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## **Parental Depression and Child Behavior Problems: A Pilot Study Examining Pathways of Influence**

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*Parents of children with autism spectrum disorders (ASD) have higher rates of depressive symptoms than parents of typically developing children and parents of children with other developmental disorders. Parental depressive symptoms are strongly associated with problem behaviors in children; however, the mechanisms through which parental depression influences child behavior in families of children with ASD are unclear. The purpose of this study was to examine the relationship between parental depression and child behavior problems among families of children with ASD, more specifically to investigate the mediating variables that may explain the processes through which parental depression and child behavior problems are associated. The sample consisted of 33 parents of children with ASD (ages 2 to 5 years old). Findings suggested that authoritative parenting style significantly mediated the relationship between parental depression and behavior problems. This study highlights the importance of considering parental mental health and its impact on parenting behavior in interventions targeting child behavior problems.*

**KEYWORDS** *autism spectrum disorders (ASD), parental depression, child behavior problems, parenting style*

Parents of children with autism spectrum disorders (ASD) consistently report high levels of parenting stress and psychological distress (Dabrowska &

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Pisula, 2010). The rates of depressive symptoms for parents of children with ASD are significantly higher than for parents of typically developing children and parents of children with other developmental disorders (Meltzer, 2011; Pisula, 2007). Parental depression is negatively associated with positive child outcomes from infancy to adolescence (Goodman, Adamson, Ritini, & Cole, 1994; Goodman & Gotlib, 1999, 2002; Jaser et al., 2005) and positively associated with multiple problem behaviors among typically developing preschool children (Slatcher & Trentacosta, 2011) and children with ASD (Bromley, Hare, Davison, & Emerson, 2004; Hastings, 2003; Higgins, Bailey, & Pearce, 2005). On average, children with ASD display higher levels of behavior problems than children with other developmental delays (Estes et al., 2009). Parenting behavior, and more specifically parenting style, may be one mechanism through which parental depression influences child behavior problems. Previous research also suggests that parental depression is correlated with parenting style (Aunola & Nurmi, 2005); specifically, parental depression has been associated with permissive parenting styles (Topham et al., 2010). The current study examined parenting style as a mediator of the relationship between parental depression and child behavior problems, which has not been examined previously in families of children with ASD.

## ASD AND CHILD BEHAVIOR PROBLEMS

Children with ASD are at significant risk for exhibiting elevated behavior problems and developing a comorbid psychiatric disorder over time (Leyfer et al., 2006; Simonoff et al., 2008). Many children with ASD also exhibit comorbid intellectual disabilities, which are also associated with increased risk for co-occurring psychopathology (Baker, Neece, Fenning, Crnic, & Blacher, 2010; Borthwick-Duffy & Eyman, 1990; Neece, Green, & Baker, 2012; Neece, Baker, Blacher, & Crnic, 2011). Attention deficit hyperactivity disorder (ADHD) and anxiety disorders, which are common among children with ASD, are also associated with higher levels of behavior problems (Simonoff et al., 2008). Children with elevated behavior problems are at heightened risk for developing psychopathology and higher rates of behavior problems have been consistently documented in children with cognitive delays (Baker et al., 2010; Neece, Green, & Baker, 2012). Additionally, higher rates of behavioral problems and a variety of health concerns such as epilepsy, tuberous sclerosis, and seizures often co-occur with ASD (Boisjoli & Matson, 2009; Gillberg & Billstedt, 2000).

## MENTAL HEALTH OF PARENTS OF CHILDREN WITH ASD

The mental health of parents of children with ASD may be impacted by a variety of factors related to the characteristics of ASD. More important,

persistent stress resulting from child behavior problems in everyday life may consequentially affect the quality of parents' personal and family life and may lead to negative outcomes such as parental depression (Murray, Stanley, Hooper, King, & Fiori-Cowley, 1996). The majority of studies have focused on mothers because they typically report being the primary caregiver, and mothers of children with ASD report challenges in family functioning related to job adjustments, inflexibility in family and personal life, and additional responsibilities related to childrearing (Meirsschaut, Roeyers, & Warreyn, 2010). Additionally, maternal self-efficacy has been negatively associated with parenting stress and depression among parents of children with ASD (Kuhn & Carter, 2006; Meirsschaut et al., 2010).

