & Silverthorn, 1997). During adolescence, parental inconsistency in discipline and poor monitoring increases the likelihood that teens will gravitate to deviant peer groups, thus leading to increased delinquent behavior (Coie, Terry, Zakriski, & Lochman, 1995; Patterson et al., 1992). Given that these behavior issues may increase in severity over time—impacting not only the individual but also family and environment surrounding the individual—it is necessary to determine the relation of these constructs in a younger population.

The Relation of Caregiver Internalizing Symptoms and General Distress with Child Externalizing Behavior

In addition to parenting techniques, several characteristics of the parent have shown a direct association with child behavior problems beginning in the preschool years (Harden et al., 2000). In a sample of 426 Head Start families, Webster-Stratton and Hammond (1998) reported moderate maternal depressive symptoms in 42% of their sample; maternal depression in their study was noted to be related to the conduct disturbance in the caregiver's child. This rate of reported depressive symptomatology was congruent with a larger study of 5,820 mothers of Head Start children, where depression screening measures indicated a positive screen in approximately 40% of mothers (Lanzi, Pascoe, Keltner, & Ramey, 1999). In addition, interventions targeting child behavior and parenting may have a prolonged and, perhaps, delayed positive effect on maternal depression (Chazen-Cohen et al., 2007).

Reports of female caregiver depression also have been linked with externalizing disorders in school-aged children, such as ADHD, CD, early delinquency, and physical aggression (Loeber et al., 1998; Spieker, Larson, Lewis, Keller, & Gilchrist, 1999). These findings have been supported both longitudinally and across multiple settings, at home and at school (Luoma et al., 2001). In particular, Chronis and colleagues (2007) demonstrated that maternal depression predicted child conduct problems, as rated by both a parent and teacher, in children diagnosed with ADHD over an 8-year longitudinal study. In addition, over the time period of the study, the chronicity of maternal depression continued to be related to a child's externalizing behavior, suggesting the additive risk of prolonged caregiver depressive symptoms. In a separate study of children's coping with the stressors associated with parents with Major Depressive Disorder (MDD) or Dysthymia, researchers concluded that these children demonstrated high levels of aggression (Langrock, Compas, Keller, Merchant, & Copeland, 2002). This association with

child externalizing behaviors also has been found for depression in adolescent mothers both for infant to 2-year-old children (Leadbeater & Bishop, 1994) and for 4- to 5-year-old children (Black et al., 2002).

Compared to that on depression, less research is currently available with respect to female caregiver anxiety and its relation to externalizing behaviors in children. As with depression, research has indicated that anxious mothers tend to report higher levels of disruptive behavior problems in their children, when compared to non-anxious mothers (Najman et al., 2000). Furthermore, anxiety in mothers has predicted later development of child disruptive behaviors (Loeber et al., 1998; Spieker et al., 1999). This relation between female caregiver anxiety and child disruptive behaviors remained significant even after controlling for depression (Briggs-Gowan, Carter, & Schwab-Stone, 1996). Kashdan and colleagues (2004) found parental anxiety was related to symptoms of ODD, lower levels of maternal warmth and involvement, and higher levels of maladaptive discipline in a sample of 45 families with one male child between 5-12 years diagnosed with ADHD. Lindhout and colleagues (2006) reported similar results, showing significant differences in nurturance and restrictiveness among anxious parents when compared to parents without an anxiety disorder for parents of children between 6-18 years. Given that female caregiver internalizing symptomatology was both prevalent and negatively associated with child externalizing behavior, further exploration of the pathway of impact on parenting and child behavior will help to inform professionals by demonstrating opportunities for intervention.

Parenting Techniques as a Mediator

As noted earlier, Chronis and colleagues (2007) reported both maternal depression and the use of adaptive parenting to be significant predictors of conduct problems (i.e., with adaptive parenting being inversely related). They further suggested that both parenting techniques and parental psychopathology contribute uniquely to the development of externalizing behaviors in children diagnosed with ADHD. In addition, Baydar, Reid, and Webster-Stratton (2003) reported that higher levels of maternal anger and depression predicted harsh and inconsistent parenting in a baseline sample of Head Start families participating in an intervention to increase adaptive parenting skills. However, only a handful of studies have considered the mediating role of parenting techniques in the relation between caregivers' internalizing symptoms and child behavior problems. For example, a preliminary study concluded that, after controlling for income level and recent stressful life events, maladaptive parenting partially mediated the relation between female caregiver anxiety/somatization as well as depression and a child's hyperactivity, aggressive behaviors, and conduct problems in a school-aged, community sample (Garland, Barry, Dunlap, & Goss, 2005). In a large scale, longitudinal study of 10 to 15 year olds, parental nurturance and rejection were reported to be mediators between parental depression and child externalizing behaviors (Elgar, Mills, McGrath, Waschbusch, & Brownridge, 2007). Finally, Barry and colleagues (2009) demonstrated maternal anxiety and depression predicted child aggression, when controlling for parenting stress and SES; this relation was partially mediated by parents' inconsistent use of discipline.

Whereas these studies investigated these mediations in school-aged populations, Mistry, Benner, Biesanz, Clark, & Howes (2010) examined such questions in a longitudinal, mediational study of risk factors of preschool behavioral concerns. These authors reported a significant

indirect effect of cumulative risk in infancy on preschool attention and behavioral regulation as well as school readiness through levels of maternal warmth and responsiveness. In this study, cumulative risk at infancy was defined by seven indicators, including a screening measure of maternal depressive symptoms. The overall model of cumulative risk during three time points in early development explained a significant amount of the variance in problematic behaviors; however, the individual contributions of each facet of the composites were not reported. To continue the understanding of the relation between parenting techniques and parental characteristics and to address the need for early identification and prevention efforts, particularly among at-risk children, the current study examined the complex associations among primary female caregivers' internalizing symptoms, parenting techniques, and child externalizing behaviors in a Head Start sample.

Current Study and Hypotheses

Given the potential negative outcomes associated with early externalizing behavior—as well as the possibility of a positive impact of early intervention—further research to help identify possible points of intervention is essential. Understanding the mediational role that parenting techniques may play in the relation between caregiver risk factors and child outcomes is pivotal because parenting practices are amendable to treatment (e.g., Barkley, 1997; Eyberg & Boggs, 1998). Many previous studies have considered one facet of parenting techniques or created composites of techniques that focus on global positive and negative parenting practices as well as composites or screening of child behavior as opposed to clinical evaluation. The current study investigated the relation of four parenting techniques and primary female caregiver internalizing symptoms with early childhood hyperactivity, aggression, and attention problems using broadband clinical measures. In line with previous research addressing these constructs, it was hypothesized that (1) female caregivers' internalizing symptoms would significantly relate to the three types of externalizing behavior; and (2) parenting techniques would mediate the relation between female caregivers' internalizing symptoms and child externalizing behavior. See Figure 1 for a representation of the hypothetical mediational model.

METHOD

Participants

Participants were 153 primary female parents/caregivers and their child, who was enrolled in a Head Start program. [An *a priori* power analysis—with alpha set at .05, power set at .80, with four predictor variables, and testing incremental ΔR^2 for one tested predictor assumed have a small to moderate effect size ($\Delta R^2 = .05$) in each regression analysis—indicated that a sample size of 152 was needed.] Participants were recruited from three rural Head Start programs in Texas and Mississippi. The three programs consisted of 19 centers that serviced 9 counties in both states. Table 1 presents relevant demographic information for the total sample, as well as the sample from the Texas Head Start centers ($n = 94$) and the sample from the Mississippi Head Start centers ($n = 59$), separately. Within the total sample, 89.5% of participants were mothers, 8.5% were grandmothers, and 2.0% were other female caregivers (e.g., child's aunt). Caregivers reported data for one child in the family. Children for whom data were collected were 43.8%

female. Parent-reported child ethnicities were 55.6% African American, 19.6% Caucasian, 18.3% Hispanic/Latino, and 5.9% “Other,” which typically included Asian, Asian-American, and children from biracial backgrounds. When appropriate, contact with the participants and measures in the study were available in Spanish; 14 (9.5%) caregivers preferred Spanish materials. All primary, female caregivers were included in the analyses.

