

Exploratory study of parenting differences for Autism Spectrum Disorder and Attachment Disorder

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Abstract

The current study explored similarities and differences in parenting stress and behaviours in parent reports of Autism Spectrum Disorder (ASD) and Attachment Disorder (AD). 155 parents whose children had developmental delays and disorders completed the Social Communication Questionnaire, Randolph Attachment Questionnaire, Strengths and Difficulties Questionnaire, Parenting Stress Index, and Parent-child Relationship Inventory. Parents of children with AD reported greater levels of parenting stress than parents of children with ASD. Parents of children reaching criteria for both disorders reported the greatest levels of parenting stress. Limit setting was poorest in parents of children with both classifications, followed by parents of children with AD, and then ASD. Limit setting mediated the relationship between parenting stress and child behaviour problems for parents of children with ASD, but not for parents of children with AD. These findings suggest different areas of difficulty for parents of children with these conditions, which may be of help in designing interventions.

Keywords: Autism Spectrum Disorder; Attachment Disorder; behavioural problems; attachment styles; co-morbidity.

Autism Spectrum Disorder (ASD) and Attachment Disorder (AD) can present with similar symptoms to one another (Davies & Reed, 2021; Denis, Jacquot, & Pitchot, 2009; Moran, 2010), especially when assessment is focused on behaviour (Davidson et al., 2015; Sadiq, Slator, Skuse, Law, Gillberg, & Minnis, 2012). In fact, when considering the behavioural presentation of ASD and AD, it can be difficult to differentiate the two conditions reliably (Davidson et al., 2015; McCullough, Stedmon, & Dallos, 2014; Moran, 2010; Sadiq et al., 2012). For example, Moran (2010) reports eight overlapping symptoms often present in both ASD and AD, these are recorded as: inflexibility, atypical play, poor social interaction, deficits in Theory of Mind, communication difficulties, emotional regulation deficits, executive function difficulties and sensory integration needs, with social deficits being the most clearly distinguishable indicator for ASD in the first two years of life. Given this, emerging research has sought to clarify clinical differences between the two conditions (Davidson et al., 2015; McCullough, Stedmon, & Dallos, 2014; Rutter, Bailey & Lord, 2003; Sadiq et al., 2012). Much previous work has focused on child characteristics associated with ASD and AD, and the current investigation extended this research. However, any differential impacts of the conditions on parent functioning, notably parenting stress and parenting behaviours, are under-researched areas, which the current study explored.

Difficulty in distinguishing the two disorders has implications for services, interventions, and family dynamics (Kendall-Jones, 2014; Moran, 2010). ASD is a neurodevelopmental disorder with considerable heterogenic presentation and severity (Wing, Gould, & Gillberg, 2011), but characterised with impaired social communication, and restricted and repetitive behaviours and interests (APA, 2013; WHO, 2016). Children with AD can be withdrawn, hypervigilant, or highly ambivalent in behaviours towards caregivers and others (Davidson et al., 2015). In addition, their difficulties include impairment in interpretation and/or use of social cues and with pragmatic language (Moran, 2010; Sadiq,

Slator, Skuse, Law, Gillberg, & Minnis, 2012). Both disorders are associated with high levels of externalising behaviours (Buckner, Lopez, Dunkel, & Joiner, 2008; O'Connor & Zeanah, 2003; Hartley, Sikora, & McCoy, 2008), which is a key issue in education of these groups. Both classifications also have moderate to high levels of comorbidity with learning disabilities (O'Brien & Pearson, 2004; Kildahl, Engebretsen, & Helverschou, 2019). The presence of comorbid learning disabilities has been subject to investigation regarding its impact on differentiation of ASD and AD, as little is known about this group of key interest to many special educators (Davies, Glinn, & Reed, 2021; Giltaij, Sterkenburg, & Schuengel, 2015).

Several studies have reported some differences in child characteristics between ASD and AD (Davies & Reed, 2021; Davies et al., 2021; Davison et al., 2015; Mayes, Calhoun, Waschbusch, & Baweja, 2017; Minnis, Messow, McConnachie, Bradshaw, Briggs, Wilson, & Gillberg, 2020; Sadiq et al., 2012). Although, even so, overlap in diagnosis or classification can vary between 10 and 60% (see Davis & Reed, 2021). However, few studies have extended the search for differences into the realm of the parenting of the children with ASD or AD, which may permit further understanding of features associated with the two conditions.

