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Parenting a Child with ASD: Comparison of parenting style between ASD, anxiety, and typical development

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Abstract

Parenting children with ASD has a complex history. Given parents' increasingly pivotal role in children's treatment, it is critical to consider parental style and behaviours. This study (1) compares parenting style of parents of children with ASD, parents of children with anxiety disorders, and parents of typically developing (TD) children and (2) investigates contributors to parenting style within and between groups. Parents of children with anxiety had a distinct parenting style compared to ASD and TD parents. Unique relationships between child symptoms and parenting behaviours emerged across the three groups. Understanding factors that impact parenting between and within clinical groups can guide the development of interventions better tailored to support the needs of parents, particularly parents of children with ASD.

Keywords

Autism Spectrum Disorder (ASD); anxiety; parenting

Parenting style plays a fundamental role in defining the dynamics of parent-child interaction. Baumrind (1968) highlighted that the use of parental control reflects parents' values and desires to help integrate their offspring into various societal and cultural contexts. Parental control can be divided into three qualitatively different parenting style dimensions: 1)

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Author Contributions

PV and JL conceived of the study, participated in its design and coordination, performed the statistical analysis, and drafted the manuscript. CP participated in the design of the study. EL participated in the design of the study and drafted the manuscript. WS conceived of the study, participated in its design and coordination, and drafted the manuscript. All authors read and approved the final manuscript.

Compliance with Ethical Standards

Conflict of Interest: the authors declare that they have no conflict of interest

Informed Consent: This work was approved by Yale University Institutional Review Board (IRB), and Human Investigation Committee (HIC) #1004006656 and #1106008625. Written informed consent was obtained from each participant's parent(s), and assent was obtained from each participant.

acceptance versus rejection; 2) psychological control versus autonomy; and 3) firm control versus lax control (Baumrind, 1967). Each dimension may elicit unique outcomes in shaping children's psychosocial development (Barber, Olsen, & Shagle, 1994).

Parenting in ASD

The role of parenting children with autism spectrum disorder (ASD) has a complex history, starting with Kanner's theory that mothers were to blame for their child's autism (Kanner, 1943). Kanner postulated that autism might be caused by the "refrigerator mother," mothers who were cold and unemotional. This notion of "refrigerator mother" was advocated by other prominent theorists in the field, most notably Bettelheim (1967). In 'The empty fortress' (Bettelheim, 1967), Bettelheim adopted a psychoanalytical approach and described how experience of parental rejection and parental insensitivity during early development might hinder development of self in infants, who subsequently develop increased social withdrawal. The notion of the "refrigerator mother" has since been heavily criticised and rejected (Deslauriers, 1967). There is no scientific empirical support for the notion that mothers cause their children's autism or that they lack reflective functioning and are insensitive to their children's needs (Deslauriers, 1967; Keen, 2007). Indeed, it is widely accepted that mothers are *not* the cause of autism in children.

With Rimland's (1964) emphasis of viewing autism not as a reaction to emotionally unavailable mothers but instead as a biological disorder, the research zeitgeist shifted from examining psychosocial factors relating to the development of ASD to biological factors. As a consequence, for approximately two decades the field has made substantial advances in understanding the biological basis of ASD, leading to exciting new discoveries in genetics and neural systems (Bourgeron, 2015; Chen, Peñagarikano, Belgard, Swarup, & Geschwind, 2015; Happé & Ronald, 2008).

Some could argue that because of these theoretical shifts and the historical complexities of discussing parenting in ASD, scientists shied away from the topic of parenting and ASD, as though it would (erroneously) imply that parents were "to blame." However, as is true of children in general, children with ASD are part of a family system (Bronfenbrenner, 1979; Bugental & Johnston, 2000), and within that system, parents manage their child's behaviours and deficits. For children with ASD, parents have become increasingly involved in their child's treatment, and in some cases, serve as the primary person delivering the treatment (Coolican, Smith, & Bryson, 2010; Hardan et al., 2014; Minjarez, Williams, Mercier, & Hardan, 2010). Parent involvement is important given that having a child with ASD poses many unique challenges to the family system, such as increased rigidity of family schedules due to difficulties with transitions experienced by many children with ASD; increased social isolation experienced by parents who often must withdraw (willingly or unwillingly) from social outings due to children's behavioural problems; and often are burdened with demanding child care duties that can conflict with parents' work commitments, and that may impact family finances (Hutton & Caron, 2005; Montes & Halterman, 2007; Myers, Mackintosh, & Goin-Kochel, 2009). Many additional challenges to the family persist across the development of the child with ASD, and have significant

impacts on parents' psychological stress, impacting parents' mental and social wellbeing and affect family functioning (Gray, 1994, 2006).