TABLE 1
Demographic Information of Participants

Demographic Categories	Total sample	Mississippi sample	Texas Sample
Percentage of mothers	89.5%	86.4%	91.5%
Female Caregiver’s highest education			
Less than HS graduation	0.7%	0%	1.1%
Completed middle school	2.6%	0%	4.3%
Partial high school	16.3%	16.9%	16.0%
HS Graduate	30.1%	23.7%	34.0%
Vocational Training	5.2%	3.4%	6.4%
Partial college	28.8%	39.0%	22.3%
College Graduate	9.2%	10.2%	8.5%
Graduate Degree earned	5.2%	5.1%	5.3%
Percentage of female children	43.8%	42.4%	44.7%
Ethnicity of child			
African American	55.6%	76.3%	42.6%
Hispanic/Latino	18.3%	0%	29.8%
Caucasian	19.6%	20.3%	29.8%
Other	5.9%	1.7%	8.5%
Mean number of people living in house	4.2 people	3.9 people	4.4 people
Median Income Range	\$10,000-14,999	\$10,000-14,999	\$10,000-14,999

Measures

Alabama Parenting Questionnaire (APQ; Frick, 1991; Shelton et al., 1996). The APQ global format is a 42-item measure that requires caregivers to respond on a 5-point Likert scale from 1-*Never* to 5-*Always* to represent the “typical” frequency of use of various parenting techniques in the home, yielding five scales based on an average of the items loading on the specific scale. The five scales include: Parental Involvement, which involves engaging in unstructured and structured activities with the child both inside and outside the home (e.g., “You have a friendly talk with your child;” “You drive your child to a special activity;” “You play fun games with your child or do other fun things with your child;” “You talk to your child about his or her friends.”); Positive Parenting, which involves praising and rewarding the child for positive behaviors (e.g., “You praise your child if he/she behaves well”); Poor Monitoring, which involves deficient overall supervision of the child (e.g., “You get so busy that you forget where your child is and what he/she is doing”); Inconsistent Discipline, which involves not sufficiently following through with discipline or consequences when the child engages in negative behaviors (e.g., “You threaten to punish your child and then do not actually punish him/her;” “You let your

child out of punishment early (e.g. lift restrictions earlier than you originally said.);” “Your child is not punished when he or she has done something wrong.”); and Corporal Punishment, which involves physical punishment for negative child behaviors (e.g., “You spank your child with your hand when he/she has done something wrong”).

The APQ has demonstrated good construct validity (Shelton et al., 1996). It also has been found to be reliable, with adequate internal consistency (coefficient alphas ranging from .67 to .80, except Corporal Punishment, .46) and adequate test-retest reliability (Shelton et al., 1996). This measure also has been used in a preschool population (Clerkin, Marks, Policaro, & Halperin, 2007). For the current study, reliability estimates of the five scales based on Cronbach’s alphas were .75 for Parental Involvement, .74 for Positive Parenting, .66 for Inconsistent Discipline, .64 for Poor Parental Monitoring, and .43 for Corporal Punishment. Although these alpha coefficients are moderate at best, they are consistent with those found by Shelton and colleagues (1996). Nevertheless, there was concern that the corporal punishment scale, which is based on only 3 items, had particularly low internal consistency and, therefore, it was not included in any of the analyses involving the APQ scales.

Brief Symptom Inventory (BSI; Derogatis, 1993). This 53-item self-report, broadband clinical measure yields standardized *T*-scores for nine scales of adult psychopathology as well as a Global Severity Index to determine a person’s overall level of psychological distress. Individuals rate symptoms on a 5-point scale, reflecting degrees of distress ranging from 0-*Not at All* to 4-*Extremely* (Derogatis, 1993). There is evidence for the reliability and validity of this measure for assessing adult psychopathology (Boulet & Boss, 1991), with alpha coefficients ranging from .71 to .85. The scales used in the current study included Anxiety (e.g., “nervousness or shakiness inside,” “feeling fearful,” “feeling tense or keyed up”) and Depression (e.g., “feeling lonely,” “feeling blue,” “feelings of worthlessness”). For the purposes of the current study, an Anxiety/Depression composite was created to measure distress of the female caregiver, due to a high correlation for these two scales, $r = .71, p < .001$, and given previous literature relating to similar outcomes in child behaviors and parenting techniques. The composite was created by averaging the two standardized *T*-scores for the scales. The Cronbach’s alpha coefficient for this composite was .92, demonstrating excellent internal consistency.

Behavior Assessment System for Children – 2, Parent Rating Scale (BASC-2-PRS; Reynolds & Kamphaus, 2004). The BASC-2-PRS is a clinical measure of the frequency and severity of child behavior problems at home. The preschool evaluation yields eight clinical scales and four adaptive scales for the parent form. The preschool version of this assessment has been normed for children between the ages of two and five years. The reliability and validity for the BASC-2-PRS has been well established, and reported internal consistencies for the scales range from .77 to .87 (Reynolds & Kamphaus, 2004). Analyses for the current study utilized the clinical scales of Hyperactivity, Aggression, and Attention Problems. The Hyperactivity scale includes items measuring such behaviors as “fiddling with things, interrupting others, being overactive, and having poor self-control” (Reynolds & Kamphaus, 2004, p. 62). The Aggression scale includes items measuring verbal aggression, such as “arguing, name-calling, and verbally threatening others” as well as physical aggression, such behaviors as “breaking others’ possessions and hitting others”(Reynolds & Kamphaus, 2004, p. 61). Finally, the Attention Problems scale included items measuring “and inability to maintain attention and the tendency to be easily distracted from tasks requiring attention” (Reynolds & Kamphaus, 2004, p. 61). Cronbach’s alpha coefficient ranged from .82 to .85 for the three scales, demonstrating good

internal consistency.

Demographic Questionnaire. Demographic data collected included the following information: basic information about the caregiver(s), including age, gender, educational attainment, ethnicity, primary language spoken, number of people in the home, employment status, and household income. In addition, the demographic questionnaire asked information about the child, including birth date, gender, and ethnicity. Per capita family income was calculated (income divided by number of people in the home) and used as an estimate of the family's SES.

Procedure and Analyses

After gaining IRB approval, an informed consent was sent home to each parent whose child was currently enrolled in a targeted Head Start center. Parents who chose to participate returned the consent form to their child's Head Start center, where they were collected by a research assistant. Parents (specifically primary female caregivers) were then sent the questionnaires to complete at home. Families were only allowed to participate one time and to report on one child, even if more than one child was enrolled in Head Start, to ensure independence of data. Parents were paid \$10 for completion of the questionnaires.

The current survey study included participants drawn from a community sample. The analyses included zero-order correlations and multiple regressions to test relations among the variables. Hypotheses considering mediational relations between female caregivers' internalizing symptoms, parenting techniques, and child externalizing behaviors were tested using Baron and Kenny's (1986) steps for establishing mediational models as well as "PROCESS" (p. 1), a modeling tool described by Hayes (2012) used with statistical software such as SPSS that analyzes "conditional indirect effects" (p. 185) via bootstrapping analytical methods (Preacher & Hayes, 2004).