This area has theoretical interest, as ASD is taken to be neurodevelopmental, present from birth, and characterised by a broad spectrum of behavioural presentations. These presentations include alterations in social interactions, communication, and stereotypies and rigidity (DSM-5, 2016). In contrast, AD is a psychosocial disorder, with evidence of social neglect, deprivation, lack of attention to the child's needs for comfort, repeated changes of primary caregiver, and experience of being reared in an institutional setting, necessary for a diagnosis (WHO, 2020, Kay, Green, & Sharma, 2016; Mayes, Calhoun, Waschbusch, &

Baweja, 2017; Volkmar & Richters, 1994). If this theoretical differentiation is the case, then differences in parenting behaviours associated with ASD and AD may well be expected.

Although the diagnostic and theoretical accounts of ASD and AD are specific regarding parenting between these groups, empirical research suggests that these differences may be ambiguous in practice. For example, with AD, the stress regulation capacity of the main caregiver has been taken to be impaired, and to contribute to child emotional and behavioural differences in AD (Hornfeck, Bovenschen, Heene, Zimmermann, Zwönitzer, & Kindler, 2019). However, parenting a child with ASD also is linked with higher parental stress (Osborne, 2009), which contributes to child behaviour problems (Osborne & Reed, 2009). Thus, in both cases, there are high levels of parenting stress, and disrupted parenting behaviours.

Parenting stress has been the target of extensive research across a range of developmental and paediatric medical problems (Osborne, 2009), and is central to many models of how parenting behaviours are impacted by, and impact, child behaviour problems (Deater-Deckard, 1979; Hastings, 2002; Osborne, 2009). It has been assumed that levels of parenting stress are particularly high for parents of children with ASD (Davis & Carter, 2008; Pisula & Porębowicz-Dörsmann, 2017), and these levels are often higher than for parents of children with other disorders (Osborne, 2009). However, these levels have not been compared to the levels reported by parents of children with AD, which was the first aim of the current study. This has some importance in terms of intervention, as parenting stress has been shown to retard the effectiveness of many interventions across many paediatric conditions (Hattangadi et al., 2020; Helgeson, Becker, Escobar, & Siminerio, 2012; Osborne, McHugh, Saunders, Reed, 2008).

Altered patterns of parenting behaviour have been examined in relationship to parenting stress for ASD, and child behaviour problems have been shown to be related to the

parents' ability to positive limit set, utilising prosocial behaviours, and where quality of mother-child relationship, and balanced positive discipline, are utilised efficiently and effectively (Deater-Deckard, 1979; 2002; Osborne & Reed, 2010). Positive limit setting mediates between levels of parenting stress (which reduce positive limit setting abilities), and the expression of child externalising problems (Hasting, 2002; Osborne & Reed, 2019). The importance of parenting behaviours in mediating between stress and child behaviour problems is amplified for ASD given potentially impaired perception of emotions of children with ASD. Limit setting is key among parenting behaviours, as opposed to communication, given the nature of the ASD condition (Osborne, 2009). It is unclear whether a similar pattern would be found for AD, and, although there should be impacts of parenting stress on parenting behaviours for this group (Hornfeck et al., 2019), it may be that an unmediated effect of parenting stress on child behaviour problems could exist, or that a wider range of parenting behaviours could mediate the relationship.

Given the above, the current study aims to gain insight into the overlap, similarities, and differences between ASD and AD, for both children and parents, for children with comorbid learning disabilities – a group of importance in special education (Giltaij et al., 2015; Kildahl et al., 2019), and which is an under-examined topic. As considerable overlap in presentations of child behaviour problems between ASD and AD exist (Davies & Reed, 2021; Mayes et al., 2017), especially when using parent reports (Davies et al., 2021; Sadiq et al., 2012), groups of children with comorbid learning disabilities displaying psychometrically-defined ASD, AD, or both conditions were compared with those not displaying either condition. Firstly, the overlap between ASD and AD symptoms was assessed using standardised assessment measures. Secondly, the profile of children who fulfilled criteria for ASD and AD were examined in terms of demographics and behaviour problems, and the similarities and differences between children who met criteria for ASD and

AD were explored. Thirdly, the study examined whether relationships between parenting stress, parenting behaviours, and child behaviour problems differed across children with ASD and AD – child behaviour problems being strongly associated with parenting, and also of key interest to theoretical models (Deater-Deckard, 1979; Osborne, 2009) and education (Buckner et al., 2008; O'Connor & Zeanah, 2003). It is hoped that these comparisons may allow better understanding of what variables, if any, can distinguish between the two disorders from the perspective of the parent.