Despite these difficulties within the family system, the de-emphasis on the study of parents of children with ASD resulted in a knowledge gap regarding factors that may influence and interact with different parenting styles, as well as the degree of specificity in parenting a child with ASD. It is important to close this gap in order to identify unique factors involved in parenting a child with ASD and to learn how they are similar or different when compared with the factors and challenges faced by parents of children with other highly impairing disabilities, such as anxiety disorders. To our knowledge, no study has compared parenting style similarities and differences between parents of children with an anxiety disorder, and parents of children with ASD. Characterising interactions between the unique and overlapping child symptoms (including internalising and externalising symptoms) between children with ASD and children with anxiety, and differences in parenting styles will further enhance understanding of the intricate dynamics between children and parents in a family system, and determine particular challenges among parents whose children experience developmental delays and psychopathological symptoms.

Below we present a brief overview of what is currently known with regard to parenting style across parents of children with ASD and parents of children with anxiety disorders.

Parenting Style

As noted earlier, little is known about differences in parenting styles and behaviours between parents of children with ASD and parents of typically developing (TD) children. In one study, using the Parental Bonding Instrument in a sample of Chinese families, Gau et al. (2010) found parents of children with ASD (n=151) rated themselves as less affectionate and more psychologically controlling compared with parents of TD children (n=113). In another study, using child ratings on the Parent-Child Interaction Questionnaire-Revised, where children with ASD from 132 Norwegian families, compared with their unaffected siblings, reported lower parental acceptance (van Steijn, Oerlemans, van Aken, Buitelaar, & Rommelse, 2013). These two studies provide some preliminary data indicative of differential styles of parenting for children with ASD compared with parents of TD children and unaffected siblings.

In comparison, behavioural observation examining mother-child interactions found that mothers of anxious children similarly display more negative parenting such as intrusive involvement (e.g., degree of unsolicited help, mother's tension) towards their children when engaged in a cognitively demanding task compared to parents of TD children (Hudson & Rapee, 2001). Broader considerations of dynamic family systems functioning have found that parents of children with anxiety can exert more control over their children and grant less autonomy (e.g., trying to control children's actions, lack of encouragement of children's independence), which may influence the development and maintenance of anxious traits in their children (Bögels & Brechman-Toussaint, 2006; Hudson & Rapee, 2001, 2002; McLeod, Wood, & Weisz, 2007). Children with higher levels of anxiety also rate their

parents significantly less accepting and autonomy-granting than children without anxiety (Siqueland, Kendall, & Steinberg, 1996).

Parent Symptoms and Child Internalising and Externalising Symptoms

When considering parenting style towards ones' children, it is important to consider how parents' psychological symptoms, such as depression and anxiety, may influence their parenting (Foster, Garber, & Durlak, 2007; Lovejoy, Graczyk, O'Hare, & Neuman, 2000). Although a few studies have reported elevated levels of stress experienced by parents of children with ASD (Baker-Ericzen, Brookman-Frazee, & Stahmer, 2005; Bitsika & Sharpley, 2004; Davis & Carter, 2008; Dunn, Burbine, Bowers, & Tantleff-Dunn, 2001), little is known about how psychological symptoms experienced by parents of children with ASD are associated with parenting styles. The childhood anxiety literature, in contrast, contains much research showing that anxiety and depression are common symptoms of parents of children with anxiety disorders, and are associated with parenting style (Foster et al., 2007; Lovejoy et al., 2000; Silverman, Cerny, Nelles, & Burke, 1988; van der Bruggen, Stams, & Bögels, 2008).