RESULTS

Missing data analyses indicated 22 participants had missing item responses on one or more measures. Missing data did not exceed 8.5 % for any one item or composite score. Missing data for these analyses were imputed using the Multiple Imputation Estimation Maximization (EM) algorithm in Preliis (Enders, 2001; Enders, 2003; Tabachnick & Fidell, 2001). The EM algorithm was run separately for each measure on item level data, so predictions were only made for a missing datum based on observed data on that measure.

Correlations among Variables and Descriptive Statistics

Table 2 presents a correlation matrix of all variables of interest from the BASC-2-PRS, BSI, and APQ as well as descriptive means and standard deviations of those variables. Standard scores on all measures of psychopathology (e.g., BASC-2-PRS, BSI) were normally distributed. The mean *T*-scores for child externalizing behaviors fell within a normal range of child behavior, based on age-appropriate general norm comparisons: hyperactivity ($M = 53$, $SD = 11.6$), aggression ($M =$

52, $SD = 11.3$), attention problems ($M = 53$, $SD = 9.9$), with between 5 and 7% of children falling in the clinically significant range for each of the behaviors ($T\text{-score} \geq 70$) and 16 and 21% in the at-risk range ($T\text{-score} 60\text{-}69$).

Mean T -scores for female caregiver anxiety ($M = 49$, $SD = 10.5$) and female caregiver depression ($M = 53$, $SD = 9.1$) as measured by the BSI, were also within the normal range. Within this sample, 5.2% of female caregivers reported levels of depression in a clinically significant range (greater than a T -score of 70), and 5.9% of participants reported levels of anxiety greater than a T -score of 70. The mean T -score of the Anxiety/Depression composite was 51, with a standard deviation of 9.02.

The correlation matrix reveals that child behavior problems were significantly correlated (ranging from $r = .49$ to $r = .69$). Likewise, all three child behavior problems were significantly positively correlated with female caregiver internalizing symptoms (anxiety/depression composite), with r s ranging from .37 to .53. Three of the four parenting techniques were significantly related to at least one child behavior problem (see Table 2). Positive parenting was the only parenting technique that did not significantly relate to child outcomes.

TABLE 2
Descriptive Statistics of and Correlations among Variables of Interest

	Hyper	Agg	Attn Prob	Anx/Dep	Involve	Positive	Monitor	Corp Pun	Inconsis
Hyper ^a	53 (11.6)								
Agg ^a	0.69***	52 (11.3)							
Attn Prob ^a	0.67***	0.49***	53 (9.9)						
Anx/Dep ^b	0.53***	0.37***	0.43**	51 (9.05)					
Involve ^c	-0.16*	-0.15	-.30***	-.20*	4.00 (.52)				
Positive ^c	0.04	-0.04	-0.1	-0.12	0.42***	4.6 (.43)			
Monitor ^c	0.16*	0.09	0.00	0.08	-0.09	0.03	1.50 (.47)		
Corp Pun ^c	0.26**	0.22**	0.16	0.16	0.09	0.10	0.06	1.90 (.63)	
Inconsis ^c	0.39***	0.35***	0.19*	0.32***	-0.13	-0.13	0.31***	0.18*	2.20 (.62)

Note: Means and standard deviations (SD) are shown in the diagonal. Hyper = Hyperactivity; Agg = Aggression; Attn Prob = Attention Problems; Anx/Dep = Anxiety/Depression composite; Involve = Parental Involvement; Positive = Positive Parenting; Monitor = Poor Parental Monitoring; Corp Pun = Corporal Punishment; Inconsis = Inconsistent Discipline

^a From Behavior Assessment System for Children – Parent Report (*T*-scores); ^b From the Brief Symptom Inventory (composite *T*-score); ^c From the Alabama Parenting Questionnaire (raw score ranging from 1 to 5); * $p < .05$, ** $p < .01$, *** $p < .001$

Relation of Demographic Variables with Child Behavior Problems

Demographic variables were considered as possible confounding variables to potential results by examining their relation to criterion variables of the mediational analyses, which included the mediators (four parenting techniques) and outcome variables (three child externalizing behaviors). Of these, per capita family income (an estimate of SES) was significantly correlated with both parental involvement, $r = .23$, $p = .004$, and poor parental monitoring, $r = -.23$, $p = .005$. Likewise, consistent with previous literature suggesting higher prevalence of child externalizing behavior among males (Card, Stucky, Sawalani, Little, 2008), gender (coded males = 0, females = 1) was significantly related to child attention problems, $r = -.25$, $p = .002$, indicating higher attention problems among males. The relation between gender and child hyperactivity, $r = -.16$, $p = .06$, suggested a trend toward parents reporting more hyperactivity for males. However, the relation between gender and child aggression, $r = -.06$, $p = .44$, was not significant. Based on these results and to maintain consistency across all models, both child gender and SES were controlled in all subsequent regression analyses.

Relation of Parenting Techniques with Child Behavior Problems

To determine which parenting techniques were uniquely related to the three child externalizing behaviors when considering the other parenting techniques, three regression analyses were conducted. Step 1 included child gender and SES as control variables, and step 2 included all four parenting techniques. The results of these analyses are presented in Table 3. Parenting techniques accounted for 18.4% of unique variance in child hyperactivity, after controlling for child gender and SES. Specifically, parental involvement, $\beta = -.18$, $p = .04$, and inconsistent discipline, $\beta = .37$, $p < .001$, were significant unique predictors, indicating that higher levels of inconsistent discipline and lower levels of parental involvement were associated with more child hyperactivity. Parenting techniques were also significantly related to child aggression after controlling for child gender and SES, accounting for 13.3% of unique variance. In particular, inconsistent discipline, $\beta = .35$, $p < .001$, was a significant unique predictor, such that higher levels of inconsistent discipline were related to higher reported levels of child aggression. Parenting techniques were also a significant unique predictor of child attention problems, accounting for 9.8% of unique variance, after controlling for child gender and SES. Specifically, inconsistent discipline, $\beta = .18$, $p = .03$, and parental involvement, $\beta = -.26$, $p = .003$, were significant unique predictors, with higher levels of inconsistent discipline and lower levels of parental involvement related to increased levels of child attention problems. Thus, when examining the three child externalizing behavior outcomes (hyperactivity, aggression, and attention problems), two of the parenting techniques were related across outcomes (inconsistent discipline and parental involvement).

TABLE 3
Regression Coefficients and Beta Weights for the Relations between Individual Parenting Techniques and Parent-reported Hyperactivity, Aggression, and Attention Problems

	Hyperactivity	Aggression	Attention Problems
Step 1 R²	0.03	0.09	0.08**
Child Gender	-0.17*	-0.07	-0.27**
SES	-0.01	-0.06	-0.15
Step 2 ΔR^2	0.22***	0.16***	0.13***
Child Gender	-0.16*	-0.07	-0.25**
SES	0.02	-0.06	-0.13
<u>Parenting Techniques</u>			
Inconsistent Discipline	0.33***	0.32***	0.15
Involvement	-0.18*	-0.13	-0.27**
Poor monitoring	0.04	-0.05	-0.08
Corporal Punishment	0.20*	0.18*	0.19*
Positive Parenting	0.12	0.05	0.01

Note: **R² and ΔR^2 are in bold.** Standardized coefficients (beta-weights; β) are displayed for each predictor variable at each step in the model.