Method

Participants and Recruitment

An online survey of parents of children with learning disabilities was conducted to facilitate access to the group, and as differences in associations between aspects of parenting stress, behaviours, and child behaviour problems, have been shown to be more pronounced when parent, rather than professional, ratings are taken (Fong, 1991; Osborne & Reed, 2009). Parents or caregivers who were aged 18 years or older, had a child aged between 3-22 years, and have English as a first language were recruited through online advertising on websites and social media sites. Ethical approval was granted by the University Psychology Department Ethics Committee. Around 400 UK sites for parents whose children had developmental and intellectual disabilities were identified, and 180 agreed to post the advert. 155 participants satisfied the inclusion criteria (18 respondents were excluded for not satisfying the inclusion criteria, and 5 failed to complete more than 10% of the survey). G-Power calculations revealed that for a comparison between four groups involving four variables (MANOVA), for 95% power, with a $p < .05$ rejection criteria, and medium effect size ($f^2 = .06$), a sample of 144 would be adequate.

 Table 1 about here

Of the 155 parents (150 female, 5 male), the mean age was 40.81 (*S.D.* \pm 8.95; range = 22 – 72) years, and 85.5% identified largely as having a white ethnic heritage. 76 (42%) had a university degree, 71 (45%) had high school or trade-related qualifications, 13 (6%) had left school at 16 years of age, and 6 (4%) did not specify. 46 (30%) were professional or managerial, 21 (15%) were in skilled or clerical work, 17 (10%) were self-employed, 7 (4%) were volunteers, 4 (2%) were students, 49 (31%) were unemployed, and 12 (8%) did not specify. Table 1 shows the characteristics of the sample broken down into those whose children did not reach the psychometric criteria for either ASD or AD, those children reached the criteria for ASD alone, AD alone, or both ASD and AD.

There were no statistically significant differences between any of the parent or child characteristics, all *F*s < 1. The ASD ratings (SCQ) did differ significantly between the groups, $F(3,151) = 113.44$, $p < .001$, $\eta^2_p = .693$. Tukey's Honestly Significant Difference (HSD) tests revealed that the Neither group differed from both the ASD and Both groups; the ASD group differed from the AD group; and the Both group differed from the AD group, all p s < .05. The AD scores (RADQ) differed significantly between the groups, $F(3,151) = 69.06$, $p < .001$, $\eta^2_p = .578$. Tukey's HSD tests revealed that the Neither group differed from the AD and Both groups; and the AD group differed from the ASD and the Both group, all p s < .05. The behaviour difficulties (SDQ) scores differed between the groups, $F(3,151) = 43.30$, $p < .001$, $\eta^2_p = .462$. Tukey's HSD tests revealed that the Neither group differed from all of the other groups; the ASD group differed from the Both group; and the AD group differed from the Both group, all p s < .05.

Measures

Demographics general information was requested about the parent or caregiver (age, ethnicity, marital status, education level, and occupation), and about their child (age, gender, diagnosis, age at diagnosis).

Social Communication Questionnaire (SCQ; Rutter, Bailey, & Lord, 2003) is used for the identification of ASD and its symptom levels. The scale has 40 items, with a total score ranging from 0 to 39, and a cut-off score of 15 indicating a high probability of ASD (Berument et al., 1999). The SCQ has excellent psychometric properties for reliability and validity (Rutter et al., 2003), and a sensitivity of .88, and a specificity of .86, for the discrimination of ASD (Chandler et al., 2007). The internal reliability of the scale (Cronbach α) for the present sample was .913.