Also important when considering parenting style is to take into account children's behavioural profiles and psychiatric symptoms, as defined and measured broadly by internalising and externalising symptoms. Children with ASD experience high levels of co-occurring internalising and externalising symptoms, with 11–84% of children experiencing internalising symptoms, such as anxiety (Gadow, Devincent, Pomeroy, & Azizian, 2005; White, Oswald, Ollendick, & Scahill, 2009), and more than 40% of children displaying disruptive and other forms of externalising symptoms (Harris, Milich, Corbitt, Hoover, & Brady, 1992; Mayes et al., 2012).

High prevalence of co-occurring behavioural symptoms in children with ASD is especially important to consider from a systemic perspective, as a longitudinal study found that children's behavioural symptoms significantly predicted parents' reports of elevated stress, increased social withdrawal and isolation, and poor family functioning (Gray, 1994, 2006). Montes and Halterman (2007) found that after controlling for children with ASD's behavioural problems and social challenges, mothers still reported significantly greater psychological stress and poorer quality of mental health. Therefore, the combination of children with ASD's behavioural symptoms in addition to core social impairments might place additional strain on parenting, and there is a need to better understand the association between co-occurring behavioural symptoms and parenting styles within the family system. The childhood anxiety literature shows high co-occurrence with externalising symptoms as well (Biederman et al., 2001; Williams, Dahan, Silverman, & Pettit, 2013). We are unaware, however, of how parents of children with ASD and parents of anxious children may vary in their parenting depending on occurrence (or not) of children's co-morbid symptoms.

Current study

Due to the lack of empirical evidence investigating the highly dynamic interaction between children's behavioural symptoms, parents' psychological symptoms, and parenting styles,

few evidence-based interventions are available to help parents understand their parenting approach and how it relates to their child's symptoms, in ASD, in particular. Therefore, in the current study, our primary aim was to characterise how children's internalising and externalising symptoms, parent symptoms of anxiety and depression, as well as parenting styles compare across children with anxiety and children with ASD, when compared with TD children. Further, we aimed to explore within each diagnostic group, how children's symptoms and parents' symptoms may be associated with each parenting style, to further evaluate potential factors underlying different parenting styles.

Methods

Participants

Participants included children with ASD (N = 48), children with an anxiety disorder (N = 85), typically developing (TD) children (N = 26), as well as one parent reporter for each child. All children were recruited from the community and the developmental disabilities clinic at the university where the present study is conducted. Participants for the current study were recruited as part of studies that examine broader phenomenology of social cognition and developmental psychopathology in children with ASD and children with anxiety disorders. Table 1 outlines sample demographic information for each group of children who took part in the current study. The children with ASD were diagnosed using "gold-standard" diagnostic procedures. All children with ASD entered the study with a prior diagnosis of ASD, which was confirmed by a highly experienced licensed clinical child psychologist using the Autism Diagnostic Observation Schedule (ADOS; Lord et al., 1999), and the Autism Diagnostic Interview-Revised (ADI-R; Rutter, LeCouteur, & Lord, 2003). All children with ASD met clinical cut-off criteria for ASD on the ADOS and ADI-R in order to enrol in the present study. Clinicians administering these measures were research reliable.

For children in the anxiety (ANX) group, the Anxiety Disorders Interview Schedule – Child and Parent (ADIS-C/P) (Silverman, Saavedra, & Pina, 2001) was administered separately to the child and parent by graduate level clinicians or licensed psychologists, trained to reliability in its use by one of the instrument's authors. To prevent rater drift, a team of experts discussed each assessment to establish consensus. Where discrepant reports between parent and child emerged, clinicians integrated both informants' views with clinical expertise to derive a final diagnosis (Silverman et al., 1999; Silverman, Kurtines, Jaccard, & Pina, 2009).

Children were included in the TD group if they had never received a diagnosis of a psychiatric or developmental disorder and had never received special education services. All participants gave their written informed consent prior to study enrolment, and the study was approved by the university human investigation ethics committee.