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

Testing for Mediation

Based on the results of the regression analyses in Table 3, only inconsistent discipline and parental involvement were further considered as potential mediators in the relation between female caregivers' internalizing symptoms and child externalizing behavior. Following Baron and Kenny's (1986) guidelines, three regression analyses were conducted for each test of mediation: (1) regressing the potential mediator (specific parenting technique) on the predictor (caregivers' internalizing symptoms); (2) regressing the criterion variable (specific child behavior) on the predictor (caregivers' internalizing symptoms); and (3) regressing the criterion variable (specific child behavior) on the predictor (caregivers' internalizing symptoms) and the possible mediator (specific parenting technique) simultaneously. Each of these regression analyses were conducted controlling for child gender and SES. From these analyses, the four criteria described by Baron and Kenny were examined to determine if mediation was established as described below.

Two regression analyses were conducted to examine the relation between the two potential mediators (inconsistent discipline and parental involvement) and caregivers' internalizing symptoms (controlling for child gender and SES in step 1). The relations between caregivers' internalizing symptoms and inconsistent discipline, $\Delta R^2 = .10$, $\beta = .32$, $p < .001$, and between caregivers' internalizing symptoms and parental involvement, $\Delta R^2 = .05$, $\beta = -.23$, $p = .006$, were significant. These results indicated that higher levels of caregivers' internalizing symptoms were related to more frequent use of inconsistent discipline (10.4% of the variance) and less frequent parental involvement (4.9% of the variance). Thus, both inconsistent discipline

and parental involvement met the first criterion for mediation (Baron & Kenny, 1986).

Next, regression analyses were conducted to determine if caregivers' internalizing symptoms were significantly related to child hyperactivity, aggression, and attention problems. Controlling for both child gender and SES, caregivers' internalizing symptoms were a significant predictor for child hyperactivity, $\Delta R^2 = .26$, $\beta = .51$, $p < .001$, child aggression $\Delta R^2 = .11$, $\beta = .33$, $p < .001$, and child attention problems, $\Delta R^2 = .21$, $\beta = .45$, $p < .001$. These results indicated that, after controlling for relevant demographic variables, higher levels of caregivers' internalizing symptoms were related to higher levels of child behavior problems, accounting for between 11 and 26% of the variance. Thus, the second criterion for mediation (Baron & Kenny, 1986) was met for all three child externalizing behaviors.

Finally, to examine the final two criteria for mediation (Baron & Kenny, 1986), a series of regression analyses were conducted examining the predictor (caregivers' internalizing symptoms) and each of the two mediators (either inconsistent discipline or parental involvement) simultaneously in the prediction of the three child externalizing behaviors (hyperactivity, aggression, and attention problems). For each of these analyses, child gender and SES were entered as control variables on step 1. Caregiver's internalizing symptoms and inconsistent discipline (or parental involvement) were entered on step 2. Results are presented in Table 4 (examining inconsistent discipline as a mediator) and Table 5 (examining parental involvement as a mediator).

TABLE 4
Regression Analysis for Mediating Role of Inconsistent Discipline on the Relation between
Caregiver Internalizing Symptoms and Child Behaviors

	Hyperactivity	Aggression	Attention Problems
Step 1 R²	0.30***	0.15***	0.27***
Child Gender	-0.16*	-0.07	-0.27***
SES	-0.05	-0.07	-0.15*
Internalizing Symptoms	0.52**	0.37***	0.43***
Step 2 ΔR^2	0.06**	0.06**	0.003
Child Gender	-0.16*	-0.06	-0.27***
SES	0.01	-0.06	-0.14*
Internalizing Symptoms	0.44***	0.29***	0.42***
Inconsistent Discipline	0.25**	0.26**	0.05

Note: **R² and ΔR^2 are in bold.** Standardized coefficients (beta-weights; β) are displayed for each predictor variable at each step in the model.

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

TABLE 5
Regression Analysis for Mediating Role of Parental Involvement on the Relation between
Caregiver Internalizing Symptoms and Child Behaviors

	Hyperactivity	Aggression	Attention Problems
Step 1 R²	0.30***	0.15***	0.27***
Child Gender	-0.16*	-0.07	-0.27***
SES	-0.001	-0.07	-0.15*
Internalizing Symptoms	0.53**	0.37***	0.43***
Step 2 ΔR²	0.003	0.003	0.03*
Child Gender	-0.16*	-0.06	-0.26**
SES	0.01	-0.06	-0.10
Internalizing Symptoms	0.51***	0.36***	0.40***
Parental Involvement	-0.05	-0.06	-0.18*

Child hyperactivity. Inconsistent discipline was a significant predictor of child hyperactivity above and beyond caregiver internalizing symptoms, $\beta = .25$, $p < .001$, meeting the third criterion for mediation. The inclusion of inconsistent discipline into the model resulted in a combined 31% of the variance in child hyperactivity, overall $R = .58$, $p < .001$. When controlling for inconsistent discipline, the beta weight for caregiver internalizing symptoms dropped from .51, $p < .001$, to .43, $p < .001$. Bootstrapping analytical methods and computational tool were used to estimate an asymmetric confidence interval of the indirect effect with 20,000 resamples with replacement (Hayes, 2012; Preacher & Hayes, 2004, 2008) and indicated that the indirect effect was not zero by a 95% bias-corrected bootstrap confidence interval of .04 to .20 (with a point estimate of .10). Given this confidence interval is not inclusive of zero, it supported a significant indirect effect, indicating the fourth criterion was met to establish inconsistent discipline as a partial mediator in the relation between caregiver internalizing symptoms and child hyperactivity.

Because parental involvement did not contribute a significant amount of unique variance above and beyond caregiver internalizing symptoms, $\beta = -.05$, $p = .49$, the third criterion was not met when considering parental involvement as a mediator in the relation between caregiver internalizing symptoms and child hyperactivity. Therefore, it was not further evaluated for the child hyperactivity outcome.

Child aggression. Inconsistent discipline was a significant predictor of child aggression above and beyond caregiver internalizing symptoms, $\beta = .27$, $p = .001$, meeting the third criterion for mediation. The inclusion of inconsistent discipline into the model resulted in a combined 17% of variance in child aggression, overall $R = .43$, $p < .001$. When controlling for inconsistent discipline, the beta weight for caregiver internalizing symptoms dropped from .33, $p < .001$, to .25, $p = .002$.

Bootstrapping analytical methods with 20,000 resamples with replacement yielded an

asymmetric 95% bias-corrected bootstrap confidence interval of .05 to .20 (with a point estimate of .11). Given this confidence interval is not inclusive of zero, it supported a significant indirect effect, indicating the fourth criterion was met to establish inconsistent discipline as a partial mediator in the relation between caregiver internalizing symptoms and child aggression.

As indicated in Table 2, parental involvement was not significantly related to aggression, $r = -.15$, $p = .07$, and this relation also was not significant after controlling for caregiver internalizing symptoms, $\beta = -.07$, $p = .43$, failing the third criterion for mediation. Thus, parental involvement was not further considered as a mediator in the relation between caregiver internalizing symptoms and child aggression.

Child attention problems. Because inconsistent discipline did not contribute a significant amount of unique variance above and beyond caregiver internalizing symptoms in the prediction of child attention problems, $\beta = .05$, $p = .53$, the third criterion for mediation considering inconsistent discipline as a mediator in the relation between caregiver internalizing symptoms and attention problems. Therefore, it was not further evaluated for the child attention problems outcome.

