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## Mindful Parenting, Caregiver Distress, and Conduct Problems in Children with Autism

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### Abstract

Children with autism may display an externalizing problem behavior, which are associated with increased parenting stress and depression in caregivers. Mindful parenting is defined as having a non-judgmental moment-to-moment awareness during caregiver-child interactions. The extant literature is mixed, with some reporting that associations between child problem behavior and parenting stress and depression vary by level of mindful parenting, while others have not found these relations. We sought to extend these explorations. Participants were caregivers of 75 children with ASD ages 5 – 10 years old in the Pacific Northwestern region of the United States. Child conduct problems, parenting stress and caregiver depression, and mindful parenting were measured using caregiver-reported measures. Child conduct problems, parenting stress and caregiver depression, and mindful parenting were all significantly correlated. The association between child conduct problems and parenting stress was significant for caregivers with high and low levels of mindful parenting. In contrast, the association between child conduct problems and caregiver depression was significant only for caregivers with low levels of mindful parenting. Our results suggest that mindful parenting may be a promising protective factor for the well-being of caregivers of children with autism. Implications are discussed.

*Keywords:* autism; problem behavior; conduct problems; mindful parenting; stress; depression

### Mindful Parenting, Caregiver Distress, and Conduct Problems in Children with Autism

Autism Spectrum Disorder (ASD) is characterized by impairments in social-communication skills and the presence of rigid and repetitive patterns of behavior (American Psychological Association, 2013). Children with ASD often experience an array of behavioral difficulties (Baghdadli, Pascal, Grisli, & Aussiloux, 2003; Hartley, Sikora, & McCoy, 2008; Kanne & Mazurek, 2011; Militeri, Bravaccio, Falco, Fico & Palermo, 2002) that are commonly exacerbated by **co-occurring** psychiatric conditions including anxiety, depression, attention deficits, and hyperactivity (Hallet, Ronald, & Happé, 2009; Machalicek et al., 2016; Matson & Nebel-Schwalm, 2007; Matson & Williams, 2014; Simonoff et al., 2008).

The hallmark social-communication deficits, behavioral rigidity, and increased risk of **co-occurring** conditions mean that children with ASD tend to exhibit higher rates of conduct problems than their typically developing peers (Eisenhower, Baker, & Blacher, 2005; Mahan & Matson, 2011; Matson, Wilkins, & Macken, 2009). Conduct problems include **behavioral difficulties** such as defiance, aggression, and noncompliance (Mullin & Hinshaw, 2007) and have been found to be associated with several negative outcomes for children with ASD including poor psychosocial and physical health as well as poor academic, social, and emotional functioning (Kuhlthau et al., 2010).

In addition to deleterious effects on children, conduct problems have been found to be associated with negative outcomes for caregivers (Lecavalier et al., 2006; **Valicenti-McDermott et al., 2015**). For example, Lecavalier et al. found that conduct problems (e.g., defiance, disobedience, physically attacking people) and lack of prosocial behaviors (e.g., accepting redirection, following rules) were strongly predictive variables to parental stress, and that behavior problems exacerbated stress over time in youth with ASD. Caregivers of children with

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ASD report higher levels of physiological distress than caregivers of typically developing children (Eisenhower et al., 2005; Factor et al., 2018; Schieve et al., 2007; Totsika et al., 2011) and children with other developmental disabilities (Blacher & McIntyre, 2006; Cohrs & Leslie, 2017; Dabrowska & Pisula, 2010; Olsson & Hwang, 2003; Hayes & Watson, 2013). The relationship between child conduct problems and parental distress appears to be bidirectional, and thus each can be mutually escalating or deescalating over time (Herring et al., 2006; Lecavalier et al., 2006; Neece, Green, & Baker, 2012). Fortunately, several factors can protect caregivers' psychological experiences and bolster their well-being including optimism (Ekas et al., 2010; Greenberg et al., 2004), self-efficacy (Hastings & Brown, 2002), social support (Boyd, 2002), self-compassion (Neff & Faso, 2015), and mindfulness (Parent et al., 2011).

Intrapersonal mindfulness is the ability to have a non-judgmental awareness of the present moment (Kabat-Zinn, 2003). People who are more mindful report lower levels of stress, anxiety, depression, and higher levels of happiness, inspiration, gratitude, self-compassion, and life satisfaction (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Brown & Ryan, 2003; Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008; Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007; Gouveia, Carona, Canavarro, Moreira, 2016; Walach, Buchheld, Buttenmüller, Kleinknecht, & Schmidt, 2006). Higher levels of mindfulness have been found to be associated with lower levels of recurring depressive symptoms (Parent et al., 2011). Mindfulness training has been successfully applied to samples of caregivers of children with developmental disabilities, including ASD, resulting in increases in life satisfaction and decreases in parental stress and child problem behavior (Bazzano et al., 2015; Cachia, Anderson, & Moore, 2016; Coatsworth et al., 2015; Neece, 2014; Singh et al., 2006, 2014; Singh, Lancioni, Singh, Winton, & Adkins, 2010).

One specific type of interpersonal mindfulness is mindful parenting. Mindful parenting is the process of purposefully and non-judgmentally paying attention during caregiver-child interactions and the relationship as a whole (Kabat-Zinn & Kabat-Zinn, 1997). Common dimensions of mindful parenting include: (a) observing and describing emotional states; (b) nonjudgmental acceptance of self and child; (c) acting with awareness; and (d) non-reactivity during caregiver-child interactions (Duncan, Coatsworth, & Greenberg, 2009; Jones, Hastings, Totsika, Keane, & Rhule, 2014).

