

Brief Report: Impact of Challenging Behavior on Parenting Stress in Mothers and

Fathers of Children with Autism Spectrum Disorders

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Authors Note

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**Abstract**

Challenging behaviors are a known predictor of high parenting stress in families of children with autism spectrum disorders. However, few studies have evaluated the effect of reducing challenging behaviors on parenting stress. The purpose of our study was to (a) examine the impact of reducing the frequency and severity of challenging behaviors on parenting stress and (b) compare the effects of family-centered support and parent education on changes in parenting stress. Both high severity of autistic symptoms and of challenging behaviors were predictors of parenting stress. Furthermore, receiving family-centered support were associated with larger reductions in parenting stress. Overall, our results suggest that reducing challenging behaviors with family-centered support may be preferable to produce collateral reductions in parenting stress.

*Keywords:* autism spectrum disorder, challenging behavior, parenting stress, parental training, support

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Raising a child with autism spectrum disorders (ASD) has been linked to higher levels of parenting stress, psychological distress, and mental health problems in parents (Hayes & Watson, 2012; Silva & Schalock, 2012). Researchers have also shown that communication impairments, poor social relations, and challenging behaviors were associated with higher levels of parenting stress in families of children with ASD (Davis & Carter, 2008). More specifically, the presence of challenging behaviors such as hitting, property destruction and self-injury may predict higher levels of parenting stress (Lecavalier, Leone, & Wiltz, 2006). In a recent study, Rivard, Terroux, Parent-Boursier, and Mercier (2014) found that challenging behaviors were accountable for approximately 25 % of parents' variance on parenting stress.

However, few studies have evaluated the effect of reducing challenging behaviors in children with ASD on parenting stress. In a review of parental early intervention for children with ASD, Oono, Honey and McConachie (2013) identified only two studies in which parents were trained to manage their child's difficulties while focusing on the effect it would have on parenting stress. In their study, Jocelyn, Casiro, Beatty, Bow, and Kneiz (1998) evaluated the effect of providing a 12-week lectures and on-site consultations to parents of children with ASD receiving day-care services. Smith, Groen, and Wynn (2000) offered parental training on early intensive behavioral interventions. Despite the two studies assessing different interventions and using different measurement procedures, both reported significant decreases in challenging behaviors and in parenting stress (Jocelyn et al.; 1998; Smith et al., 2000). Thus, the purpose of the current study was to

replicate and extend prior research by (a) examining the impact of reducing the frequency and severity of challenging behaviors on parenting stress and (b) comparing the indirect effects of two different interventions designed to decrease challenging behaviors in children with ASD on parenting stress (i.e., family-centered support vs. 3h-brief one-to-one parent education). We hypothesize that reductions in challenging behaviors will be associated with reductions in parenting stress and that family-centered support will be associated with larger reductions in parenting stress, compared to brief one-to-one parent education.

## **Method**

### **Participants**

The participants were part of a broader study evaluating the effects of a parental intervention model on the challenging behaviors of children with ASD (see [removed for blind review] for details). The broader study's main goal was to compare the effects of an 8-week family-centered support to a less intensive intervention (i.e., 3-hr brief one-to-one parent education) on challenging and desirable behaviors. To be eligible, families had to have a child with ASD (diagnosed by an independent multidisciplinary team) who was less than 12 years old, presented at least one moderate or severe challenging behavior at home (as based on the Behavior Problem Inventory [BPI-01]; Rojahn, Matson, Lott, Esbensen, & Smalls, 2001), and was not receiving services to reduce challenging behaviors at home. All families not meeting one or more of those inclusion criteria were excluded from the study. Four agencies providing public or private services in the broad Montreal area (Canada) to children with ASD approached families to participate in this study via letters and phone calls.

In total, 42 families participated in the study including 10 fathers, 27 mothers, and 5 couples. Only one parent per couple responded to the questionnaires (same at every time point), even if both participated in the intervention phase. More than half of the children were receiving treatments at the beginning of the study (e.g. early behavioral intervention, speech or educational therapy;  $n = 24$ ) and 90 % attended daycare or school ( $n = 38$ ). Close to one third of the families earned less than \$30,000\$ ( $n = 12$ ), seven families earned between \$30,000 and \$49,999 ( $n = 7$ ) and nine families earned more than \$50,000 ( $n = 21$ ). More than half of the sample was born outside of Canada (56 % of parents). Half of the mothers and fathers had completed a university degree (51 %) and 50 % of mothers did not work. When evaluated on parenting stress, 52 % of the parents ( $n = 22$ ) reached the clinical threshold (total score higher than 150 on the Parenting Stress Index). Due to losses at follow-up, only 23 families completed their participation in the intervention component of the study (see [removed for blind review]).