Higher levels of parental stress have also been associated with increased behavior problems in children with developmental delays and ASD (Baker et al., 2003; Neece, Green, & Baker, 2012), which in turn may lead to parental depression (Murray et al., 1996). Parents who have emotional difficulties and fewer coping resources also reported greater stress in response to children's problem behaviors (Hastings et al., 2005; Olsson & Hwang, 2001). Although there have been many studies showing the significant mental health risks among parents of typically developing children with behavior problems, literature on the parents of children with ASD is very limited. Given the elevations in behavior problems among this population, there is an urgent need for further studies investigating the relationship between parental mental health and child behavior problems among families of children with ASD.

### PARENTING STYLE AS A POTENTIAL MECHANISM

Previous studies suggest that parental depression is positively associated with negative child outcomes, including increased child behavior problems among typically developing children as well as children with ASD (Gross, Shaw, Moilanen, Dishion, & Wilson, 2008; Slatcher & Trentacosta, 2011). Having a child with ASD can be very stressful for parents. Problematic behaviors exhibited by these children may lead to changes in parenting behavior (e.g., lower tolerance), which results when parents can no longer cope with their children's behavior problems. Previous studies have suggested that parenting style may be a key predictor of children's development (Steinberg, 2001). The current study used Diana Baumrind's parenting style classifications and investigated parents' authoritative, authoritarian, and permissive parenting behavior (Baumrind, 1966).

Authoritative parenting style has been identified by a high level of parental control, clear expectations for behavior, responsibility, and self-regulation while simultaneously demonstrating affection and high responsiveness to the child's needs. Children of authoritative parents are generally friendly; independent; active; achievement oriented (Baumrind, 1967);

and demonstrate resilient, mature, responsible, self-regulated characteristics (Baumrind, 1991). The high level of parental affection and behavioral control characteristic of authoritative parenting is positively associated with adjustment in children as well as higher scores on attachment, resilience, school achievement, social and school competence, and prosocial behavior (Aunola & Nurmi, 2005; Hart, Newell, & Olsen, 2003; Maccoby & Martin, 1983) and inversely associated with child misbehavior (Baumrind, 1991) compared with children of authoritarian, uninvolved, and permissive parents.

Conversely, authoritarian parenting style is characterized by high directive control and maintaining order, low affection and little communication toward the child, and the utilization of punishment. These parents typically discourage discussions with their children by enforcing strict expectations. They are highly demanding yet unresponsive to their children's needs (Baumrind, 1991). The children of parents with authoritarian parenting styles exhibit poorer outcomes such as lower scores on cognitive tests, fewer feelings of happiness and trust, less internalization of prosocial values, increased risk for conduct problems, and isolation from peers (Aunola & Nurmi, 2005; Baumrind, 1991).

Finally, permissive parenting style has been found to have the most adverse impact on children's development (Wolfradt, Hempel, & Miles, 2003). It is typically characterized by less demand, low behavioral control, and high responsiveness and warmth. Children of these parents are generally less self-regulated, more passive, tend to show withdrawn behavior, lack social responsibility, and are at risk for conduct problems (Baumrind, 1991; Heller, Baker, Henker, & Hinshaw, 1996; Wolfradt et al., 2003).