However, parental involvement was a significant predictor of child attention problems above and beyond caregiver internalizing symptoms, $\beta = -.18$, $p = .02$, meeting the third criterion for mediation. The inclusion of parental involvement into the model resulted in a combined 23% of variance in child attention problems, overall $R = .56$, $p < .001$. When controlling for parental involvement, the beta weight for caregiver internalizing symptoms were slightly reduced from $.45$, $p < .001$, to $.41$, $p < .001$. Bootstrapping analytical methods with 20,000 resamples with replacement yielded an asymmetric 95% bias-corrected bootstrap confidence interval of .01 to .11 (with a point estimate of .04). Given this confidence interval is not inclusive of zero, it supported a significant indirect effect, indicating the fourth criterion was met to establish parental involvement as a partial mediator in the relation between caregiver internalizing symptoms and child attention problems.

In summary, inconsistent discipline was found to partially mediate the relation between a female caregiver's report of her anxious and depressive symptomatology and her report of her child's hyperactive and aggressive behaviors, whereas parental involvement was found to partially mediate the relation between a female caregiver's report of her anxious and depressive symptomatology and her report of her child's attention problems. Finally, it should be noted that given 10.5% of the female caregivers were not mothers (13 grandmothers and 3 other primary female caregivers, such as an aunt), the descriptives, correlations, and regressions were conducted with the $n = 16$ non-mother primary female caregivers and showed the same descriptive characteristics as the full sample as well as the same relations among variables—including within the mediational models—as the full sample (albeit the analyses with this small sub-sample were predominantly non-significant given the low sample size and subsequent power).

DISCUSSION

The current study evaluated the relation of primary female caregivers' internalizing symptoms and parenting techniques on child externalizing behaviors. As a whole, the parenting techniques were significant predictors of preschool aggression, hyperactivity, and attention problems. Upon

further inspection of the unique contribution of each specific technique, only two were found to be significantly related. Inconsistent discipline was significantly related to all three behavioral concerns, whereas parental involvement was significantly related to child hyperactivity and attention problems.

The current study further considered the mediational role of these techniques on the relation between caregiver internalizing symptoms and child externalizing behaviors. Inconsistent discipline was a partial mediator of the relation between caregiver internalizing symptoms and child hyperactivity and aggression. This finding suggests that female caregivers with higher levels of internalizing symptoms are less consistent in their use of discipline practices and that this inconsistency, in part, accounts for higher levels of hyperactivity and aggression among their children. Thus, targeting consistency in discipline practices could be a point of intervention for young children who are at a higher risk for externalizing outcomes due to their caregivers' internalizing symptoms.

Whereas all three of the child behaviors in this study are considered externalizing behaviors, the findings for child attention problems were distinct from hyperactivity and aggression. In particular, parental involvement was the strongest predictor of child attention problems. In addition, parental involvement was supported as a partial mediator in the relation between caregiver internalizing symptoms and child attention problems. These findings suggest that children presenting with a primary problem of inattention—as opposed to hyperactivity and aggression—may benefit from initially increasing parental involvement while also monitoring a female caregiver's self-report of caregiver internalizing symptoms.

These differential findings for the mediational role of inconsistent discipline and parental involvement appear to be a true pattern given the very small effect sizes when considering inconsistent discipline as a mediator for attention problems ($\Delta R^2 = .002$) as well as when considering parental involvement as a mediator for hyperactivity and aggression $\Delta R^2 = .002$ and $\Delta R^2 = .004$, respectively. A post-hoc power analysis showed that such effect sizes, with the given sample size ($N = 153$) and alpha set at .05, would have yielded power of only 9 to 12% to detect an effect if a true effect existed. However, it is more likely that these parenting practices relate differentially to these child externalizing behavioral outcomes, particularly when considering the relation of caregiver symptomatology to those outcomes via such parenting practices.

The results of the current study extend the findings of the previous literature that has considered the importance of parenting techniques and caregiver internalizing symptoms on child behaviors. Previous studies have emphasized the significant relation between parenting techniques and child externalizing behavior (e.g., Loeber et al., 1998; McLoyd & Smith, 2002; Stormshak et al., 2000), including inconsistent discipline (e.g., Stanger et al., 2004; Sutton et al., 1999) and parental involvement (e.g., Bolger et al., 1995). However, few studies have begun to consider the complex relation of female caregiver internalizing symptoms and specific parenting techniques on child outcomes.

Similar to the results of the current study, Chronis and colleagues (2007) reported unique contributions of maternal depression and positive parenting techniques, such as praise and display of positive affect, on child conduct problems in children diagnosed with ADHD. The current study extends the findings of Chronis et al. to consider not only unique variance contributed by both parenting techniques and characteristics but also a partial mediational role of parenting techniques.

Previous studies demonstrated a similar partial mediating role for global constructs of parenting (positive versus negative parenting; Garland et al., 2005) and, more specifically, for

inconsistent discipline (Barry et al., 2009) in elementary/middle school samples. The current study demonstrated that these same mediational relations extend to preschoolers. The downward extension of these results is important for professionals involved with early intervention and early prevention of behavior problems (e.g., other caregivers, teachers, therapists). Since previous research has suggested that early prevention is more beneficial for the reduction of behavior problems than when treating an adolescent (Dishion & Patterson, 1992; Lochman & Wells, 2003), these findings suggest that, even as early as preschool, the complex relation among these variables seems to follow a similar pattern as that found among older children. Therefore, professionals working with preschoolers are encouraged to begin interventions early when possible behavior problems are detected or when a female caregiver appears to be at a high risk for symptoms of depression and/or anxiety. When both risk factors are present (e.g., a maternal risk and child behavior risk), the results of the current study suggest that the focus of the intervention should be geared toward maintaining consistency in discipline practices and increasing parental involvement.

Notably, although male and female children differed in levels of hyperactivity and attention problems (males = higher), they did not differ in levels of aggression. Nevertheless, this finding is consistent with some research showing no difference in measured aggression across genders (Harden et al, 2000; Silver, Measelle, Armstrong, & Essex, 2005) and may be partly explained by examining aggression among a young, non-clinical sample.

Research and Practice Implications

There are several implications for professionals in early childhood. The results of the current study support previous research and current recommendations in child psychology which support parent training in behavior management techniques for children displaying oppositional, defiant, aggressive, early ADHD symptomatology, and non-compliant behaviors. Parenting programs such as, Parent Child Interaction Therapy (Eyberg, 2003) and Russell Barkley's (1997) manual of treating defiant children suggest the incorporation of parenting techniques, such as parental involvement, positive parenting, consistent discipline, and use of time out or privilege revocation in place of corporal punishment. These programs focus first on increasing parental involvement and positive parenting while including consistency in aspects, such as daily child-directed interaction and the use of differential attention. One area of consideration for professionals focused on behavior modification would be to incorporate themes of consistency very early in the therapeutic intervention. Also, as standard of clinical care, many providers measure a child's behavior and level of severity, for example with the BASC-2-PRS or Eyberg Child Behavior Inventory (ECBI; Eyberg, 1999), before setting treatment goals. The idea of ongoing, formal assessment of parenting skills in home visits has been addressed and included as a goal of the Parent, Family, and Community Engagement (PFCE) initiative (Administration for Children and Families, 2012). The results of the current study support the idea that, in addition to a child behavior measure, having a baseline measure of parenting techniques or observational information regarding parenting practices could be valuable information clinically to demonstrate empirical change in a program and impact the child's behavior.

For educational professionals, similar implications are considered. Educational professionals often provide a model of structure, limit setting, and empathy to which parents can observe and children can respond. The results of the current study suggest that finding ways to

incorporate a parent in the classroom may offer a minimum of two potential benefits. First, a child experiences the parent involved in classroom activity, which is a direct experience of parental involvement. Second, a parent experiences the teacher modeling both praise (e.g., frequency, intensity, for what behaviors) as well as limit setting/consequences and the effects of these two interventions. A parent's experiential learning may provide for a possible transition of these skills to the home environment.