**Socio-demographical data.** When entering the study, parents completed a socio-demographic questionnaire asking general questions regarding their child and family (e.g., child's age and diagnosis, main occupation, family income).

**Child assessments.** We assessed the severity of autistic symptoms for each child participating in the study using the Childhood Autism Rating Scale (CARS-2; Schopler, Van Bourgondien, Wellman, & Love, 2002). The examiner rated 15 items describing an autistic characteristic or symptom on a 7-point scale. The characteristics were directly observed by the rater or commented on by the parents. The CARS-2 had excellent internal consistency (Cronbach's  $\alpha = .94$ ) and a good inter-rater reliability (.71). We assessed challenging behaviors using the BPI-01 (Rojahn et al., 2001). The questionnaire

was developed to evaluate the presence of challenging behaviors in individuals with developmental disabilities, as perceived by parents or staff in the last two months. Parents were asked to assess the frequency (never, monthly, daily or hourly) and severity (mild, moderate or severe) of 52 challenging behaviors. The BPI-01 had good psychometric properties (test-retest fidelity: .76; inter-rater fidelity: .92; Cronbach's alpha: .83).

**Parenting stress.** To assess parenting stress, parents completed the Parenting Stress Index - 3<sup>rd</sup> edition (PSI; Abidin, 1995). The PSI is a 120-item questionnaire assessing three domains of stress: 1) externalizing symptoms; 2) relationships and attachment; and 3) parent, caregiver, family mental health and functioning. Parents had to score each item on a 5-point scale (from strongly agree to strongly disagree). Each domain of the PSI had good internal consistency (Cronbach's alpha between .88 and .95) and good test-retest reliability (between .68 and .90).

### **Procedures**

Following consent, families begun the pre-intervention assessment phase in which they completed the socio-demographic questionnaire, the PSI, and the BPI-01. Then, we randomly allocated the families to either a 3-hr brief one-to-one parent education or an eight-week family-centered support intervention. Based on her observations, the first author administered the CARS-2 using direct observation. When the first author could not observe the items, she asked the parents about the specific behaviors (parental interviews). For example, item regarding taste, smell and touch response was often scored after asking the parent about the child's behavior related to food or objects. We asked the parents to complete the BPI-01 and PSI again after eight weeks (i.e., the

duration of the family-centered intervention), and another time three months later (at follow-up).

All sessions were held at the family's home. All agencies participating in the study provided approval for this project as well as the [removed for blind review] Research Ethics Committee. The first author, a doctoral-level student in educational psychology with more than six years of experience in behavior management, conducted the assessment and treatment sessions.

**Family-centered support.** The family-centered support consisted of an adaptation of the school-based Prevent-Teach-Reinforce program (PTR; Dunlap et al., 2010). The family-based PTR is a multicomponent behavioral intervention in which parents collaborate with a behavior consultant to evaluate, plan and implement intervention strategies to prevent challenging behaviors, to teach appropriate behaviors and to reinforce those new appropriate behaviors. The first author coached the parents on all the required steps of implementation and closely monitored their fidelity of implementation. She met parents once a week for a total of eight weeks. If necessary, a second meeting could take place during the implementation of behavioral strategies phase. The majority of families received one visit per week. Meetings lasted between 1 to 2 hours. For a detailed description of meetings, see [removed for blind review].

**Brief one-to-one parent education.** The 3-hr brief one-to-one parent education was provided at home for all parents and consisted of teaching them all the required steps to intervene when their child displayed challenging behaviors at home. Specifically, the parents received information on taking data, evaluating the behavioral function, choosing appropriate intervention strategies to reduce challenging behaviors and teach appropriate

behaviors. The trainer (the first author) provided examples based on the families' experiences and provided all the training information in a written document, based on the same steps as recommended in the PTR for reducing challenging behaviors.

### **Analysis**

Based on prior research, we conducted multiple linear regressions to evaluate if the severity of ASD symptoms and levels of challenging behaviors were predictors of parenting stress when entering the study ( $N = 42$ ). Then, we examined Pearson correlations between changes in challenging behaviors and changes in parenting stress from pre-test to post-test ( $T2-T1$ ) and from post-test to follow-up ( $T3-T2$ ) in order to confirm the relationship between both variables ( $n = 23$ ). Finally, we used a mixed design analysis of variance ( $3 \times 2$  ANOVA) combining the three repeated measures and the two treatment groups (home-visits vs. brief one-to-one parent education) to examine their effects on parenting stress. Our data met all the assumptions needed for the use of parametric tests. We used an alpha level of .05 for all statistical tests.