One factor that may lead to problematic parenting practices is parental psychological disorders (Howard, Thronicroft, Salmon, & Appleby, 2004). Depression in parents is related to more problematic parenting practices (Downey & Coyne, 1990), such as irritability, the absence of physical and emotional availability, negative or sad affect, and lack of responsiveness to the child's needs (Radke-Yarrow, Cummings, Kuczynski, & Chapman, 1985). Mustillo, Dorsey, Conover, and Burns (2011) reported that parental depression was significantly related to child outcomes, specifically elevated emotional and behavior problems for both young children and adolescents and this relationship was mediated by neglectful parenting (Mustillo et al., 2011). Despite the number of studies demonstrating associations between child behavior problems and parental depression (Goodman & Gotlib, 2002; Gross, Shaw, & Moilanen, 2008; Jaser et al., 2005; Mustillo et al., 2011), parental depression and parenting styles (Howard et al., 2004; Oyserman, Bybee, Mowbray, & Hart-Johnson, 2005; Topham et al., 2010), and parenting styles and child behavior problems (Alizadeh, Abu Talib, Abdullah, & Mansor, 2011; Gadeyne, Ghesquiere, & Onghena, 2004; Baumrind, 1991; Hart et al., 2003; Heller et al., 1996; Wolfradt et al., 2003) among families

of typically developing children, few studies have examined the specific mechanisms that mediate the impact of parental depression and child behavior problems and the full mediational model has not been investigated in families of children with ASD.

## THE CURRENT STUDY

This study examined the interrelationships between parental depression, parenting styles (permissive, authoritative, authoritarian), and child behavior problems among families of children with ASD, specifically investigating whether parenting style mediates the relationship between parental depression and child behavior problems. We hypothesized that parenting style (authoritative, authoritarian, and permissive) would significantly mediate the relationship between parental depression and child behavior problems among children with ASD; more specifically, parental depression would be associated more with permissive parenting behavior, which in turn would be associated with higher levels of behavior problems. In addition, parental depression would be inversely associated with authoritative parenting style and, subsequently, lower levels of behavior problems. Given that child behavior problems and parental depression likely have a mutually escalating effect on one another, it is important to investigate the mediating variables that account for this association. Findings may be important for clinicians working with families of children with ASD in terms of identifying additional targets for intervention (e.g., parenting style) that may reduce the impact of parental depression on children's behavior problems.

## METHOD

### Participants

This study involved data from the Mindful Awareness for Parenting Stress (MAPS) Project, an intervention study that consisted parents of children ages 2.5 to 5 years old with ASD. Participants were primarily recruited through the Inland Empire Regional Center, a government agency that provides and purchases diagnostic and intervention services for persons with developmental disabilities. In California, practically all families with young children with developmental delays register for services with one of a network of Regional Centers. Participants who met the inclusion criteria were selected by the Regional Center's computer databases and received a letter and brochure informing them of the study. Families were also recruited through the local newspaper, elementary schools, and the Regional Autism Society.

Criteria for inclusion in the study were (a) having a child ages 2.5 to 5 years, (b) the child was determined by Regional Center or by an independent assessment to have an ASD diagnosis, (c) parent(s) reported more than 10 child behavior problems (the recommended cutoff score for screening children for treatment of conduct problems) on the Eyberg Child Behavior Inventory (ECBI), (d) the parent was not receiving any form of psychological or behavioral treatment at the time of referral (e.g., counseling, parent training, parent support group, etc.), and (e) parent spoke and understood English. Exclusion criteria included parents of children with debilitating physical disabilities or severe intellectual impairments that prevented the child from participating in the play assessment that was a part of the protocol for the larger study (e.g., child is not ambulatory). In order to be included, parents also must have completed all intake measures and attended the intake assessment before the beginning of the first intervention session. Of the 95 families that were screened for the study, 63 were determined to be eligible, and 51 parents enrolled in the study originally. Five parents completed the initial assessments but dropped out of the study before the intervention began leaving a final sample of 46 parents; however, for this study the sample was further restricted to primary parents of children with ASD, which resulted in a total sample of 33 parents. There were no demographic differences between participants who completed the intervention and those who dropped out of the study. Similarly, there were no demographic differences between families of children with ASD and those with other developmental disabilities.