Randolph Attachment Disorder Questionnaire (RADQ; Randolph, 2000) is a 30-item scale that screens for attachment disorder and distinguishes attachment disorder from conduct or other psychiatric disorders. The total RADQ score estimates the severity of AD. A RADQ score of 50-65 indicates the presence of AD, but the required score for a diagnosis is 66-75 for mild attachment disorder; 76-89 for moderate; and 90 and over for severe AD. For the purpose of this study, 66 was taken as the cut-off point. Randolph (2000) reported a test-retest reliability of between .82 and .85. Validity was reported as being established through the use of several techniques; item validity, criterion-references validity, construct validity and predictive validity (Randolph, 2000). The internal reliability of the scale (Cronbach α) for the present sample was .951.

Strengths and Difficulties Questionnaire (SDQ; Goodman, 1977) is a brief behavioural screening questionnaire for emotional and behavioural disorders in children and adolescents aged 4-16 years. The scale comprises 25 items: emotional symptoms (5 items), conduct problems (5 items), hyperactivity/inattention (5 items), peer relationship problems (5

items) and prosocial behaviour (5 items), with scores from the subscales generating a total difficulties score: normal range = 0-15; 16 -19 = borderline; and 20-40 = abnormal (Youth in Mind, 2005). The SDQ has strong reliability, internal consistency, for the total and subscales (Stone, Otten, Engels, Vermulst, & Janssens, 2010). The internal reliability of the scale (Cronbach α) for the present sample was .959.

Parenting Stress Index – Short Form (PSI-SF; Abidin, 1997) is a 36-item self-report questionnaire measuring stress in the parent-child system. It consists of three subscales: Parental distress; Difficult Child; and Parent-Child Dysfunctional Interaction. Items are scored on a 5-point scale (1 = Strongly Agree; 5 = Strongly Disagree), and sum to yield a total stress score (36-180), with higher scores indicate greater levels of perceived stress. The PSI-SF has good validity and reliability (Abidin, 1997; Haskett, Ahern, Ward, & Allaire, 2006). The internal reliability of the scale (Cronbach α) for the present sample was .939.

Parent-Child Relationship Inventory (PCRI; Gerard, 1994) is a self-report measuring parents' views on parenting and parenting behaviours. Based on previous research (Coffman, Guerin, & Gottfried, 2006), the Involvement (14 items), Communication (9 items), Limit Setting (12 items), and Satisfaction with Parenting (10 items) scales were included. Each item is responded to on a four-point Likert Scale (1 = Strongly Agree; 4 = Strongly Disagree). The scores are transformed into T-scores (mean = 50 \pm 10), and higher scores indicate positive characteristics. The PCRI has shown good psychometric properties, and the mean test-retest .81 (Coffman, Guerin, & Gottfried, 2006). It has been found to correlate significantly with other well-validated tools (see Coffman et al., 2006), and has been used in the context of developmental disorders (Osborne & Reed, 2010). The internal reliability of the scales (Cronbach α) for the present sample ranged between .854 and .903.

Procedure

If parents wished to participate, they clicked a consent button, and were taken to the online survey. There was no set time limit to complete, but the survey generally took about 30 min. Once completed parents were shown a debrief page on-screen. Prior to analyses, data were cleaned and screened for missing values and outliers. Missing data were replaced using the person-mean substitution method for any questionnaire measure where $\leq 10\%$ of the items were missing (Hawthorne & Elliott, 2005). Visual inspection of histograms and Q-Q plots demonstrated the data were normally distributed on all variables.

Children were divided into four groups based on the parent report of the symptoms associated with ASD (SCQ) and AD (RADQ) – those children who reached criteria for neither condition; those who displayed ASD but not AD; those who displayed AD but not ASD; and those who reached the criteria for both conditions. The data from the parent stress (PSI) and parenting behaviour (PCRI) scales were subject to analysis of variance (ANOVA) and multivariate analysis of variance (MANOVA) to detect group differences. This strategy was adopted as the study was exploratory in nature, and while previous research has adopted discriminate function analysis (Davidson et al., 2015; Davies et al., 2021), it was not thought suitable to suggest that parenting behaviour may be a method by which to discriminate between the presence of the disorders. Rather, the intention was to detect potential differences. Finally, a series of mediations analysis (PROCESS; Hayes, 2009) were conducted to determine whether parenting behaviours mediated the relationship between parenting stress and child behaviour problems for the four psychometrically-identified groups.