Mindful parenting has been found to be inversely related to maladaptive parenting practices (e.g., reactivity, intrusiveness, ineffective discipline), as well as externalizing youth behavior problems (De Bruin et al., 2014; Gouveia et al, 2016; Geurtzen, et al., 2015; Parent, et al., 2016). Further, mindful parenting has been found to be indirectly associated with higher levels of adaptive parenting practices including positive reinforcement, expressions of warmth and affection, and supportive caregiver-child communication (Parent et al., 2016). Compared to the body of literature focused on mindfulness training interventions for caregivers of children with ASD, there is a relative dearth of correlational research on mindfulness, including mindful parenting, and psychological outcomes such as stress and depression for parents of children with ASD. Investigating correlates of caregiver well-being is important. In doing so, as a field, we may be able to gain a greater understanding of the protective factor of interest, in this case, mindfulness.

Taking into account the unique level of psychological distress experienced by caregivers of children with ASD, it is important to explore the role of mindfulness within this population. Conner and White (2014) examined the relation between intrapersonal mindfulness, using the Mindfulness Attention Awareness Scale (MAAS; Brown & Ryan, 2003), and maternal stress,

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after controlling for child behavior difficulties, in a sample of 67 mothers of children with ASD and 87 mothers of typically-developing children. For both groups, child behavioral difficulties were significantly associated with increased maternal stress. Further, intrapersonal mindfulness accounted for additional variance on maternal stress for the mothers of typically developing children and for mothers of children with ASD. Examining intrapersonal mindfulness is important; however, it may be especially advantageous to investigate mindful *parenting* within samples of families of children with ASD given the bidirectional relationship between child behavior problems and parental distress (Herring et al., 2006; Lecavalier et al., 2006; Neece et al., 2012).

Beer, Ward, and Moar (2013) investigated the relations between mindful parenting and parental stress, depression, and anxiety in an Australian sample of 28 parents of children with ASD. Beer et al. used the Interpersonal Mindfulness in Parenting Scale (IM-P) and found significant negative correlations between total mindful parenting and both parental stress and depressive symptoms. Higher mindful parenting scores were significantly associated with less frequent and severe child behavior problems. After controlling for child behavior problems, the relation between depressive symptoms and mindful parenting as well as parental stress and mindful parenting remained moderate-strong and significant. More recently, Jones and colleagues (2014) developed a mindful parenting measure adapted from The Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006). Jones and colleagues adapted this measure to be more appropriate to parenting a child with ASD (e.g., no items mentioned the child using spoken language), developing The Bangor Mindful Parenting Scale (BMPS). Jones and colleagues used the BMPS in a sample located in the United Kingdom of 71 mothers and 39 fathers of children with ASD to investigate the relations between mindful parenting and anxiety,

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stress, and depression. For maternal models, mindful parenting significantly negatively predicted anxiety, stress, and depression after controlling for child problem behavior. For paternal models, mindful parenting significantly negatively predicted depression (not stress) after controlling for child problem behavior.

In the current study, we sought to further **examine** the associations between mindful parenting, child conduct problems, parenting stress and caregiver depression, and to determine if the associations between child conduct problems and parental outcomes varied by level of mindful parenting in a sample of parents of children with ASD. **First, our first three research questions were confirmatory.**

1. Are higher levels of child conduct problems associated with higher levels of parenting stress and depression?
2. Are higher levels of child conduct problems associated with lower levels of mindful parenting?
3. Are higher levels of mindful parenting associated with lower levels of parenting stress and depression?

Because previous research specific to the role of mindful parenting in families of children with ASD is both scant and mixed, with some reporting that associations between child problem behavior and caregiver mental health outcomes vary by level of mindful parenting while other studies have reported mixed findings, **our final research question was exploratory.**

4. Do the associations between child conduct problems, parenting stress, and caregiver depression vary as a function of the level of mindful parenting?

## Method

The current study is part of a larger longitudinal investigation of child and family variables associated with early identification and services for ASD in the Pacific Northwest region of the United States, which the authors' Institutional Review Board approved. Data for the current study represent a subsample of caregivers of children with ASD ( $n = 75$ ) who participated in data collection at Time 2 of this larger examination. Currently, this larger investigation is comprised of two time points, with a second wave of data collection underway. The measure we used for mindful parenting was introduced at Time 2, thus, we utilized a cross sectional design.

At Time 2, eligible children: (a) were between the ages of 5-10 years old, (b) had a prior medical diagnosis and/or special educational eligibility of ASD per caregiver report, and (c) lived with their primary caregiver for 1+ years. Participants at Time 1 (i.e., approximately three years prior to the current investigation) were re-contacted and invited to participate at Time 2 for a second interview. Additionally, new participants were recruited through local school districts to supplement the sample size. Interested caregivers responded to invitation letters and contacted our research office. Next, participants were screened by phone for eligibility. Data collection occurred in the family home via in-person interviews and mail-home packets with questionnaires. Participating caregivers provided informed consent and were given an honorarium of a \$50 check.

## **Participants**

A total of 75 caregivers participated at Time 2. Caregiver demographics are listed in Table 1. Caregivers were primarily biological mothers<sup>1</sup> who were an average age of 39 years old.

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<sup>1</sup> Analyses were repeated for only female caregivers and the primary study findings remained the same as those based on female and male caregivers. All coefficients were within  $\pm .04$  of the correlation coefficients reported in Table 3.

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There was economic and educational diversity in the sample; however, the majority of the sample (80%) identified as white/Caucasian. Children with ASD were primarily boys, approximately eight years old. Child demographics are listed in Table 2.