Table 1 depicts the demographics of the sample. The majority of the children were boys (72.7%) and the mean age of the children was 3.58 years ( $SD = .94$ ). Parents reported 33.3% of the children as Caucasian, 33.3% as Hispanic, 9.1% as Asian, 2.5% as African American, and 24.2% as "Other." The majority of parents (76.8%) reported that their child's diagnosis was autistic disorder, and the remaining children were reported to have another diagnosis on the autism spectrum. At the time of the intake assessment, 90.9% of the

**TABLE 1** Demographic Characteristics of Participants

	<i>N</i> (%)	<i>M</i> ( <i>SD</i> )
Children		
Gender (% boys)	24 (72.7)	
Ethnicity (Caucasian)	11 (33.3)	
Mean age in years		3.58 (.94)
Participating parent		
Marital status (% married)	26 (78.8)	
Family income (% > \$50K)	17 (51.5)	
Mean age in years		33.25 (7.38)
Education (mean grade in school)		14.82 (2.93)

Note. Children:  $n = 33$ ; Participating parents:  $n = 33$ .



children were reported to receive special education services in school and 78.8% of the children were enrolled in a special education classroom. Of the 33 participating parents ( $M_{\text{age}} = 33.26$ ,  $SD_{\text{age}} = 7.38$ ), the majority of parents were mothers (83.3%) and married (78.8%). There was a range of annual family income from \$0 to over \$95,000 (51.5% made greater than \$50,000 in 2011), and parents completed an average of about three years of college ( $M_{\text{years}} = 14.82$ ,  $SD_{\text{years}} = 2.93$ ).

## Procedure

Interested parents contacted the MAPS project by phone, returned a postcard requesting the principle investigator to contact them, or submitted their information on the MAPS website. The research team then conducted a phone screen assessing participants' eligibility once the families indicated their interest in the program. If the family met eligibility criteria for the study, an appointment for an intake laboratory assessment was scheduled. Prior to the initial laboratory assessment, a packet of questionnaires was mailed to parents to complete before coming into the lab. Only the parents participating in the study completed the packet. At the initial assessment, parents were given an informed consent form that the researchers reviewed with the parent. Demographic information was collected after the consent was obtained. Parents also participated in a play assessment and were assigned to a treatment group that was a part of the larger study. The present investigation used data from the intake assessment.

## Measures

*Center for Epidemiologic Studies Depression Scale (CES-D)*. To assess for parental depression, parents completed the CES-D, a 20-item self-report measure of depressive symptoms including mood, somatic complaints, and cognitions (Radloff, 1977). Total scores can range from 0 to 60, with a cutoff of 16 for the clinical range. The CES-D has four subscales: somatic symptoms, depressed affect, positive affect, and interpersonal functioning. The total score of this measure was used to assess the level of depression in parents. Previous studies indicate that the CES-D has excellent internal consistency ( $\alpha > .85$ ), acceptable test-retest reliability ( $r > .5$ ), and strong construct validity (Radloff, 1977). The reliability for the total score in our sample was  $\alpha = .77$ .

*Child Behavior Checklist (CBCL for ages 1½-5 years)*. Child behavior problems were measured using the CBCL (Achenbach, 2000). The CBCL is one of the most widely used measures of child behavior problems and has demonstrated excellent test-retest reliability ( $r = .94$ ) and validity (Achenbach, 2000). Each CBCL item indicates a child behavior problem (e.g., fails to finish things he or she starts, temper tantrums or hot temper,

sleeps more than most kids). For each item, the parent reported whether it was “not true” (0), “somewhat or sometimes true” (1), or “very true or often true” (2) now or within the past 2 months. The total problem score was used in the current study and the reliability for our sample was high ( $\alpha = .93$ ).