Measures

Child Behavior Checklist, School Age Version (CBCL; Achenbach & Edelbrock, 1983)—The CBCL is a parent-report measure of child's broad internalising

and externalizing symptomatology, each with corresponding scales, as well as yielding a total scale score. The internalising scale includes items that focus on anxious (e.g., worries, fearful); depressive (e.g., enjoys little in life, lacks energy); and withdrawn symptoms (e.g., prefers to be alone, refuses to talk); as well as somatic complaints (e.g., aches, nausea). The externalising scale includes items that focus on rule-breaking behaviour (e.g., doesn't seem to feel guilty after misbehaving, breaks rules at home, school or elsewhere), and aggressive behaviour (e.g., argues a lot, meanness to others).

Beck Anxiety Inventory (BAI; Steer & Beck, 1997)—The BAI was administered to assess parents' symptoms of anxiety. The BAI is a 21-item self-report measure of symptoms of anxiety during the past week (e.g., inability to relax, nervousness, feeling shaky, sweating (not due to heat)). Items are scored on a scale from not at all (0) to severely (3). The total score is calculated by summing the raw scores from all items.

Beck Depression Inventory (BDI; Beck, Steer, & Carbin, 1988)—The BDI was administered to assess parents' symptoms of depression. The BDI is a 21-item self-report measure of symptoms of depression in the past two weeks (e.g., feeling sadness, a loss of pleasure, self-criticalness, irritability). Items are scored on a scale from 0 to 3. The total score is calculated by summing the raw scores from all items.

Parent Report of Parenting Behavior Inventories (PRPBI; Mann & Sanders, 1994; Morton, 1991)—PRPBI is a 30-item questionnaire that assesses three dimensions of parenting behaviour: acceptance versus rejection (e.g., I make my child feel better after talking over his/her worries with me; I cheer my child up when he/she is sad); psychological control versus psychological autonomy (e.g., I would like to be able to tell my child what to do all the time; I am always trying to change my child); and firm control versus lax control (e.g., I am very strict with my child; I give hard punishment). Parents responded to questions by choosing if they were *like*, *somewhat like*, or *not like* each of the items. Answers were provided a score of 1 (not like), 2 (*somewhat like*) and 3 (like). The score for each scale was a summation of the total raw scores. Higher scores reflected greater amounts of acceptance, psychological control, and firmness.

Design

Parenting behaviours were compared across the three groups (ASD, ANX, and TD). To provide understanding of the differences in parenting behaviours and potential contributors of these differences among the three groups, the relationship between parenting style and child symptoms were evaluated. Child symptoms were assessed using the CBCL's Internalising and Externalising composite scales. Parents' own anxiety and depression were measured using BAI and BDI. Parenting behaviours were assessed using the PRPBI.

Statistical Analyses

We first conducted a one-way ANOVA to determine whether there were any significant differences across children in the three groups (ASD, ANX, TD) in age. We found a significant main effect of age $F(2,156)=3.10$, $p = .048$, and Bonferroni-corrected post-hoc analysis revealed that children from the ASD group were younger than the ANX group ($p = .$

046). Age was subsequently entered as a covariate into a one-way MANCOVA model to compare and contrast differences in child symptoms, parent symptoms, and parenting styles across the three diagnostic groups (ASD, ANX, and TD). Bonferroni-based corrections were used to correct for multiple comparisons, and effect sizes were calculated using Cohen's d for comparisons between the three groups, with $d = 0.2$, $d = 0.5$, $d = 0.8$ representing small, medium, and large effect sizes, respectively. Next, we ran partial correlations (controlling for age) to further characterise the relationship between child symptoms and parent symptoms with each parenting style within each diagnostic group, to further compare and outline unique factors associated with parenting behaviour across parents of TD, ASD, and anxious children. All statistical analyses were conducted using SPSS (IBM, version 21).

Results

Using a MANCOVA controlling for age as a covariate, a statistically significant difference emerged in child symptoms, parent symptoms, and parenting styles based on children's diagnostic group (ANX, ASD, TD) at a multivariate level, Pillai's Trace = .42, $F(14, 300) = 5.73$, $p < .001$, partial eta squared = .21. Power to detect effect was 1.0.