<insert Tables 1 and 2 about here>

## Measures

**Autism symptoms.** The Childhood Autism Rating Scale – 2<sup>nd</sup> Edition (CARS 2; Schopler, Van Bourgondien, Wellman, & Love, 2010) was completed during in-person interviews by trained doctoral students. Doctoral students in school psychology and special education received training from the third author, a licensed psychologist with experience in assessment and ASD evaluations. Training included didactic teaching, practice administrations, and videorecorded administrations. Research assistants were trained to criterion (90% or above agreement with third author) prior to using the CARS-2 independently. Weekly supervision was held to discuss specific observations and questions or issues about scoring. When disagreements on scoring were present, consensus scoring was used. The CARS-2 has 15-items: relating to people; imitation; emotional response; body use; object use; adaptation to change; listening response; adaptation to change; taste, smell, and touch response and use; fear or nervousness; verbal communication; nonverbal communication; activity level; level and consistency of intellectual response; and general impressions. The child is rated on a Likert scale (1 = *age appropriate*; 2 = *mildly abnormal*; 3 = *moderately abnormal*; 4 = *severely abnormal*). Half scores are also possible (e.g., 2.5), resulting in a 7-point scale. The CARS-2 has good internal consistency (alpha = .94), interrater reliability of .71, coefficient kappa of .64 for test retest reliability, and high criterion related validity ( $r = .84$ ) (Schopler, Van Bourgondien, Wellman, &

Love, 2010). CARS-2 scores for the current sample are located in **Table 2** (alpha = .92 for our sample).

**Conduct Problems.** Caregivers completed the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) to assess problem and prosocial behavior of their child with ASD. The SDQ is a 25-item measure that includes five scales: emotional problems (5 items) conduct problems (5 items), hyperactivity/inattention (5 items), peer relationship problems (5 items), and prosocial behavior (5 items). Respondents rated statements pertaining to their children's behavior, over the last six months, on a 3-point Likert scale (0 = *not true*; 1 = *somewhat true*; 2 = *certainly true*). In the current study, we used the overall mean for the conduct problems scale (alpha = .70 for our sample). Example items from the conduct problems scale include: 'Often loses temper' and 'Generally well behaved, usually does what adults requests' (reversed scored). The SDQ has strong reliability and validity (e.g., Goodman, 1997) and has been used with children with ASD (e.g., Iizuka et al., 2010).

**Parental stress.** Caregivers completed the Parenting Stress Index-Short Form 3<sup>rd</sup> Edition (PSI-SF; Abidin, 2012). The PSI-SF is a 36-item measure, associated with parenting children younger than 12 years of age, and is widely used in samples of parents of children with ASD (Zaidman-Zait et al., 2010). The PSI-SF assesses the magnitude of stress in the parent-child relationship across child characteristics, parent characteristics, and situational/demographic life stress. Three subscales are included within the PSI-SF: parental distress, parent-child dysfunctional interaction, and difficult child. Each subscale consists of 12 items. The parental distress subscale measures parents' perceptions of their competence, marital conflict, views of social support, and life restrictions resulting from parenting demands (e.g., 'I feel trapped by my responsibilities as a parent'). The parent-child dysfunctional interaction subscale measures

parents' expectations and interactions with their child (e.g., 'My child rarely does things for me that make me feel good'). The difficult child subscale measures parental perceptions of their child's compliance, demandingness, and temperament (e.g., 'My child makes more demands on me than most children') (Abidin, 1995; Dardas & Ahmad, 2014). Respondents rate themselves on a 5-point Likert scale (1 = *strongly disagree*; 2 = *disagree*; 3 = *not sure*; 4 = *agree*; 5 = *strongly agree*) and select from options for additional multiple-choice items (e.g., selecting the frequency of things one's child does that bothers him/her). The PSI-SF technical manual reports evidence for adequate psychometric properties (Abidin, 1995) and has been used with samples of parents with ASD (e.g., Thullen & Bonsall, 2017; Wang et al., 2013). In the current study, we used the overall mean for the total stress score ( $\alpha = .91$ ).

**Depression.** We used the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) to obtain an index of depressive symptoms in our caregiver sample. The CES-D is a 20-item instrument that measures depressive symptoms across four domains: depressed affect, positive affect, somatic activity, and interpersonal relations. Respondents self-report on the frequency of occurrence of depressive symptoms during the preceding week using a 4-point Likert scale (1 = *rarely or none of the time, less than one day*; 2 = *some or a little of the time, one to two days*; 3 = *occasionally or a moderate amount of time, three to four days*; 4 = *all of the time, five to seven days*). Example items include statements such as: 'I felt that everything I did was an effort' and 'I enjoyed life' (reversed scored). The CES-D is a well-established and robust instrument (Shafer, 2006). We used the overall mean for depressive symptoms ( $\alpha = .87$ ).

**Mindful parenting.** We used the BMPS to assess mindful parenting. The BMPS was developed by Jones and colleagues (2014) and is based off of the well-established FFMQ. The BMPS is a 15-item instrument designed to measure mindfulness within the parenting role. The

BMPS is comprised of three items per each of the five mindfulness domains: observing, describing, acting with awareness, nonreactivity, and nonjudgement. Respondents rate statements on a 4-point Likert scale (0 = *never true*; 1 = *sometimes true*; 2 = *often true*; 3 = *always true*).