*The Parenting Styles and Dimensions Questionnaire (PSDQ)*. A short version of the PSDQ was used to assess parenting style (Robinson, Mandleco, Olsen, & Hart, 2001). The questionnaire consisted of 32 items that measure characteristics of authoritative, authoritarian, and permissive parenting styles. The Cronbach's alphas for the total score was acceptable ( $\alpha = .70$ ). Authoritative parenting style was measured with 15 items (associated factors include warmth/support, reasoning/induction, and democratic participation). Authoritarian parenting style was measured with 12 items (associated factors include physical coercion, verbal hostility, and nonreasoning/punitive dimension). Five items were used to measure permissive parenting style (Robinson et al., 2001). Subscales for authoritative parenting style, authoritarian parenting style, and permissive parenting style were used in the current study.

### Data Analytic Plan

Residual scatterplots were used for tests of normality, linearity, and homoscedasticity. No assumptions were violated. Tests for leverage, discrepancy, and influence were used for detecting outliers. Data points that are more than three standard deviations above or below the mean of a variable were considered outliers (Tabachnick & Fidell, 2012). One case occurred that was more than three standard deviations above the mean on authoritative parenting style subscale and his case was removed from the analysis. Demographic variables that had a significant relationship ( $p < .05$ ) with one or more of the independent variables and one or more of the dependent variables were tested as covariates in the analyses. No demographic variables were identified to have a significant relationship ( $p < .05$ ) with parental depression and child behavior problems, and, thus, no covariates were included in the mediation models.

A multiple mediation analysis using the bootstrapping method was used to examine the three parenting styles (authoritative, authoritarian, permissive) as mediators of the relationship between parental depression and child behavior problems. Although the most common approach to test for mediation is the causal steps strategy (Baron & Kenny, 1986), studies have found this strategy is only constructive when used with very large samples (Bauer, Preacher, & Gil, 2006; Hayes, 2009). Current literature suggests that the bootstrapping method is the best method to test for significant indirect, or mediation, effects (Hayes, 2009). The bootstrapping method takes sample of size  $n$  with replacement from the original sample and calculates the indirect (mediation) effect, and the program repeats the process 5,000 times. This

procedure provides the total indirect effect, specific indirect effects for each mediating variable, and tests of all pairwise comparisons among specific indirect effects, providing both standard errors and 95% confidence intervals (CIs). The CIs were used to evaluate the significance of the indirect effect. These CIs typically have fewer problems with statistical power and Type I error and produce estimates that are more accurate. Bias Corrected and Accelerated (BCa) CIs are an adjusted percentile method that is based upon the calculation of the “bias correction” and “acceleration” coefficients, which adjust for bias in the bootstrapped sampling distributions relative to the actual sampling distribution (Davison & Hinkley, 1997; Haukoos & Lewis, 2008). The bias correction coefficient adjusts for skewness whereas the acceleration coefficient adjusts for nonconstant variances within the resampled data sets (Haukoos & Lewis, 2005). This CI was chosen to determine the significance of the results due to its accuracy and because it adjusts for both bias and skewness (Efron, 1987). If the bootstrap CI for the effect does not include 0 then the effect is determined to be statistically significant at  $\alpha = .05$  (Preacher & Hayes, 2008). The total indirect effect ( $c'$ ); specific indirect effects for each mediating variable ( $abs$ ); specific pairwise comparisons of all indirect effects, standard errors, and 95% CIs are reported (see Table 2).

Furthermore, studies suggest that statistical analyses using multiple mediation are the best way to test the effects of mediators when there is more than one mediating variable (Preacher & Hayes, 2008). Multiple mediation has fewer problems with Type I error and has more power compared with other methods such as the causal steps approach or the Sobel test of the product-of-coefficients approach (Preacher & Hayes, 2008). Moreover, multiple mediation using bootstrapping has been found to be superior for small sample sizes, limits parameter bias resulting from omitted variables, and does not assume that the sampling distributions of the mediation effects

**TABLE 2** Results of Multiple Mediation Analyses Testing Parenting Styles as Mediators of the Relationship Between Parental Depression and Child Behavior Problems