Given the significance of the overall test, the univariate main effects for child symptoms, parent symptoms, and parenting styles were examined across the three groups (Table 2). When evaluating differences in child symptoms (Figure 1), significant univariate main effect of group was obtained for both internalising symptoms ($p < .001$, partial eta squared = .16); and externalising symptoms ($p = .001$, partial eta squared = .09). For internalising symptoms, post-hoc analyses revealed that both ANX and ASD groups had greater internalising symptom severity than TD group ($p = .000$; $p = .006$). ANX and ASD group did not differ from each other in levels of internalising symptoms. For externalising symptoms, post-hoc analyses revealed that both ANX and ASD group had significantly greater externalising symptom severity than TD group ($p = .004$; $p = .001$). ANX and ASD group did not differ from each other in levels of externalising symptoms.

When evaluating differences in parents' self-report of anxiety and depression (Figure 2), significant univariate main effect of group was obtained for parental anxiety ($p = .02$, partial eta squared = .05); and for parental depression ($p = .011$, partial eta squared = .06). Post-hoc analyses revealed that parents of ANX children reported significantly higher levels of own anxiety ($p = .017$) than parents of TD children. Parents of ASD did not significantly differ from the ANX or TD. Parents of children with ASD reported significantly greater levels of depressive symptoms ($p = .012$) than parents of ANX children, but they did not differ from parents TD children ($p = .102$).

When evaluating differences in parenting styles (Figure 3), significant univariate main effect of group was obtained for Parental Acceptance ($p < .001$, partial eta squared = .13); and for use of Firm Control ($p < .001$, partial eta squared = .11). No main effect of use of Psychological Control was found ($p = .743$, partial eta squared = .01). Post-hoc analyses revealed that parents in ANX group reported greater levels of parental acceptance and use of firm control when compared to parents of TD group ($p = .003$; $p = .003$); and parents of

ASD group ($p < .001$; $p = .002$). No difference was observed between parental acceptance or use of firm control between parents of TD group and ASD group.

Next, we conducted partial correlations controlling for age as a covariate, to further investigate the associations between child symptoms, parent symptoms, and each parenting style for each group. For the TD group, we did not observe any significant correlations between any of the child or parent symptoms with any parenting styles. For ANX group, children's externalising symptoms significantly correlated with parental acceptance ($r = -.36$, $p = .001$), parental use of psychological control ($r = .39$, $p < .001$), and parental use of firm control ($r = .23$, $p = .035$). Parental depression also showed significant correlation with parental use of psychological control ($r = .25$, $p = .025$). For ASD group, children's externalising symptoms was significantly correlated with parental use of psychological control ($r = .29$, $p = .045$), and showed a near significant correlation with parental use of firm control ($r = .27$, $p = .065$).

Discussion

The current study investigated differences in parenting style in parents of children with ASD, compared with parents of children with anxiety disorders and parents of TD children. Furthermore, we characterised how children's internalising and externalising symptoms, as well as parents' symptoms of anxiety and depression, may be differentially related to parenting styles within each group. A better understanding of how challenges that parents of children with ASD may encounter and their influences on parenting behaviour can guide the development and adaptation of interventions to provide better support for parents.

Parenting style differences

Despite comparably elevated levels of internalising and externalising symptoms in the ASD and ANX groups relative to TD children, only parents of children with anxiety demonstrated greater levels of parental acceptance and use of firm control. Parents did not differ in use of psychological control. This is somewhat inconsistent with prior findings that parents of children with anxiety exhibit lower acceptance, and exert greater control over their children, allowing for less autonomy (Hudson & Rapee, 2001, 2002; McLeod et al., 2007; Siqueland et al., 1996). One possible reason for the discrepant finding may be informant bias, as the current study asked parents to rate their own parenting style using the PRPBI, rather than using either observer coded parent-child interactions (Hudson & Rapee, 2001, 2002), or using child reported version of the PBI (CRPBI) (Siqueland et al., 1996). Furthermore, previous studies did not compare parenting styles of children with anxiety to parents of children with ASD, highlighting the importance of the current exploratory finding that observable differences in parenting style across the two groups do not simply reflect shared challenges of parenting a child experiencing developmental or psychological difficulties.