Example items from the *observing* domain include: ‘I pay attention to how my feelings react toward my child’ and ‘I am aware of how my moods affect the way I treat my child’. Example statements from the *describing* domain are: ‘I have trouble thinking of the right words to express how I feel about my child’ (reversed scored) and ‘Even when I’m feeling terribly upset with my child, I can find a way to put it into words’. For the *acting with awareness* domain, example items include: ‘I rush through activities with my child without being really attentive to him/her’ (reversed scored) and ‘I don’t pay attention to what I’m doing with my child because I’m daydreaming, worrying or distracted’ (reversed scored). For the *nonreactivity* domain, example statements include: ‘In difficult situations with my child I can pause without reacting straight away’ and ‘When I have upsetting thoughts about my child, I am able to just notice them and let them go’. Example items for the final domain, *nonjudgment*, include: ‘I think some of my emotions towards my child are bad and I shouldn’t be feeling them’ (reversed scored) and ‘I tend to make judgments about whether I am being a good or a bad parent (reversed scored).

Jones and colleagues (2014) found encouraging results for the reliability (alpha = .79 for mothers and .78 for fathers) and the validity, with strong correlations between the BMPS and FFMQ for mothers ( $r = .75$ ) and for fathers ( $r = .77$ ). For the current study, we used the overall mean for the total mindful parenting (alpha = .80).

## **Data Analysis**

We computed bivariate Pearson correlation coefficients to describe the associations among child conduct problems, parenting stress, caregiver depression, and mindful parenting (Research Questions 1 – 3). Because the sample size was relatively small ( $n = 75$ ), multiple regression analyses were underpowered to formally test statistical interactions between child conduct problems and mindful parenting in the prediction of parenting stress and depression (Research Question 4). The minimum detectable correlation was  $r = .28$  with the full sample of  $n = 75$ , power = .80, and alpha = .05. Therefore, we explored Research Question 4 by examining bivariate correlations among child conduct problems, parenting stress, and caregiver depression within caregivers with high and low levels of mindful parenting defined by the median split (median = 2.15). We interpreted correlation coefficients based on cutoffs established by Cohen (1988). We considered a coefficient of .10 as small, .30 as moderate, and .50 as a strong or large correlation.

Pearson correlation coefficients assume normally distributed observations. Descriptive statistics indicated that the data in the present study did not markedly deviate from normality; skewness and kurtosis fell within  $\pm 1.1$  for all measures. All analyses were conducted with IBM SPSS Statistics 24. We applied the Bonferroni correction to adjust alpha for 5 tests across our confirmatory RQs 1 to 3 (.05 alpha / 5 tests = .01 corrected alpha). Alpha was set to  $p < .05$ , two-tailed, for all exploratory tests of Research Question 4.

## Results

Table 3 summarizes descriptive statistics and correlations among child and caregiver variables for the full sample and mindful parenting subgroup analyses. Child conduct problems was significantly positively associated with parenting stress ( $r = .46$ ;  $p < .001$ ) and caregiver depression ( $r = .34$ ;  $p = .003$ ). Child conduct problems was inversely associated with mindful

parenting ( $r = -.32$ ;  $p = .005$ ). Mindful parenting was significantly inversely associated with parenting stress ( $r = -.46$ ;  $p < .001$ ) and depression ( $r = -.55$ ;  $p < .001$ ). In a set of follow-up regression analyses, we included age and co-occurring condition status (yes or no) as covariates. The overall pattern of effect sizes and their statistical significance was consistent across unadjusted and adjusted results, with standardized regression coefficients within  $\pm .06$  of the correlation coefficients reported in Table 3.

The fourth research question was whether the associations between child conduct problems and parenting stress and depression vary as a function of the level of mindful parenting. Because formal tests of statistical interactions were underpowered, we examined the correlation coefficients within the low and high mindful parenting subgroups. Parenting stress was moderately associated with child conduct problems in the low mindful parenting group ( $r = .41$ ;  $p = .017$ ) and in the high mindful parenting subgroup ( $r = .43$ ;  $p = .005$ ). Caregiver depression was moderately associated with child conduct problems in the high mindful parenting group ( $r = .38$ ;  $p = .025$ ). Conversely, in the low mindful parenting subgroup, the association between caregiver depression and child conduct problems was weak ( $r = .17$ ;  $p = .288$ ).

<insert Table 3 about here>

## Discussion

In our sample, child conduct problems were significantly positively associated with parenting stress and caregiver depression and significantly inversely associated with mindful parenting. Mindful parenting was significantly inversely associated with parenting stress and caregiver depression. These findings are consistent with previous research. Next, we compared the size of the correlation coefficients by mindful parenting subgroup (low and high levels of mindful parenting). The strength of the association between child conduct problems and

parenting stress did not vary by the level of mindful parenting. In contrast, the association between child conduct problems and depression was **moderate** for the low mindful parenting subgroup ( $r = .38$ ) **and weak** for the high mindful parenting subgroup ( $r = .17$ ). Thus, we conclude that level of mindful parenting may **influence** the strength of the association between child conduct problems and caregiver depression.