Results

Parenting Stress

Figure 1 about here

Figure 1 displays the mean levels of parenting stress (PSI) for the four psychometrically-defined groups (Neither; ASD alone; AD alone; Both). Inspection of these data reveals that total parenting stress was lowest in the group without either ASD or AD, and highest in the group with both classifications. A between-subject ANOVA conducted on the overall parenting stress scores revealed a significant difference between the groups, $F(3,141) = 32.72, p < .001, \eta^2_p = .410[95\%CI = .279:.502], p(H_1/D) = .999$. Tukey's HSD tests revealed significant differences between all the groups, all $ps < .05$.

A multivariate analysis of variance (MANOVA) conducted on the three parenting stress subscales revealed a significant difference between the groups, $Wilk's\ Lambda = .567, F(9,362) = 10.58, p < .001, \eta^2_p = .208[.122:.261], p(H_1/D) = .999$. Individual ANOVAs conducted on each subscale, using a Bonferroni correction ($p < .016$), revealed significant differences between the groups for the Parenting Distress scale, $F(3,151) = 11.07, p < .001, \eta^2_p = .180[.072:.275], p(H_1/D) = .999$. Tukey's HSD tests revealed significant differences between the Neither and the AD and Both groups; and between the ASD and Both groups, all $ps < .05$. There was a significant difference between the groups for the Dysfunctional Relationship subscale, $F(3,151) = 27.65, p < .001, \eta^2_p = .355[.227:.448], p(H_1/D) = .999$. Tukey's HSD tests revealed significant differences between the Neither group and each of the other groups; between the ASD and Both groups; and between the AD and Both groups, all $ps < .05$. There was a significant group difference for the Difficult Child subscale, $F(3,151) = 31.44, p < .001, \eta^2_p = .384[.258:.476], p(H_1/D) = .999$. Tukey's HSD tests revealed

significant differences between the Neither and AD and Both groups; and between the ASD and AD and Both groups, all $ps < .05$.

Parenting Behaviours

Figure 2 about here

Figure 2 displays the mean levels of parenting behaviours (PCRI) for the four psychometrically-defined groups (Neither; ASD alone; AD alone; Both). A MANOVA conducted on the parenting behaviour scales, revealed a significant difference between the groups, *Wilk's Lambda* = .576, $F(12,391) = 7.00$, $p < .001$, $\eta^2_p = .177$ [.091:.220] $p(H_1/D) = .999$. Individual ANOVAs conducted on each scale, using a Bonferonni correction ($p < .013$), revealed significant differences between the groups for Communication, $F(3,151) = 17.65$, $p < .001$, $\eta^2_p = .260$ [.138:.358], $p(H_1/D) = .999$. Tukey's HSD tests revealed significant differences between the Neither group and each of the other groups; between the ASD and AD groups; and between the AD and Both groups, all $ps < .05$. There was a significant group difference for Limit Setting, $F(3,151) = 12.43$, $p < .001$, $\eta^2_p = .198$ [.086:.294], $p(H_1/D) = .999$. Tukey's HSD tests revealed significant differences between the Neither and the AD and Both groups; the ASD and ASD and Both groups; and between the AD and Both groups, all $ps < .05$. There was no group difference for Satisfaction, $F(3,151) = 3.15$, $p = .027$, $\eta^2_p = .059$ [.000:.129], $p(H_0/D) = .946$; or Involvement, $F(3,151) = 1.67$, $p = .175$, $\eta^2_p = .032$ [.000:.088], $p(H_0/D) = .994$.

Table 2 about here

Table 2 presents the mean parenting stress (PSI) for parents of children with ASD (clinical diagnosis) and AD (RADQ threshold) for children who are removed from the care of their birth parents, or remain with their birth parents. These data suggest some parenting stress differences between groups, although given the sample size caution needs to be employed for this exploratory analysis. Children with no ASD and no AD, but remaining with birth parents, showed numerically, but not statistically, higher stress than no ASD and no AD children who had been removed, $t(28) = 1.18, p = .123$. Parenting stress for children without ASD but with AD was higher in the removed group than the not removed, $t(50) = 1.51, p = .065$. Parenting stress for children with ASD and AD was higher for children who were not removed over removed, $t(31) = 1.57, p = .064$, and was the same level of stress reported for parents of children with ASD and no AD.