The current study did not find differences in parenting style between parents of TD children and children with ASD, which contrasts with other findings of reduced parental acceptance and greater use of psychological control among parents of children with ASD compared to parents of TD children (Gau et al., 2010; van Steijn et al., 2013). There are several factors that may have contributed towards this discrepant finding. First, whereas the current study

used a parent-rated questionnaire that focused on generalized parenting behaviour (PRPBI), van Steijn et al. (2013) relied on a child-rated questionnaire, which specifically focused on children's experience of acceptance and conflict resolution during parent-child interaction. Differences in both informants and instruments thus reduce the direct comparability between the two findings, and future studies may use multiple instruments and integrate multiple informant reports to further evaluate the replicability of the present findings.

Second, there are inherent cultural differences underlying our sample and that of Gau et al. (2010)'s sample, in particular, which consisted solely of Chinese families. Parenting style is heavily embedded within the broader cultural context, which may place differential emphasis on parenting style based on different ideologies and values. Parenting a child with disability can not only be challenging and increase parental stress, but parents may face additional pressure from cultural influences and societal values, that may place further strain on their interaction with their child (Holroyd, 2003; Kearney & Griffin, 2001). Therefore, given the differences in samples and methods, it is less surprising that the results reveal different findings.

Children's behavioural problems and parenting style

Despite little difference in the overall parenting style between parents of children with ASD and TD children, unique profiles of child symptoms related to parenting behaviours emerged between these two groups. In the TD group, there were no relationships between any domains of the CBCL and parenting styles. In the ASD group, parents reported greater use of psychological control, and to a lesser degree firm control, when children demonstrated elevated levels of externalising symptoms. These results indicate that parents of ASD children who exhibit higher levels of maladaptive behavioural symptoms are more controlling and allow for less autonomy, likely in response to the significant behavioural dysregulation in their children.

In comparison, parents from the ANX group demonstrated overlapping, yet unique patterns of association between parenting style and children's symptoms. Like parents of children with ASD, heightened levels of externalising symptoms in children with anxiety was associated with greater use of firm control and psychological control. Unlike parents of children with ASD, parents of children with anxiety also showed reduced levels of acceptance when children exhibited elevated levels of externalising symptoms. Therefore, results suggest that like parents of children with ASD, parents of children with anxiety may respond to more disruptive behaviours with greater parental control, and may be less tolerant. However, it is important to acknowledge the likely bi-directional interaction between children's symptoms and parenting style.

Finally, it is interesting to note that although both children with ASD and children with anxiety exhibited heightened levels of internalising symptoms, this was not associated with any parenting behaviour reported by parents. It may be that challenging externalising symptoms play a more salient role in shaping parent-child interaction, and elicit greater criticism and control, similar to parents of children with oppositional defiant problems (Lindahl, 1998; Rey & Plapp, 1990).

Embedding the unique patterns of associations between children's behavioural symptoms and parenting styles across the three groups within a family systems framework, it is interesting to contemplate whether any particular parenting styles may be considered in a positive and desirable light for the clinical samples examined in the current study. Although there is literature from parenting typically developing children that suggest a balanced degree of acceptance and firm control by parents may be necessary and beneficial in reducing the development of externalising symptoms in children and adolescents (Reitz, Dekovi, & Meijer, 2006; Rinaldi & Howe, 2012), it is unclear whether such interpretations may be generalisable to families with a child experiencing clinically significant developmental delays and psychological symptoms, such as ASD and anxiety.

Our findings address this important gap in literature by exploring unique patterns of factors associated with parenting styles for parents of children with ASD, when compared to children with anxiety and TD children. However, due to the retrospective cross-sectional design of the current study, a direction of causation between parenting styles and children's behavioural symptoms cannot be drawn to further elucidate *how* parenting styles may predict and contribute to the development and maintenance of children's behavioural symptoms over time. Treatment research in the child anxiety literature indeed suggests complex and varied patterns of directionality (Silverman et al., 2009)

Building upon current findings, future studies should seek to employ longitudinal designs to further examine *how* specific parenting styles may be related to the developmental trajectory of children's behavioural outcomes for children with ASD in a prospective manner. A better understanding of the long-term reciprocal influences between children's behavioural symptoms and parenting styles, longitudinal studies in the future can help shed light on whether specific parenting styles of children with ASD may be perceived in a more or less positive light, and help increase children's adaptive behaviours over time within a family system.