### **Implications of the Findings**

Caregivers of children with ASD face myriad challenges including costly medical and behavioral treatments and pervasive developmental differences that may result in the need for life-long care (Boshoff, Gibbs, Phillips, Wiles, & Porter, 2016). Further, caregivers of children with ASD are at a uniquely high risk for mental health problems (Blacher & McIntyre, 2006; Herring et al., 2006). One of the strongest predictors of mental health problems in this population is child conduct problems, such as aggression, defiance, and non-compliance (Lecavalier et al., 2006; Neece, Green, & Baker, 2012). Training parents to apply behavioral strategies to prevent and address conduct problems in children with ASD has an established evidence base, yet these approaches are not *always* sufficient in reducing parental stress and depression (e.g., McIntyre, 2008). The results of the present study indicate that mindful parenting may function as a protective factor, especially with regard to caregiver depression. Given that the relation between child conduct problems and parental mental health may be transactional (Herring et al., 2006; Lecavalier et al., 2006; Neece et al., 2012), it is essential to understand more about protective factors that impact caregiver well-being for families of children with ASD. In doing so, **researchers will be positioned to incorporate social-emotional supports into family-based behavioral interventions, which caregivers of children with ASD have reported needing (Raulston et al., 2019).**

In addition to mental health problems, families of children with ASD may face social isolation (Cantwell, Muldoon, & Gallagher, 2014), increased relationship and marital problems (Hartley, Barker, Seltzer, Greenberg, & Floyd, 2011), and decreased quality of family life (Hsiao, Higgin, Pierce, Whitby, & Tandy, 2017). Addressing primary caregiver well-being could have spillover effects that positively impact the psychological well-being of others within the family including co-parents and siblings, thus positively affecting quality of family life (Rossiter and Sharpe 2001; Yu, McGrew, & Bolor, 2019).

Caregivers of children with ASD may benefit from being able to non-judgmentally notice and accept negative thoughts and emotions, that are commonly associated with depressive symptoms, in order to be present during caregiver-child interactions. Common domains of mindful parenting (Duncan, Coatsworth, & Greenburg, 2009) involve (a) observing and describing emotional states, (b) nonjudgmental acceptance of self and child, (c) acting with awareness, and (d) non-reactivity during caregiver-child interactions. *Observing and describing* involves caregivers actively paying attention to how their moods and emotions affect interactions with their child and being able to describe those in words. *Nonjudgmental acceptance of self and child* involves caregivers consciously noticing their thoughts and expectations and accepting them without judging them good or bad. *Acting with awareness* means that caregivers are attentive during interactions with their child and do not rush through activities or become distracted by their thoughts. *Non-reactivity during caregiver-child interactions* involves caregivers being able to remain calm during challenging situations with their child and respond in ways that align with their family values. When caregivers are able to cultivate a non-judgmental awareness of body sensations, thoughts, and emotions, they are likely better able to purposefully respond to their child's conduct problems in adaptive ways.

### Limitations and Future Research

Some limitations are worth noting. In the current study, we used a community sample recruited through local elementary schools (i.e., not a treatment center). As such, these children, on average, did not display high rates of conduct problems. Additionally, our sample, as well as the previous research (Beer, Ward, & Moar, 2013; Jones et al., 2014), utilized cross-sectional designs, which violate the need for temporal precedence. Therefore, it is uncertain if child conduct problems preceded parental psychological distress or vice versa. Future research on this topic should include a prospective longitudinal study design and a more comprehensive measurement net. Such investigations will enable better understanding of the complex relationships between several variables, including child communication, adaptive behavior, cognitive functioning, and caregiver outcomes. Longitudinal research examining how mindful parenting changes over time and during various developmental stages are also warranted.

More than two-thirds of the caregivers in our samples were full time homemakers, which could have contributed to their mental health, such as feelings of increased burden in the parenting role or social isolation. Additionally, our sample was comprised of a wide range of income levels, and the half of caregivers reported that they had just- or not-enough money to get by. Financial stressors cannot be ruled out as a contributor to parenting stress and depression. It should also be noted that several other variables not measured or entered into our models were likely associated with parenting stress and depression. For example, it is probable that factors at the caregiver level such as optimism (Greenberg et al., 2004), physical health (Cantwell, Muldoon, & Gallagher, 2014), and social support (Boyd, 2002) were associated with parenting stress and depression. Further, it is likely that family-level factors such as co-parenting support (May et al., 2015), relationship satisfaction (Sikora et al., 2013; Weitlauf, Vehorn, Taylor, &

Warren, 2014), and sibling dynamics (Sim, Cordier, Vaz, Netto, & Fallkmer, 2017) contributed to caregiver well-being and child conduct problems. Other child factors, including comorbid diagnoses, could have contributed to conduct problems as well. Future research should further analyze the interaction effects of such variables with mindful parenting. Further, our sample was comprised of mostly Caucasian mothers, limiting the generalizability of these findings. Future research should include more diverse samples including various races, ethnicities, socio-economic statuses, and families residing in diverse geographical locations.

The current study is only the third, as far as we know, that has investigated the associations of mindful parenting on well-being and child behavior problems in caregivers of children with ASD. Findings across these studies are mixed. Additional research is needed to continue to test these relations in more samples. Moreover, direct observations of caregiver-child interactions to determine what observable behaviors correlate with self-reported mindful parenting would be useful. Finally, group comparisons of the potential bolstering effects of incorporating mindful parenting training into well-established behavioral parent training and coaching interventions will help advance the field forward (McIntyre & Neece, 2016).

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51, 1269 – 1277.

Table 1

*Caregiver Demographic Characteristics (n = 75)*

Variable	% or <i>M</i> ( <i>SD</i> )
Caregiver sex (female)	91%
Caregiver age in years – <i>M</i> ( <i>SD</i> )	39.3 (7.4)
Caregiver race/ethnicity	
White/Caucasian	80%
Bi/multiethnic	5%
Other	15%
Marital status (currently married)	73%
Education level	
Partial high school	1%
High school graduate or GED certificate	17%
Partial college, specialized training, or associate's degree	51%
Bachelor's degree or higher	31%
Employment status	
Employed (full time or part time)	52%
Unemployed	8%
Disabled	4%
Full time homemaker	35%
Other	1%
Household income/year in USD – <i>M</i> ( <i>SD</i> )	51,866 (38,584)
Perceived income-to-needs	
Not enough to get by	9%
Just enough to get by	41%
We only have to worry about money for fun or extras	47%
We never have to worry about money	3%

*Note.* *M* = mean. *SD* = standard deviation.