Independent variable	Mediated effect	Point estimate	SE	BCa 95% CI
Parental depression	<b>Authoritative parenting style</b>	<b>0.59</b>	<b>0.43</b>	<b>[0.03, 1.81]</b>
	Permissive parenting style	0.01	0.18	[-0.33, 0.44]
	Authoritarian parenting style	-0.45	0.15	[-0.45, 0.17]
	Total indirect effect	0.54	0.49	[-0.19, 1.82]
	Authoritative vs. Permissive	0.59	0.48	[-0.08, 1.88]
	<b>Authoritative vs. Authoritarian</b>	<b>0.64</b>	<b>0.44</b>	<b>[0.05, 1.92]</b>
	Permissive vs. Authoritarian	0.06	0.26	[-0.38, 0.66]

Note. BCa 95% CI = 95% bias-corrected and accelerated confidence interval. Significant effects are highlighted in bold.

are normal (Preacher & Hayes, 2008). With this analysis we were able to determine both the total indirect effect of the combined mediators and the indirect effect of each individual mediator after controlling for the effects of all the other mediators in the model. Finally, this type of analysis provided the estimated strengths of the effects for each mediator and allowed us to compare the strength of different mediators.

## RESULTS

Preliminary analyses examining parental depression, child behavior problems, parenting styles (authoritative parenting style, authoritarian parenting style, and permissive parenting style) were calculated using bivariate correlations. Only authoritative parenting style was positively correlated with child behavior problems ( $r = .50, p < .05$ ) and parental depression ( $r = .47, p < .05$ ). Additionally, authoritarian parenting style was positively correlated with permissive parenting style ( $r = .43, p < .05$ ), but authoritative parenting style did not correlate with either of the other two styles. More than half of the participants (53.8%) in our current sample reported a score above 16 on the CES-D ( $M = 17.23, SD = 8.89$ ), suggesting that the majority of the parents in our sample were experiencing clinically significant levels of depressive symptomatology.

Results from multiple mediation analyses, which tested parenting styles (authoritative, authoritarian, and permissive) as mediators of the relationship between parental depression and child behavior problems, are presented in Table 2. The examination of the total indirect effect, in combination with authoritative, authoritarian, and permissive parenting styles did not significantly mediate the relationship between parental depression and child behavior problems ( $ab = .54, SE = .49, BCa\ 95\% CI [-.19, 1.82]$ ). The results of the specific indirect effects indicated that only authoritative parenting style significantly mediated the relationship between parental depression and child behavior problems ( $ab = .59, SE = .543, BCa\ 95\% CI [.03, 1.81]$ ), indicating that with each one-point increase in parental depression, child behavior problems increased by .59 points via the effect of the authoritative parenting style. Authoritarian parenting style and permissive parenting style did not mediate the relationship between parental depression and child behavior problems.

## DISCUSSION

This study advances our understanding of the relationship between parental mental health and child behavior by examining the mechanisms through which parental depression and child behavior problems are related to each

other. We investigated parenting styles as a mediator of the impact of parental depression on child behavior problems. Contrary to our hypothesis that parental depression would be associated more with permissive parenting style, which, in turn, would be associated with higher levels of behavior problems, permissive parenting style did not mediate the relationship between parental depression and child behavior problems. Rather, authoritative parenting style was found to mediate the relationship between parental depression and child behavior problems. These findings are inconsistent with other studies showing that authoritative parenting style is inversely correlated with internalizing and externalizing child behavior problems (Bronstein, Clauson, Stoll, & Abrams, 1993; Gadeyne et al., 2004); however, upon closer examination these findings become more clear.

Authoritative parenting style is achieved through firm parental control combined with high parental responsiveness and support. Authoritative parents also recognize their child's need for autonomy but impart proper boundaries and clear standards. The questionnaire we used to assess parenting style deconstructed authoritative parenting style into three domains: (a) Connection Dimension (i.e., Warmth and Support subscale), (b) Regulation Dimension (i.e., Reasoning/Induction subscale), and (c) Autonomy Dimension (i.e., Democratic Participation subscale; Robinson, Mandleco, Olsen, & Hart, 1995, 2001). According to Baumrind's theory of parenting style, authoritative parenting requires multiple criteria where parents must simultaneously demonstrate both parental warmth and parental control as well as encourage the child to be autonomous (Baumrind, 1966, 1991). However, on the PSDQ these dimensions are measured separately. Therefore, parents can score well above the mean on one dimension (i.e., warmth) and lower on other dimensions (i.e., control) and still receive a relatively high score on authoritative parenting, despite the fact that they only demonstrate one dimension of this construct.