Whereas the role of the parent in the classroom may vary greatly on the current classroom activity, a parent may be given the task of observing appropriate behavior and giving teacher-guided feedback to students. In addition, parents may be provided with teacher-guided prompts to engage in conversation with students and practice various positive responses (e.g., summary statements, open-ended questions, praise statements) to model parental involvement. Also, to aid with parental practice of consistency, parents may be given one guideline to reinforce during the classroom activity. Practice with praise, distraction techniques, and limit setting for that guideline could be modeled by teacher and practiced by the parent. Finally, praise to parents, by teachers, on these specific skills, would not only continue to model the skill to the parent but also provide encouragement and self-efficacy to parents as well. Also to note, any of these potential interventions by educational professionals would be amendable to the classroom setting as well as to the home visit setting.

The PFCE and other programs in Head Start have encouraged unique avenues of participation for parents unable to volunteer in the classroom. Policy Councils and Parent Committee Meetings offer one avenue for parents to impart change in the governance of Head Start and their centers. These opportunities, which may be scheduled outside of traditional work hours, empower parents as an advocate, not only for their own child, but also for their center. Given the positive association between empowerment and parental depressive symptoms (e.g., Melnyk et al., 2004), the role of governance in Head Start may directly relate to symptoms of depression in parents participating. Additional benefits may include preparation for the role of parent as advocate for their child during the transition to elementary school as well as the increased knowledge of the Head Start standards and guidelines may provide additional ideas and ways to change practices in their own home (e.g., match their discipline to that in the Head Start standards, increase learning opportunities for their children at home).

The results of the current study also suggest that female caregiver mental health may be just as important as the child's mental health for children presenting with high levels of aggression, attention problems, and hyperactivity. Formal education, provided by a professional in early intervention, regarding the relation of a caregiver's mental health on the child's mental health would be important for parents, who often are the primary participants in behavior modification within the home setting. A recent study by Shaw and colleagues highlighted a reduction in maternal depression symptoms when participating in a brief family check-up intervention. The authors discussed the individualized treatment program that considered parent self-care in treatment goals, when warranted, which may have improved parental distress. However, the authors also stressed that additional treatment factors (e.g., collaborative relationship with professional, increased use and perceived benefits of positive parenting practices, reduced cumulative stressors via professional recommendations for support) may also contribute to decreased self-reported depression symptoms (Shaw, Connell, Dishion, Wilson, & Gardner, 2009).

Thus, several options are available to professionals in early intervention to address the impact of parental symptomatology based on this study's findings. First, this study provides

preliminary evidence to support that current empirically supported methods for behavioral modification of externalizing behavior (e.g., Barkley, 1997; Eyberg, 2003; Webster-Stratton, 1998) may also contribute to decreased self-report of depression in caregivers. Second, modifying existing treatments to include parental self-care and/or brief therapeutic intervention to target depressive symptomatology in caregivers may also provide additional impact in the reduction of externalizing behavior. Third, additional individual therapy referrals for a caregiver or information on community programs to support parents may also help to decrease their own mood symptoms, thus impacting the child's behavior.

Limitations and Directions for Future Research

Notably, the current study had several limitations that should be addressed in future research. First, this study relied solely on the female caregiver as the rater of self and child behavior problems in the home; thus, these results cannot rule out the possibility that some female caregivers may have responded in an overly critical manner (e.g., Briggs-Gowan, et al., 1996). For example, we cannot exclude the possibility that female caregivers who have higher levels of internalizing symptoms may have a different perception of the severity of their child's behavior in comparison to a caregiver with less internalizing symptoms. Whereas this hypothesis cannot be discounted, it is important to consider that a mother's perception of her child's behavior is a large contributor to the therapeutic process and that recognition of those perceptions as well as an empathic response by a professional may help to establish a collaborative team around the child. Therefore, the importance of parental report of child behavior problems, even from parents presenting with significant psychopathology themselves, should not be minimized. Still, future research could consider the creation of a composite or latent variable that could model both the female caregiver's report as well as that observed by an independent rater. In fact, it would be recommended that future research examine these important questions using data from multiple informants, including other caregivers and teachers, as well as using multiple methods that include not only rating scales but also direct observation and other objective techniques.

An additional limitation to the current study may be the measurement of parenting techniques in a preschool sample. Clerkin and colleagues (2007) published a revised version of the APQ for a preschool sample of children and suggested the elimination of several items that may not be developmentally appropriate. Continued research into the downward extension of this measure for a younger-aged sample is a necessity. Nevertheless, the internal consistencies of the scales on the APQ for this preschool sample mirrored that in previous samples (Shelton et al., 1996) and the scale with the lowest internal consistency (i.e., corporal punishment) was eliminated from analyses.

One final limitation is the collection of all data at one time point, lending the inability to determine directionality with these results. Future modeling studies could incorporate longitudinal data of child behavior and maternal psychopathology and parenting techniques to track trends over time. For example, improvements in maternal psychopathology and parenting practices may lead to improved child behaviors; but it is also the case that the improved child behaviors could positively impact maternal psychopathology and parenting practices. These potential hypotheses of bidirectionality have long been considered (Bell, 1979), and current statistical modeling techniques may help to provide valuable information on these associations. While that information lends important understanding to the development and continuity of child behaviors, the results of this study continue to further our understanding and lend valuable

information to treatments and intervention.

For more specific clinical implications, three additional considerations are warranted. First, these models should be validated using a clinical sample of both caregivers with high symptomatology and children with high symptomatology, which would not only provide further detail into these mediational relations but also impact treatment planning for professionals who work with families of preschoolers with significant disruptive behavior. Second, female caregivers' symptoms of anxiety and depression were combined and conceptualized as one measure of internalizing symptoms based on the high multi-collinearity of the variable as well as previous research examining caregiver internalizing symptomatology with child externalizing behaviors that often combines internalizing symptoms into one global construct. However, the relation of female caregivers' symptoms of anxiety and symptoms of depression may influence child externalizing behaviors differently. Therefore, future research should consider if these two symptom domains have a similar or different relation with the three child externalizing behaviors. Furthermore, these relations may vary between female and male caregivers. The consideration of fathers is a critical avenue of further research. These possible differences may also significantly impact treatment planning, direction of intervention, and recommended resources with parents with specific symptoms. Third, an important future direction for this line of research should consider the multi-group modeling of these relations by gender. Since child gender was significantly related to child hyperactivity and attention problems, evaluating the similarities or differences of the overall model and individual relations between variables in the model would have important theoretical and clinical implications.

CONCLUSIONS

The results of the current study—as well as future work in this area—will help to better understand the relation between parent and child behavior, specifically the environmental influences on the child such as parenting techniques and caregiver symptomatology. Further knowledge of the variables that impact the families of young children is essential to our understanding of children's social and academic success as well as their family and environmental surroundings.

REFERENCES

- Administration for Children and Families: Early Childhood Learning and Knowledge Center (2012). National Center on Parent, Family, and Community Engagement. Retrieved June 1, 2012, from <http://eclkc.ohs.acf.hhs.gov/hslc/tta-system/family>.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text revision). Washington DC: Author.
- Arnold, D.H., Zeljo, A., Doctoroff, G.L., & Ortiz, C. (2008). Parent involvement in preschool: Predictors and the relation of involvement to preliteracy development. *School Psychology Review, 37*(1), 74-90.
- Barkley, R. A. (1997). *Defiant children: A clinician's manual for assessment and parent training*. New York: Guilford Press.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.
- Barry, T. D., Dunlap, S. T., Lochman, J. E., & Wells, K. C. (2009). Inconsistent discipline as a mediator between maternal distress and aggression in boys. *Child and Family Behavior Therapy, 31*, 1-19.