Table 2

*Child Demographic Characteristics (n = 75)*

Variable	% or <i>M</i> ( <i>SD</i> )
Child sex (Male)	84%
Child age in years – <i>M</i> ( <i>SD</i> )	7.8 (1.6)
Diagnosing service provider	
Primary care physician/pediatrician	16%
Other physician/specialist (e.g., psychiatrist)	55%
Psychologist	3%
Other	4%
Special education multidisciplinary team	23%
Secondary medical condition	
ADHD	19%
Seizure disorder	3%
Other conditions	28%
Child medical/health problem	47%
Race/ethnicity	
White/Caucasian	68%
Bi/Multiethnic	23%
Other	9%
Child Autism Spectrum Disorder symptoms <sup>a</sup>	34.3 (6.5)

*Note.* *M* = mean. *SD* = standard deviation. <sup>a</sup>Child Autism Spectrum Disorder symptoms sum scores range from 15 to 60.

Table 3

*Descriptive Statistics and Correlations among Child and Caregiver Variables by Subgroup*

Subgroup/Variable	1	2	3	<i>M (SD)</i>
Full sample ( <i>n</i> = 75)				
1. Child conduct problems <sup>a</sup>	—			0.4 (0.3)
2. Caregiver parenting stress <sup>b</sup>	.46**	—		90.0 (18.3)
3. Caregiver depression <sup>c</sup>	.34**	.55**	—	12.9 (8.7)
4. Caregiver mindful parenting <sup>d</sup>	-.32**	-.46**	-.55**	2.3 (0.4)
Low mindful parenting ( <i>n</i> = 34)				
1. Child conduct problems	—			0.5 (0.3)
2. Caregiver parenting stress	.41*	—		97.1 (15.1)
3. Caregiver depression	.38*	.54**	—	17.4 (8.4)
4. Caregiver mindful parenting	-.16	-.22	-.41*	1.9 (0.2)
High mindful parenting ( <i>n</i> = 34)				
1. Child conduct problems	—			0.4 (0.3)
2. Caregiver parenting stress	.43**	—		84.2 (18.8)
3. Caregiver depression	.17	.42**	—	9.1 (7.1)
4. Caregiver mindful parenting	-.29	-.37*	-.23	2.5 (0.2)

*Note.* *M* = mean. *SD* = standard deviation. <sup>a</sup>Child conduct problems were rated on a 0 (not true) to 2 (certainly true) scale. <sup>b</sup>Parenting stress scores range from 36 to 180. <sup>c</sup>Caregiver depression scores range from 0 to 37. <sup>d</sup>Mindful parenting was rated on a 0 (never true) to 3 (always true) scale.

\**p* < .05. \*\**p* < .01. \*\*\**p* < .001

Reviewer Comment	Authors' Response
Reviewer #1	
Major	
1) Statistical and Data Analytic Plan Concerns: Several critical confounds are measured but their role is not controlled in the analytic plan (e.g., age, co-occurring conditions). Statistical analyses did not correct for multiple comparisons. As noted in the paper the appropriate way to address Question 4 (mindful parenting moderates the child behavior—parent depression) requires an interaction term in a GLM regression. Without that analysis it seems premature to conclude mindful parenting as a moderator. It seems more reasonable to state that this study suggests this relationship exists but that future research with a larger sample could address this question properly.	<p>This reviewer comment involves three points: control for confounding variables, adjustments to alpha for multiple statistical tests, and underpowered tests of statistical interactions in exploratory RQ 4. To address the first point, we conducted a series of multiple regression analyses designed to address RQs 1 to 3 and included age and co-occurring condition status (yes or no) as covariates. The overall pattern of effect sizes and their statistical significance was consistent across unadjusted and adjusted results, with standardized regression coefficients within <math>\pm .06</math> of the correlation coefficients reported in Table 3. We therefore included a statement that we found similar results when child age and co-occurring condition status were included as covariates. To address the second point, we applied the Bonferroni correction to adjust alpha for 5 tests across our confirmatory RQs 1 to 3 (<math>.05 \text{ alpha} / 5 \text{ tests} = .01 \text{ corrected alpha}</math>). The statistical significance of our findings did not change. Finally, to address the third point, we emphasized the exploratory nature of RQ 4, and as requested by reviewer 1, stated that this study suggests that an interaction effect may exist and that future research with larger samples could address this question properly.</p> <p>We have updated the discussion section to remove the language around moderation, and we have also added suggestions for future research related to this point.</p>
2) The focus of the Introduction is on ASD as a unified group. This journal's readership would likely appreciate whether there are any differences for individuals with and without an intellectual disability (ID) diagnosis and whether a co-occurring ID diagnosis moderates any of the findings or key arguments made in the Introduction. Relatedly, it appears there are no direct measures of cognitive ability in these individuals. Is that right? It would be great to have that information to determine if cognitive	<p>Unfortunately, we do not have a direct measure of IQ or cognitive ability. We agree that this would be great to include and have added this as a future research consideration in the discussion section.</p>