Parent symptoms and parenting style

The current study also found that parents of children with anxiety reported experiences of heightened anxiety themselves compared with parents of children with ASD and TD children, although this was not associated with any domains of parenting style. In contrast, although parents of children with anxiety reported comparable levels of depressive symptoms to parents of TD children, a significant association with use of psychological control was only observed among parents of children with anxiety. This further highlights distinct patterns of association between parent symptoms and parenting style between parents of children with anxiety and of TD children. In comparison, parents of children with ASD reported greater levels of depressive symptoms than parents of children with anxiety, and parents of TD children to a lesser degree. However, unlike parents of children with anxiety, depressive symptoms reported by parents of children with ASD was not associated with any parenting behaviours, further highlighting that it may be the children's behavioural symptoms that play the most dominant role in shaping parenting behaviour in this clinical group.

Clinical implications and theoretical considerations

Our current findings have multiple clinical implications. First, externalising symptoms in children with ASD is an important factor related to parental control. Therefore, interventions that either directly target such maladaptive behaviours, or integrate ways to teach parents to effectively manage such challenging behaviours, may be beneficial for improving quality of parent-child interaction for children with ASD. Second, parents of children with ASD reported elevated levels of depressive symptoms relative to parents of children with anxiety, and of TD children. Although unrelated to any parenting style reported by parents, it nonetheless highlights that one should take into consideration the need to provide additional parental support when working with parents of children with ASD.

ASD is a pervasive developmental disorder that has many significant long-term impacts on family functioning that needs to be addressed. Identifying critical time windows where parents may experience significantly elevated levels of parental stress, and providing appropriate professional help and guidance tailored to the needs of parents may be especially critical to preserving functional family dynamics and parents' social and mental well-being, both of which are critical to securing high quality of care within the family system for children with ASD. For example, Keen, Couzens, Muspratt, and Rodger (2010) found that providing professional support and parent training around the time of their child receiving ASD diagnosis not only helped to reduce stress and other negative psychological symptoms experienced by parents, but also had additional positive influences on children's overall adaptive functioning and social communication development over the course of intervention. In light of current findings, it is important to consider that both children and parents play equally important roles within a dynamic family system, and providing sensitive and optimum care and support to each party is critical to securing adaptive family functioning, which is in turn a crucial component to eliciting positive treatment responses in children and adolescents with ASD.

Overall, given that parents play an increasingly prominent and active role in the delivery of a range of interventions for children with ASD, ranging from behavioural based treatments (Coolican et al., 2010; Gengoux et al., 2015; Minjarez et al., 2010) to social skills and communication focused trainings (Green et al., 2010; Laugeson, Frankel, Mogil, & Dillon, 2008), it is crucial to understand factors associated with parenting behaviour that can directly influence parent-child interactions, which can underpin the long-term prognosis of treatment outcome.

Limitations and future directions

In addition to the limitations outlined throughout the discussion, two additional limitations are highlighted. First, the current study did not have data on children's cognitive abilities (IQ), and it is interesting to conjecture how current associations identified might vary when comparing children of higher and lower cognitive abilities. Second, our current study did not investigate the differential parenting styles of mothers and fathers of children, separately. There may be gender-specific differences underlying parenting style, further shaping the dynamics of parent-child interaction for children (Roelofs, Meesters, Huurne, Bamelis, & Muris, 2006). A better understanding of gender-specific effects may enable interventions to

be better tailored, and provide support in a more sensitive manner to parents of children who experience psychological difficulties. In addition, future studies should also investigate broader family factors, such as socioeconomic status, marital status, level of social support, as well as cultural influences such as race and ethnicity to further identify possible mediators and moderators that may underlie the relationships between parenting styles and behavioural difficulties displayed by children who experience psychological symptoms (Falk, Norris, & Quinn, 2014). Such research also will need to consider evaluations of and possible refinements in measurement approaches to ensure the generalizability of measures across races and ethnicities (Pina, Little, Knight, & Silverman, 2009).