- Baydar, N., Reid, J., & Webster-Stratton, C. (2003). The role of mental health factors and program engagement in the effectiveness of a preventative parenting program for Head Start mothers. *Child Development, 74*, 1433-1453.
- Bell, R.Q. (1979). Parent, child, and reciprocal influences. *American Psychologist, 34*, 821-826.
- Black, M. M., Papas, M. A., Hussey, J. M., Dubowitz, H., Kotch, J. B., & Starr, Jr., R. H. (2002). Behavior problems among preschool children born to adolescent mothers: Effects of maternal depression and perceptions of partner relationships. *Journal of Clinical Child and Adolescent Psychology, 31*, 16-26.
- Bolger, K. E., Patterson, C. J., Thompson, W. W., & Kupersmidt, J. B. (1995). Psychosocial adjustment among children experiencing persistent and intermittent family economic hardship. *Child Development, 66*, 1107-1129.
- Boulet, J., & Boss, M. W. (1991). Reliability and validity of the Brief Symptom Inventory. *Psychological Assessment: A Journal of Consulting and Clinical Psychology, 3*, 433-437.
- Briggs-Gowan, M. J., Carter, A. S., & Schwab-Stone, M. (1996). Discrepancies among mother, child, and teacher reports: Examining the contributions of maternal depression and anxiety. *Journal of Abnormal Child Psychology, 24*, 749-765.
- Brook, J. S., Zheng, L., Whiteman, M., & Brook, D. W. (2001). Aggression in toddlers: Associations with parenting and marital relations. *The Journal of Genetic Psychology, 162*, 228-241.
- Card, N.A., Stucky, B.D., Sawalani, G.M., & Little, T.D. (2008). Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. *Child Development, 79*, 1185-1229.
- Carlo, G., Raffaelli, M., Laible, D. J., & Meyer, K. A. (1999). Why are girls less physically aggressive than boys? Personality and parenting mediators of physical aggression. *Sex Roles, 40*, 711-729.
- Chazen-Cohen, R., Ayoub, C, Pan, B.A., Roggman, L., Raikes, H., McKelvey, L., Whiteside-Mansell, L., & Hart, A. (2007). It takes time: Impacts of Early Head Start that lead to reductions in maternal depression two years later. *Infant Mental Health Journal, 28*, 151-170.
- Chronis, A. M., Lahey, B. B., Pelham, W. E., Williams, S. H., Baumann, B. L., Kipp, H., Jones, H. A., & Rathouz, P. J. (2007). Parental psychopathology and maternal positive parenting predict future conduct problems in young children with attention-deficit/hyperactivity disorder. *Developmental Psychology, 43*, 70-82.
- Clerkin, S. M., Marks, D. J., Policaro, K. L., & Halperin, J. M. (2007). Psychometric properties of the Alabama Parenting Questionnaire – Preschool Revision. *Journal of Clinical Child and Adolescent Psychology, 36*, 19-28.
- Coie, J. D., Terry, R., Zakriski, A., & Lochman, J. E. (1995). Early adolescent social influences on delinquent behavior. In J. McCord (Ed.), *Coercion and punishment in long-term perspectives* (pp. 229-244). New York: Cambridge University Press.
- Culp, A.M., Hubbs-Tait, L., Culp, R.E., & Starost, H. (2000). Maternal parenting characteristics and school involvement: Predictors of kindergarten cognitive competence among Head Start children. *Journal of Research in Childhood Education, 15*, 5-17.
- Derogatis, L. R. (1993). *Brief Symptom Inventory*. Minneapolis: NCS Pearson.
- Dishion, T. J., & Patterson, G. R. (1992). Age effects in parent training outcome. *Behavior Therapy, 23*, 719-729.
- Elgar, F.J., Mills, R. S. L., McGrath, P. J., Waschbusch, D. A., & Brownridge, D. A. (2007). Maternal and paternal depressive symptoms and child maladjustment: The mediating role of parental behavior. *Journal of Abnormal Child Psychology, 35*, 943-955.
- Enders, C. K. (2001). A primer on maximum likelihood algorithms available for use with missing data. *Structural Equation Modeling, 8*, 128-141.
- Enders, C. K. (2003). Using the expectation maximization algorithm to estimate coefficient alpha for scales with item-level missing data. *Psychological Methods, 8*, 322-337.
- Eyberg, S. (1999). *Eyberg Child Behavior Inventory*. Lutz, Florida: Psychological Assessment Resources, Inc.
- Eyberg, S. (2003). *Parent-child interaction therapy*. New York: Spring Publisher.
- Eyberg, S., & Boggs, S.R. (1998). Parent-child interaction therapy: A psychosocial intervention for the treatment of young conduct-disordered children. In Briesmeister, James M. (Ed); Schaefer, Charles E. (Ed), (1998). *Handbook of parent training: Parents as co-therapists for children's behavior problems* (2nd ed.), (pp. 61-97). Hoboken, NJ, US: John Wiley & Sons Inc.
- Frick, P. J. (1991). *The Alabama Parenting Questionnaire*. Unpublished instrument, University of Alabama.
- Garland, B. H., Barry, T. D., Dunlap, S. T., & Goss, J. (2005, April) High internalizing mothers, high externalizing children: The partial mediating role of parenting. Poster session presented at the annual meeting of the Society for Research in Child Development, Atlanta, GA.