ability plays a role in child behavior, parent depression, and mindful parenting ratings.	
3) Given that 91% of the caregiver respondents are female, it feels like the study could not adequately represent male caregivers. I would suggest removing them from the study or at least reporting all findings with female caregivers to see if the primary findings remain the same. If the male caregivers are removed then the focus of the caregivers should be on female caregivers as more work is needed on male caregivers.	Analyses were repeated for only female caregivers and the primary study findings remained the same as those based on female and male caregivers. All coefficients were within $\pm .04$ of the correlation coefficients reported in Table 3. We included this as a footnote in the Participants section. We have removed a couple of sentences in the discussion section to avoid confusion.
4) The Introduction states that "Correlational research in this area may enable researchers to incorporate mindfulness approaches into prevention and intervention programs in a more targeted way (e.g., at key time points, focusing on certain aspects of the construct)." I respectfully disagree with this justification for the use of correlational research. By nature correlational research will identify relationships without directionality—which the manuscript argues in convincing fashion hasn't been established among the variables of interest. However, this study will not be able to address whether mindful parenting should be incorporated into prevention and intervention programs. Future research would be needed to determine the directionality of the relationship identified from the work proposed here. That is, it is not yet known if parents who are more likely to engage in mindful parenting may experience less depression symptoms or vice versa.  This point is raised in limitations, but this comment in the Introduction and the extended write-up of how mindful parenting can be identified and implemented into clinical work seems premature given the state of the science. The Discussion could be streamlined by removing most of this text.	Thank you for bringing this to our attention. We have removed the sentence regarding prevention and intervention programs. We have eliminated some practice recommendations in the discussion to stay closer to the findings in the current study.
Minor	
1) Language in the manuscript should be reviewed for potential ableism bias. This is a relatively new issue, but many autistic adults have asked for changes in how behaviors and autism are described by scientists to minimize marginalizing or discriminating against them. There is a great commentary by Bottema-Beutel	We have changed some of this language, such as co-occurring, instead of comorbid and behavioral difficulties instead of behavior problems. Because one of our main variables is conduct problems as measured by the conduct problems subscale of the Strengths and Difficulties Questionnaire (SDQ), we would like to keep this construct

<p>et al. (2020) that came out after this paper was submitted. I'm not suggesting that the authors should have been aware of this paper, but it offers both a framing of the issues and suggestions for scientists. Examples of ableism and suggested changes:</p> <ul style="list-style-type: none"> <li>- Co-occurring conditions instead of comorbid conditions</li> <li>- Meltdowns instead of Conduct problems, behavior problems</li> </ul> <p>Bottema-Beutel, K., Kapp, S. K., Lester, J. N., Sasson, N. J., &amp; Hand, B. N. (2020). Avoiding Ableist Language: Suggestions for Autism Researchers. <i>Autism in Adulthood</i>.</p>	<p>identified as such. Meltdowns do not necessarily encompass other conduct problems captured in this scale such as defiance and non-compliance.</p>
<p>2) I believe there is a typo in the Results section. In the last paragraph it states that the relationship between mindful parenting and depression is stronger in the low mindful group, but elsewhere in the paper it is stated that the relationship is stronger in the low mindful group.</p>	<p>We have double checked the results section and tables, and found no errors.</p>
<p><b>Reviewer #2</b></p>	
<p>Introduction</p>	
<p>- Although the intro does a nice job of summarizing existing literature, I would encourage the authors to look for more recent support throughout. For example, there are many more recent papers on negative impacts on parents. I have listed a few below and would recommend the authors consider updating.</p> <ul style="list-style-type: none"> <li>o Factor, R. S., Swain, D. M., &amp; Scarpa, A. (2018). Child autism spectrum disorder traits and parenting stress: The utility of using a physiological measure of parental stress. <i>Journal of Autism and Developmental Disorders</i>, 48(4), 1081-1091.</li> <li>o Cohrs, A. C., &amp; Leslie, D. L. (2017). Depression in parents of children diagnosed with autism spectrum disorder: A claims-based analysis. <i>Journal of Autism and Developmental Disorders</i>, 47(5), 1416-1422.</li> <li>o Ekas, N. V., Lickenbrock, D. M., &amp; Whitman, T. L. (2010). Optimism, social support, and well-being in mothers of children with autism spectrum disorder. <i>Journal of autism and developmental disorders</i>, 40(10), 1274-1284.</li> <li>o Dabrowska, A., &amp; Pisula, E. (2010). Parenting</li> </ul>	<p>Thank you for these recommendations. We have added five of them in the introduction.</p>