Impact of Parenting Stress on Behaviour Problems

 Table 3 about here

Table 3 presents the Pearson correlations between Parenting Stress (PSI), Child Behaviour problems (SDQ), and Parenting Behaviours (PCRI) for the four psychometrically-defined groups (Neither; ASD alone; AD alone; Both). These correlations suggest a strong positive relationship between parenting stress and child behaviour problems for all groups. There were significant negative relationships between parenting stress and parenting behaviours for all groups. However, only the ASD group showed large negative correlations between parenting behaviours (limit setting) and child behaviour problems.

 Figure 3 about here

The top left panel of Figure 3 shows there was no direct or mediated relationship between total parenting stress (PSI) and child behaviour problems (SDQ) for the Neither group. Unstandardised effects were computed for 5,000 bootstrapped samples, and the 95% confidence interval was computed by determining the effects at the 2.5th and 97.5th percentiles for all relationships. The top left panel of Figure 3 reveals the coefficient between parenting stress and child behaviour problems was not statistically significant (LL-UL: -.07;.22). The coefficient between parenting stress and communication (-.14;-.06), limit setting (-.21;-.06), satisfaction (-.27; -.11), and involvement (-.24; -.09) were significant. The coefficients between communication (-1.42;.74), limit setting (-.67;.17), satisfaction (-.65;.44), and involvement (-.54;.87) and child behaviour problems were not significant.

The top right panel of Figure 3 shows that limit setting mediated the relationship between parenting stress and child behaviour problems for the ASD group. The coefficient between parenting stress and child behaviour problems was not statistically significant (-.02;.19). The coefficients between parenting stress and communication (-.17;-.01), limit setting (-.21;-.06), satisfaction (-.22; -.05), and involvement (-.25; -.01) were significant. The coefficients between limit setting and child behaviour problems (-.87;-.07) was significant, but those between communication (-.18;.71), satisfaction (-.21;.61), and involvement (-.47;.20) and child behaviour problems were not significant.

The bottom left panel of Figure 3 shows that direct relationship between parenting stress and child behaviour problems for the AD group was significant and not mediated by parenting behaviours. The coefficient between parenting stress and child behaviour problems was significant (.02;.32). The coefficients between parenting stress and communication (-

.11;-.01), limit setting (-.26;-.12), satisfaction (-.23; -.06), and involvement (-.21; -.03) were significant. The coefficients between communication (-.44;1.03), limit setting (-.36;.65), satisfaction (-.56;.35), and involvement (-.20;.79) and child behaviour problems were not significant.

The bottom right panel of Figure 3 shows that direct relationship between parenting stress and child behaviour problems for the both group was significant and not mediated by parenting behaviours. The coefficient between parenting stress and child behaviour problems was significant (.07;.30). The coefficients between parenting stress and communication (-.18;-.08), limit setting (-.19;-.05), satisfaction (-.32;-.21), and involvement (-.32;-.18) were significant. The coefficients between communication (-.15;.62), limit setting (-.27;.23), satisfaction (-.18;.49), and involvement (-.33;.26) and child behaviour problems were not significant.

Discussion

The current results suggest that parents of children with AD display higher levels of parenting stress than parents of children with ASD, with those with a potential dual classification showing the highest levels of parenting stress. Self-rated parenting behaviour skills varied between the groups of parents, with parents of children with AD and both conditions reporting worse limit setting than parents of children with ASD, but parents of children with ASD reporting worse communication behaviours. The relationship between parenting stress and parenting behaviours to child behaviour problems differed between the sets of parents. For children with ASD, parental limit setting mediated the relationship between parenting stress and child behaviour problems. In contrast for children with AD, there was a direct relationship between parenting stress and child behaviour problems. Although exploratory, these data suggest that different patterns of parenting experiences and

skills exist for ASD and AD, and that these could form the basis of differential support strategies.