Summary

In conclusion, our study addresses a vital gap in literature on how parenting behaviour may be influenced by both child and parent behaviour. We revealed valuable information related to how parenting styles exhibited by parents of children with ASD may differ from parents of TD children, as well as children with anxiety who present overlapping, yet distinct behavioural and psychological symptom profiles. Parenting a child with a disability can be highly challenging, and require additional support. By providing a more lucid account of parenting behaviours and the relationships between parenting, child, and parent symptomatology, the current study may help further the design and adaptation of interventions and support services to better service the needs of parents of children with disabilities.

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Figure 1.

Parent reported differences in children's externalising and internalising symptoms across groups.

Note. CBCL = Child Behavior Checklist; TD = Typically Developing; ANX = Anxious; ASD = Autism Spectrum Disorder. ** $p < .01$; *** $p < .001$.

Figure 2.

Parents' self-reported symptoms of anxiety and depression differences across groups.

Note. BAI = Beck's Anxiety Index; BDI = Beck's Depression Index; TD = Typically Developing; ANX = Anxious; ASD = Autism Spectrum Disorder. * $p < .05$.

Figure 3.

Parenting style differences across groups.

Note. PRPBI = Parent Report of Parental Behavior Inventory; TD = Typically Developing;

ANX = Anxious; ASD = Autism Spectrum Disorder. ** $p < .01$; *** $p < .001$.

Table 1

Sample demographics

	TD (N=26) Mean (SD)	ANX (N=85) Mean (SD)	ASD (N=48) Mean (SD)
Age (years)	10.04 (4.00)	10.96 (3.27)	9.35 (4.04)
Male (n)	19	35	24
Female (n)	7	50	24

Note. TD = Typically Developing; ANX = Anxiety; ASD = Autism Spectrum Disorder

Table 2

Characterisation of parent symptoms, parenting styles, and child symptoms.

	TD (N=26)			ANX (N=85)			ASD (N=48)			ANX vs TD			ASD vs TD			ANX vs ASD		
	Mean (SD)	Range		Mean (SD)	Range		Mean (SD)	Range		F(2,155)	Cohen's $d^{\dagger}$		Cohen's $d^{\dagger}$			Cohen's $d^{\dagger}$		
Parent																		
BAI	2.50 (3.83)	0–14		6.59 (6.74)	0–37		5.83 (6.70)	0–35		3.99 [*]	0.75 [*]		0.61			0.11		
BDI	5.81 (5.26)	0–17		5.72 (4.89)	0–24		9.04 (8.30)	0–29		4.61 [*]	–0.02		0.46			–0.49 [*]		
PRPBI																		
Parental Acceptance	13.38 (7.71)	0–20		16.97 (2.48)	11–20		13.48 (7.28)	0–20		11.67 ^{***}	0.63 ^{**}		0.01			0.64 ^{***}		
Psychological Control	3.23 (4.51)	0–18		3.61 (2.80)	0–10		3.38 (3.23)	0–14		0.30	0.10		0.04			0.08		
Firm Control	8.15 (5.56)	0–17		10.88 (2.24)	6–16		8.81 (5.29)	0–16		9.12 ^{***}	0.64 ^{**}		0.12			0.51 ^{**}		
Child																		
CBCL																		
Internalising	5.96 (5.30)	0–20		16.35 (7.88)	2–36		12.35 (10.7)	1–39		14.53 ^{***}	1.55 ^{***}		0.76 ^{**}			0.43		
Externalising	4.08 (5.59)	0–29		9.86 (8.22)	0–39		11.85 (10.22)	0–44		7.16 ^{***}	0.82 ^{**}		0.94 ^{***}			–0.21		

Note. TD = Typically Developing; ANX = Anxiety; ASD = Autism Spectrum Disorder; BAI = Beck's Anxiety Index; BDI = Beck's Depression Index; PRPBI = Parent Report of Parental Behaviour Inventory; CBCL = Child Behaviour Checklist.

* $p < .05$;

** $p < .01$;

*** $p < .001$;

[†] Bonferroni used to correct for multiple comparisons in post-hoc analyses.