<p>stress and coping styles in mothers and fathers of pre-school children with autism and Down syndrome. <i>Journal of Intellectual Disability Research</i>. <a href="https://doi.org/10.1111/j.1365-2788.2010.01258.x">https://doi.org/10.1111/j.1365-2788.2010.01258.x</a></p> <p>o Estes, A., Olson, E., Sullivan, K., Greenson, J., Winter, J., Dawson, G., &amp; Munson, J. (2013). Parenting-related stress and psychological distress in mothers of toddlers with autism spectrum disorders. <i>Brain and Development</i>. <a href="https://doi.org/10.1016/j.braindev.2012.10.004">https://doi.org/10.1016/j.braindev.2012.10.004</a></p> <p>o Hayes, S. A., &amp; Watson, S. L. (2013). The impact of parenting stress: A meta-analysis of studies comparing the experience of parenting stress in parents of children with and without autism spectrum disorder. <i>Journal of Autism and Developmental Disorders</i>. <a href="https://doi.org/10.1007/s10803-012-1604-y">https://doi.org/10.1007/s10803-012-1604-y</a></p> <p>o Pisula, E., &amp; Porębowicz-Dörsmann, A. (2017). Family functioning, parenting stress and quality of life in mothers and fathers of Polish children with high functioning autism or Asperger syndrome. <i>PLoS ONE</i>. <a href="https://doi.org/10.1371/journal.pone.0186536">https://doi.org/10.1371/journal.pone.0186536</a></p> <p>o Valicenti-Mcdermott, M., Lawson, K., Hottinger, K., Seijo, R., Schechtman, M., Shulman, L., &amp; Shinnar, S. (2015). Parental Stress in Families of Children with Autism and Other Developmental Disabilities. <i>Journal of Child Neurology</i>. <a href="https://doi.org/10.1177/0883073815579705">https://doi.org/10.1177/0883073815579705</a></p>	
<p>- Just before outlining your research questions, the authors state: "In these exploratory analyses, we tested the following five research questions:" yet, then only list 4 research questions.</p>	<p>We have revised the research questions and removed this error.</p>
<p>- Based on the "scant and mixed" research on mindful parenting, I can understand why your research questions were initially thought of as exploratory; however, it actually seems like most of them should be hypothesis-based based on previous research. The first research question of "Are higher levels of child conduct problems associated with higher levels of parenting stress and depression?" has been very well-documented in the literature, thus it seems like this questions could (and should) be hypothesis-based. Further, I believe that the authors could make some hypotheses about the second and third research questions based on the research</p>	<p>We have revised this section. We indicted that the first 3 questions were confirmatory based on previous literature. The fourth, and final research question, is now the only one labeled as exploratory.</p>

cited earlier by Beer (2013) which "found significant negative correlations between total mindful parenting and both parental stress and depressive symptoms. Higher mindful parenting scores were significantly associated with less frequent and severe child behavior problems." I would recommend that authors outline hypotheses that would replicate or build on previous findings in the current sample.	
Method	
- In the measures section, it's written "CARS-2 scores for the current sample are located in Table 1," however, I believe this is actually located in Table 2. I would also add that this is the score on the CARS to the note in Table 2.	Thank you for bringing this to our attention. This error has been fixed.
- When discussing the CARS-2 in the methods section, I would also clarify who filled out the CARS-2. Was it research staff? If so, what was their training on this and credentials? How was interrater reliability determined (i.e., were 2 staff present and each completed ratings on the CARS and/or was the observation videotaped?).	We added the following details about the CARS-2 administration. "Doctoral students in school psychology and special education received training from the third author, a licensed psychologist with experience in assessment and ASD evaluations. Training included didactic teaching, practice administrations, and videorecorded administrations. Research assistants were trained to criterion (90% or above agreement with third author) prior to using the CARS-2 independently. Weekly supervision was held to discuss specific observations and questions or issues about scoring. When disagreements on scoring were present, consensus scoring was used."
- The authors state that "Primary caregivers completed the Parenting Stress Index-Short Form 3rd Edition" on page 10. Did you confirm with parents that they, in fact, were their child's primary caregivers? If not, I would simply stick to "parents" or "caregivers." Relatedly, there is some inconsistency throughout in terminology (parents, caregivers, primary caregivers, respondents, etc.) I would suggest that authors choose one term and stick to it to avoid any confusion.	Yes, the demographic questionnaire included the informant's relationship to the child. To reduce confusion, we have changed this to read "caregivers". We have also replaced "parent" with "caregiver" throughout the manuscript in all instances where it made sense (e.g., not when referring to parenting stress or mindful parenting).
Results	
- In the first paragraph of the results section, the authors have ("support for Hypothesis" #), yet, it's unclear what these hypotheses were. They don't seem to be mentioned in the intro, where	We have removed these parenthetical phrases from the results section.

the research questions are actually described as "exploratory." Please double check this and add hypotheses as needed (keeping in mind my earlier comment about this).	
Discussion	
- I would be cautious in the results and discussion saying that you "compared and contrasted the size of the correlation coefficient" or "the association between child conduct problems and depression was stronger for the low mindful parenting subgroup ( $r = .38$ ) than for the high mindful parenting subgroup ( $r = .17$ )" because a formal statistical test was not performed. Instead, I would say something like, "Based on the cut-offs established by (citation), there was a significant, low-to-moderate, association between child conduct problems and depression for the low mindful parenting subgroup ( $r = .38$ ) compared to a weak, insignificant association for the high mindful parenting subgroup ( $r = .17$ )."	We clarified in the Data Analysis section that we interpreted correlation coefficients based on cutoffs established by Cohen (1988). We considered a coefficient of .10 as small, .30 as moderate, and .50 as a strong or large correlation. We also made the recommended revisions to the Results and Discussion sections.
- I would also be cautious in saying that "level of mindful parenting appears to moderate the strength of the association between child conduct problems and caregiver depression" as more formal testing would be necessary to determine this.	We revised this sentence to read "...that level of mindful parenting may influence the strength of the association..."
- In the limitations section, I would again mention that this study was only able to assess for correlations and was not equipped to perform multiple regression analyses, which would have been a more comprehensive way of answering these research questions. In that vein, I would add how additional future research should use multiple regression in order to account for covariates and better understand the complex relationships between all of these variables (not just bivariate).	We performed a multiple regression analysis in response to another reviewer comment. Specifically, we added co-existing conditions as a covariate and reported in the results that the adjusted standardized regression coefficients were consistent to the unadjusted bivariate correlations.
- I would also add parent employment status and perceived income-to-needs into your discussion about other factors that may be influential, as they appear in Table 1 but are never mentioned. I would even push authors to make some hypotheses about how you might expect these factors to impact the associations that you found.	We have added some details about employment status and income in the discussion section.