### **Results**

Table 1 shows the results of the multiple regressions. First, we tested a model with the severity scores on the BPI-01 and the CARS2. Second, both severity and frequency scores of challenging behaviors were entered in the model along with the severity of ASD symptoms. Further data inspection showed that both scores on the BPI (i.e., severity and frequency) were highly correlated ( $r = .90$ ). Therefore, we kept only the first regression model. When ASD severity of symptoms was combined to challenging behavior' severity, the predictors were accountable for 13 % of the variation in parenting stress ( $R^2 = 0.13$ ;  $p < .10$ ). When parenting stress scores increased, severity of ASD symptoms and



severity of challenging behavior both increased. Changes in severity of challenging behaviors after eight weeks of intervention for all participants were moderately correlated to changes in parenting stress ( $r = 0.5, p < 0.05$ ) as well as three months after the end of their participation ( $r = 0.5, p < 0.01$ ). Finally, the ANOVA found a significant effect of time  $F(1,20) = 3.40, p < .05, d = 0.82$  and a significant interaction effect (time X group)  $F(1,20) = 5.1, p < .05, d = 1.1$  with the family-centered intervention producing larger reductions in parenting stress<sup>1</sup>. Figure 1 shows the mean scores of parenting stress as measured by the PSI over time for both groups.

[Insert Figure 1 about here]

### Discussion

Our study showed that higher severity of challenging behaviors and ASD symptoms were associated with higher levels of parenting stress in parents of children with ASD, which is consistent with prior research (McStay, Dissanayake, Scheeren, Koot, & Begeer, 2013; Rivard et al., 2014; Tehee, Honan, & Hevey, 2009). Reductions in challenging behaviors were correlated to reductions in parenting stress. Both interventions reduced parenting stress, but the family-centered intervention produced larger reductions, which was unexpected given that we had previously found that both types of interventions had similar effects on challenging behaviors ([removed for blind review]). The support received on a weekly basis (for 8 weeks) for participants in the family-centered intervention may be accountable for these larger reductions in parenting stress. Interestingly, these effects seem to have persisted even after the weekly support

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<sup>1</sup> Note for blind reviewers: Our broader study had found a significant effect of time on challenging behavior, but no significant interaction effect, indicating that both interventions produced similar reductions in challenging behavior.

had ended (i.e., at three months follow-up). Even though the interventions did not contain any component directly targeting parenting stress, improving the parents' ability to manage their child's behaviors may have resulted in lower parenting stress. That said, more studies are needed to replicate our results and identify the exact mechanisms behind those changes.

Our results are consistent with those of prior studies, which showed that parents implementing family-centered interventions to reduce challenging behaviors resulted in decreased parenting stress (Jocelyn et al., 1998; Smith et al., 2000). To our knowledge, our study is the first to compare two parental interventions for challenging behaviors and their effects on parenting stress. From a practical standpoint, individualized parental support like the one received in family-centered support seems to be more effective than only receiving education about challenging behavior. In order to support children with ASD and their parents, service providers should consider offering family-centered interventions to reduce both challenging behaviors and parenting stress.

Similarly to prior research, our study had a small sample size ( $N = 42$  for initial analysis and  $n = 23$  for our analysis of intervention effects), which limited our power. The small sample size prevented us from introducing controlling variables in our statistical analyses that could have influenced on parenting stress. Even though the small sample size, we were still able to detect an effect on parenting stress, suggesting that it was large (as shown by the effect sizes). Another limitation is that both challenging behavior and parenting stress scores were assessed by self-report measures. Direct observations of challenging behaviors and biological markers of stress could be appropriate alternatives to self-reported measures in future research. Researchers should

extend our study in order to confirm that participation in the family-centered intervention is accountable for reductions in parenting stress, and not the weekly presence of a consultant at home. Other concepts related to parenting stress such as the parenting self-efficacy concept should also be assessed in future research. Finally, future research should also integrate the effects of improving desirable behaviors such as social communication skills on parenting stress and challenging behaviors.

### References

- Abidin, R. R. (1995). *Parenting Stress Index: Professional manual* (3rd ed.). Odessa, FL: Psychological Assessment Resources, Inc.
- Davis, N. O., & Carter, A. S. (2008). Parenting stress in mothers and fathers of toddlers with autism spectrum disorders: associations with child characteristics. *Journal of Autism and Developmental Disorders, 38*, 1278-1291. doi:10.1007/s10803-007-0512-z
- Dunlap, G., Iovannone, R., Kincaid, D., Wilson, K., Christiansen, K., Strain, P., & English, C. (2010). *Prevent-Teach-Reinforce: The school-based model of individualized positive behavior support*. Baltimore, MD: Brookes Publishing Company.
- Jocelyn, L. J., Casiro, O. G., Beattie, D., Bow, J., & Kneisz, J. (1998). Treatment of children with autism: A randomized controlled trial to evaluate a caregiver-based intervention program in community day-care centers. *Journal of Developmental and Behavioral Pediatrics, 19*, 326-334.
- Lecavalier, L., Leone, S., & Wiltz, J. (2006). The impact of behaviour problems on caregiver stress in young people with autism spectrum disorders. *Journal of Intellectual Disabilities Research, 50*, 172-183. doi:10.1111/j.1365-2788.2005.00732.x
- McStay, R. L., Dissanayake, C., Scheeren, A., Koot, H. M., & Begeer, S. (2013). Parenting stress and autism: The role of age, autism severity, quality of life and problem behaviour of children and adolescents with autism. *Autism, 18*, 502-510. doi:10.1177/1362361313485163