Ideally, we could conduct an exploratory set of mediation analyses examining the three dimensions of authoritative parenting style in order to understand which specific dimension accounts for our findings. Unfortunately, the reliability for two of the dimensions (connection and autonomy) was not adequate. Post hoc analyses examining individual items from the authoritative subscales of PSDQ indicated that our findings were largely driven by the degree to which the parent allows the child to be autonomous. More specifically, the item "I allow my child to give input into family rules" was highly correlated with both parental depression ( $r = .43, p < .01$ ) and child behavior problems ( $r = .55, p < .01$ ). Although this item maps into the autonomy aspect of authoritative parenting, this type of parenting style is likely less effective in the absence of clear parental control and limits and, in practice, may resemble more permissive parenting behavior where the child has more control than the parent. Therefore, although our finding that authoritative parenting mediated the relationship

between elevated parental depression and higher child behavior problems initially appeared contradictory to our expectations, after closer examination this relationship may be primarily accounted for by a style of parenting in which the parent tends to defer control to the child, which is consistent with previous findings. Elevated levels of parental control have been associated with negative outcomes in typically developing children (Ispa et al., 2004; McDowell & Parke, 2005; Nader-Gorsbois & Lefèvre, 2012); however, among families of children with developmental risk some studies suggest that these children are likely to benefit from higher levels of parental control (Cielinski, Vaughn, Seifer, & Conteras, 1995; Landry, Smith, Swank, & Miller-Loncar, 2000).

The present study also highlights the importance of examining various dimensions of parenting styles rather than unitary categorical constructs. Traditionally, researchers have classified parenting behavior in one of three categories rather than examining where parents fall on each parenting style dimension (Baumrind, 1991). Actual parenting behavior may not completely fit the characteristics of one parenting style versus the others so it may be more informative to classify where on a continuum their parenting behavior fits on a particular dimension. Thus, the relationship between parental depression and child behavior problems in this study does not appear to be influenced by authoritative parenting style more broadly but rather accounted for a specific parenting behavior of this broader construct.

Despite the fact that permissive parenting style and authoritarian parenting style were not statistically significant mediators of the relationship between parental depression and child behavior problems, the coefficients from the path analyses suggested that child behavior problems increased with depression regardless of the parenting style used. This indicated that depression in parents plays some role in contributing to the increase in child behavior problems independent of parenting style. This further supports the importance of parental mental well-being and its consequential impact on child outcomes through other intervening variables, suggesting that it may be useful to focus on parental mental health rather than placing an emphasis solely on child behavior problems during clinical interventions.

Our findings must be considered within the context of several study limitations. First, the sample was small, limiting the detection of smaller effects if they were present. Additionally, although the PSDQ is widely used to assess parenting style, observational measures of parenting behavior would likely be more objective indicators of parenting style. Further, this study used cross-sectional data and thus the direction of the effect between parental depression and child behavior problems could not be examined. It is likely that the relationship between these two variables is reciprocal and future studies should examine the association between parental depression and child behavior problems in a longitudinal framework.

Taken together, our findings highlight the influence of parental mental health on children's behavior problems, specifically via parenting styles and behaviors. Results of this study suggest that evaluating all dimensions of a parenting style may be effective in improving parenting behavior, highlighting the importance of both limit setting and the encouragement of independence, which consequently lead to decreases in child behavior problems. These results provide valuable information for clinicians when working with families of children with ASD. Interventions aimed at early identification of parental depression as well as those designed to promote consistent parenting behavior with clear expectations may significantly reduce the risk for parental depression and optimize child outcomes.

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