- Griffin, K. W., Botvin, G. J., Scheier, L. M., Diaz, T., & Miller, N. L. (2000). Parenting practices as predictors of substance use, delinquency, and aggression among urban minority youth: Moderating effects of family structure and gender. *Psychology of Addictive Behaviors, 14*, 174-184.
- Haapasalo, J., & Tremblay, R. E. (1994). Physically aggressive boys from ages 6 to 12: Family background, parenting behavior, and prediction of delinquency. *Journal of Consulting and Clinical Psychology, 62*, 1044-1052.
- Harden, B.J., Winslow, M.B., Kendziora, K.T., Shahinfar, A., Rubin, K.H., Fox, N.A., Crowley, M.J., & Zahn-Waxler, C. (2000). Externalizing problems in Head Start children: An ecological exploration. *Early Education & Development, 11*, 357-385.
- Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling [White paper]. Retrieved from <http://www.afhayes.com/public/process2012.pdf>.
- Henrich, C.C. (2010). Head Start's perennial leadership on parental engagement. *NHSA Dialog: Dialog Briefs, 13*(2), 1-7.
- Hinshaw, S.P. (1992). Externalizing behavior problems and academic underachievement in childhood and adolescence: causal relationships and underlying mechanisms. *Psychological Bulletin, 111*, 127-155.
- Hinshaw, S. P., & Lee, S. S. (2003). Conduct and oppositional defiant disorders. In E. J. Mash & R. A. Barkley (Ed.), *Child psychopathology, 2nd Edition* (pp. 144-198). New York: The Guilford Press.
- Kashdan, T. B., Jacob, R. G., Pelham, W. E., Lang, A. R., Hoza, B., Blumenthal, J. D., & Gnagy, E. M. (2004). Depression and anxiety in parents of children with ADHD and varying levels of oppositional defiant behaviors: Modeling relationships with family functioning. *Journal of Clinical Child and Adolescent Psychology, 33*, 169-181.
- Laird, R. D., Criss, M. M., Pettit, G. S., Dodge, K. A., & Bates, J. E. (2008). Parents' monitoring knowledge attenuates the link between antisocial friends and adolescent delinquent behavior. *Journal of Abnormal Child Psychology, 36*, 299-310.
- Langrock, A. M., Compas, B. E., Keller, G., Merchant, J., & Copeland, M. E. (2002). Coping with the stress of parental depression: Parent's reports of children's coping, emotional, and behavioral problems. *Journal of Clinical Child and Adolescent Psychology, 31*, 312-324.
- Lansford, J.E., Criss, M.M., Laird, R.D., Shaw, D.S., Pettit, G.S., Bates, J.E., & Dodge, K. A. (2011). Reciprocal relations between parents' physical discipline and children's externalizing behavior during middle childhood and adolescence. *Development and Psychopathology, 23*, 225-238.
- Lanzi, R.G., Pascoe, J. M., Keltner, B., Ramey, S.L. (1999). Correlates of maternal depressive symptoms in a national Head Start program sample. *Archives of Pediatric and Adolescent Medicine, 153*, 801-807.
- Leadbeater, B. J., & Bishop, J. (1994). Predictors of behavior problems in preschool children of inner-city Afro-American and Puerto Rican mothers. *Child Development, 65*, 638-648.
- Levett, M.A. (2006). Parents' voices: Essential to decision-making in preschool education. *NHSA Dialog: Dialog Briefs, 9*(2), 1-7.
- Lindhout, I., Markus, M., Hoogendijk, T., Borst, S., Maingay, R., Spinhoven, P., van Dyck, R., & Boer, F. (2006). Childrearing style of anxiety-disordered parents. *Child Psychiatry and Human Development, 37*, 89-102.
- Loeber, R., Farrington, D. P., Stouthamer-Loeber, M., & Van Kammen, W. B. (1998). *Antisocial behavior and mental health problems: Explanatory factors in childhood and adolescence*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Lopez, M.L., Tarullo, L.B., Forness, S.R., & Boyce, C.A. (2000). Early identification and intervention: Head Start's response to mental health challenges. *Early Education & Development, 11*, 265-282.
- Lochman, J. E., & Wells, K. C. (2003). Effectiveness study of coping power and classroom intervention with aggressive children: Outcomes at a one-year follow-up. *Behavior Therapy, 34*, 493-515.
- Luoma, I., Tamminen, T., Kaukonen, P., Laippala, P., Puura, K., Salmelin, R., & Almqvist, F. (2001). Longitudinal study of maternal depressive symptoms and child well-being. *Journal of the American Academy of Child and Adolescent Psychiatry, 40*, 1367-1374.
- Mantzicopoulos, P.Y., (1997). The relationship of family variables to Head Start children's preacademic competence. *Early Education and Development, 8*, 357-375.
- McLoyd, V. C., & Smith, J. (2002). Physical discipline and behavior problems in African American, European American, and Hispanic children: Emotional support as a moderator. *Journal of Marriage and Family, 64*, 40-53.
- Melnyk, B.B., Alpert-Gillis, L., Feinstein, N.F., Crean, H.F., Johnson, J., Fairbanks, E., Small, L., Rubenstein, J., Slota, M., Corbo-Richert, B. (2004). Creating opportunities for parent empowerment: Program effects on

- the mental health/coping outcomes of critically ill young children and their mothers. *Pediatrics*, *113*, e597-e607.
- Mistry, R.S., Benner, A.D., Biesanz, J.C., Clark, S.L., & Howes, C. (2010). Family and social risk, and parental investments during the early childhood years as predictors of low-income children's school readiness outcomes. *Early Childhood Research Quarterly*, *25*, 432-449.
- Najman, J. M., Williams, G. M., Nikles, J., Spence, S., Bor, W., O'Callaghan, M., Le Brocque, R., & Andersen M. J. (2000). Mothers' mental illness and child behavior problems: Cause-effect association or observation bias? *Journal of the American Academy of Child and Adolescent Psychiatry*, *39*, 592-602.
- Nixon, R.D.V. (2002). Treatment of behavior problems in preschoolers: A review of parent training programs. *Clinical Psychology Review*, *22*, 525-546.
- Patterson, G. R., Reid, J. B., & Dishion, T. J. (1992). *Antisocial boys (Vol. 4)*, Eugene, OR: Castalia Publishing Company.
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, and Computers*, *36*, 717-731.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*, 879-89.
- Reynolds, C. R., & Kamphaus, R. W. (2004). Behavioral assessment system for children (BASC-2). Circle Pines, MN: AGS Publishing.
- Shaw, D. S., Connell, A., Dishion, T. J., Wilson, M. N., Gardner, F. (2009). Improvements in maternal depression as a mediator of intervention effects on early childhood problem behavior. *Developmental Psychopathology*, *21*, 417-439.
- Shelton, K. K., Frick, P. J., & Wootton, J. (1996). Assessment of parenting practices in families of elementary school-age children. *Journal of Clinical Child Psychology*, *25*, 317-329.
- Silver, R.B., Measelle, J.R., Armstrong, J.M., & Essex, M.J. (2005). Trajectories of classroom externalizing behavior: Contributions of child characteristics, family characteristics, and the teacher-child relationship during the school transition. *Journal of School Psychology*, *43*, 39-60.
- Spieker, S. J., Larson, N. C., Lewis, S. M., Keller, T. E., & Gilchrist, L. (1999). Developmental trajectories of disruptive behavior problems in preschool children of adolescent mothers. *Child Development*, *70*, 443-458.
- Stanger, C., Dumenci, L., Kamon, J., & Burstein, M. (2004). Parenting and children's externalizing problems in substance-abusing families. *Journal of Clinical Child and Adolescent Psychology*, *33*, 590-600.
- Stormshak, E. A., Bierman, K. L., McMahon, R. J., Lengua, L. J., & the Conduct Problems Prevention Research Group. (2000). Parenting practices and child disruptive behavior problems in early elementary school. *Journal of Clinical Child Psychology*, *29*, 17-29.
- Sutton, S. E., Cowen, E. L., Crean, H. F., & Wyman, P. A. (1999). Pathways to aggression in young, highly stressed urban children. *Child Study Journal*, *29*, 49-67.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics*, 4th ed. Boston: Allyn and Bacon.
- Tremblay, R.E. (2000). The development of aggressive behavior during childhood: what have we learned in the past century? *International Journal of Behavioral Development*, *24*, 129-141.
- Trentacosta, C.J., Hyde, L.W., Shaw, D.S., Dishion, T.J., Gardner, F., & Wilson, M. (2008). The relations among cumulative risk, parenting, and behavior problems during early childhood. *Journal of Child Psychology and Psychiatry*, *49*, 1211-1219.
- Webster-Stratton, C. (1998). Preventing conduct problems in Head Start children: strengthening parenting competencies. *Journal of Consulting and Clinical Psychology*, *66*, 715-730.
- Webster-Stratton, C., & Hammond, M. (1998). Conduct problems and level of social competence in Head Start children: Prevalence, pervasiveness, and associated risk factors. *Clinical Child and Family Psychology Review*, *1*, 101-124.
- Wootton, J. M., Frick, P. J., Shelton, K. K., & Silverthorn, P. (1997). Ineffective parenting and childhood conduct problems: The moderating role of callous-unemotional traits. *Journal of Consulting and Clinical Psychology*, *65*, 301-308.
- Yang, H., Stanton, B., Li, X., Cottrel, L., Galbraith, J., & Kaljee, L. (2007). Dynamic association between parental monitoring and communication and adolescent risk involvement among African-American adolescents. *Journal of the National Medical Association*, *99*, 517-524.