- Oono, I. P., Honey, E. J., & McConachie, H. (2013). Parent-mediated early intervention for young children with autism spectrum disorder. *The Cochrane Library*, 2, 1-30. doi: 10.1002/14651858.CD009774.pub2
- Rivard, M., Terroux, A., Parent-Boursier, C., & Mercier, C. (2014). Determinants of stress in parents of children with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 44, 1609-1620. doi:10.1007/s10803-013-2028-z
- Rojahn, J., Matson, J. L., Lott, D., Esbensen, A. J., & Smalls, Y. (2001). The Behavior Problems Inventory: An instrument for the assessment of self-injury, stereotyped behavior and aggression/destruction in individuals with developmental disabilities. *Journal of Autism and Developmental Disorders*, 31, 577-588. doi: 10.1023/A:1013299028321
- Schopler, E., Van Bourgondien, M. E., Wellman, G. J., & Love, S. R. (2002). *Childhood Autism Rating Scale* (2nd ed.). Los Angeles, LA: Western Psychological Services.
- Silva, L. M., & Schalock, M. (2012). Autism Parenting Stress Index: initial psychometric evidence. *Journal of Autism and Developmental Disorders*, 42, 566-574. doi:10.1007/s10803-011-1274-1
- Smith, T., Groen, A. D., & Wynn, J. W. (2000). Randomized trial of intensive early intervention for children with pervasive developmental disorder. *American Journal on Mental Retardation*, 105, 269-285.
- Tehee, E., Honan, R., & Hevey, D. (2009). Factors contributing to stress in parents of Individuals with Autistic Spectrum Disorders. *Journal of Applied Research in Intellectual Disabilities*, 22, 34-42. doi:10.1111/j.1468-3148.2008.00437.x

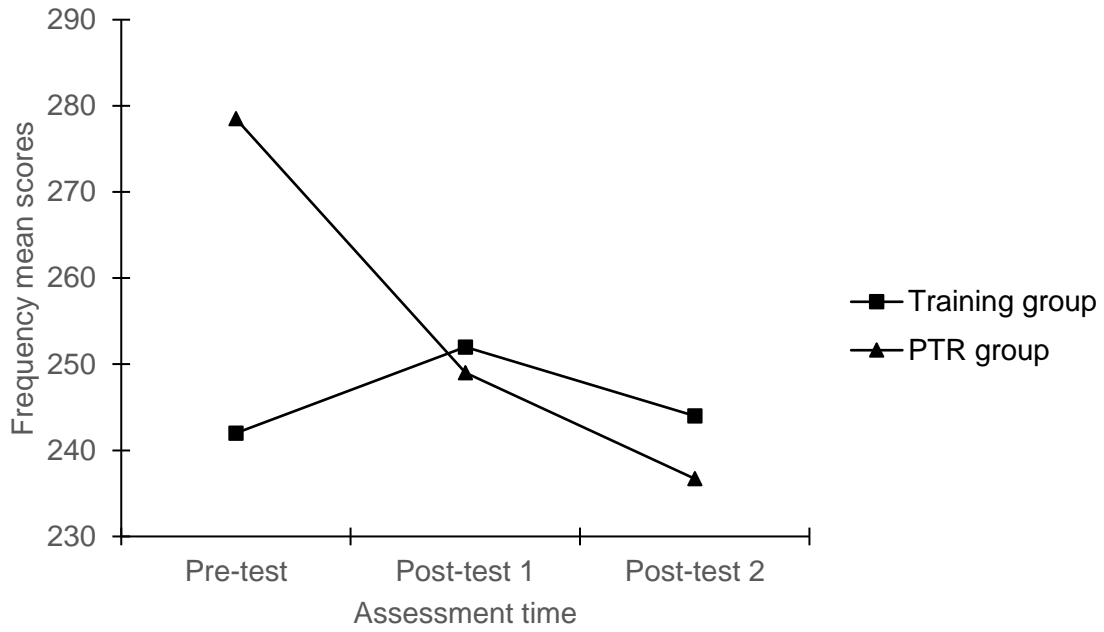


Figure 1. Mean scores for parenting stress on the PSI over time