The finding of higher levels of parenting stress in parents of children with AD than for ASD or learning disabilities alone is novel, as this aspect of parenting experience has not been explored previously. The previous literature has suggested that parents of children with ASD display higher levels of parenting stress than other disorders (Davis & Carter, 2008; Pisula & Porębowicz-Dörsmann, 2017). However, it has also been noted that, in children older than three, these levels of parenting stress are more strongly related to the level of child behaviour problems than the disorder itself (Osborne & Reed, 2009). The current findings fit with this suggestion, with parents of children with AD, and parents of children with both conditions, reporting higher levels of child behaviour problems and parenting stress, than parents of children with ASD. Such high levels of parenting stress have been shown to interfere with child progress under many intervention regimes (Hattangadi et al., 2020; Osborne et al., 2009; Robbins, Dunlap, & Plienis, 1991). This being so, it seems important to offer support to the parents of children, for their levels of stress, perhaps in terms of counselling. This would serve to promote child gains, as well as prevent both psychological and physical health problems for the parents (Reed, Sejunaite, & Osborne, 2016). It is important to note that such support is beyond training in parenting skills, as many parents of children with AD are not birth parents who may have been involved in the original inappropriate experiences that led to the AD (O'Connor et al., 2009; Hornfeck et al., 2019).

Parenting stress with children having neither ASD nor AD was higher for birth parents, and lower for birth parents of children children without ASD but with AD. Parenting stress for children with ASD and AD was higher for children not removed. Removed children with both ASD and AD had a notably lower level of parenting stress. Although based on small subgroups, these results imply that ASD could moderate parental stress for children

who are removed from the care of their birth parents. It is key to note that parents of children who are removed into care receive training in specific parenting skills (Kreibel et al., 2011), which can reduce more challenging behaviours. Clearly, these findings will require more investigation with a wider sample.

The differences in parenting behaviours were also noticeable, and in line with previous theoretical suggestions (Osborne, 2009). Parents of children with all types of condition reported problems with many of the parenting behaviours measured – especially, communication, limit setting, and satisfaction. Scores on the PCRI under 30 represent severe disruptions in those areas of parenting (Gerard, 1994), and such self-ratings have been noted previously for parents of children with ASD (Osborne & Reed, 2010). That communication is most strongly impacted by having a child with ASD compared to other conditions is not surprising given the language problems inherent in that condition (APA, 2013). In contrast, limit setting appears to be a prime issue for parents of children with AD (Hornfeck et al., 2019). These parenting behaviours are associated differentially with child behaviour problems for the conditions; with limit setting being a mediator for ASD but not for AD (Deater-Deckard, 1979; 2002; Osborne & Reed, 2010). The importance of parenting behaviours in mediating between stress and child behaviours problems is amplified for ASD given potentially impaired perception of emotions of children with ASD. Limit setting is key among parenting behaviours, as opposed to communication, given the nature of the ASD condition (Osborne, 2009). The participants in this study were predominantly female carers, fathers are noted as being less involved in the parenting of disabled children (Esdaile et al., 2003) and this study recognises the potential of reported regulatory problems as being more associated with maternal stress, whereas externalising behaviours are linked with paternal stress (Davis & Carter, 2008). This suggests that all parents would benefit from help developing parenting skills, and programme such as Triple-P could be considered (Sander,

2008). The impact of these programmes may be more direct on the behaviour of the children for ASD than for other conditions such as AD. In the latter case, the programme may help reduce parenting stress, which would then impact on child behaviour problems.

There are limitations to this study that should be mentioned. Firstly, caution needs to be used in interpreting findings from relatively small samples – while the overall sample was of adequate size for power, when divided into the different conditions, the sub-samples were relatively small, this is particularly noted for the population of children who were removed or not removed. Secondly, when extrapolating from any particular sample to a population of parents of children with disabilities caution is needed. It may be that parents who volunteer for such research studies display different characteristics to those who do not volunteer. Self-selection of participants is a limitation for all such community-based studies, and this problem is not specific to this particular research. It should be mentioned that very few of the identified families refused to participate, suggesting that self-selection was not a major problem in this study. An older sample of children was examined where the relationship between levels of parenting stress and parenting behaviors may have had time to develop, whereas the relationship between these factors may well be in greater flux in parents of a younger sample of children. Thirdly, the measures employed were all self-report measure, albeit a well-standardised, reliable, validated, and widely used. Research employing additional measures would corroborate the current findings, especially those employing direct observation, although this approach would severely limit the sample size.

In summary, parents of children with AD display higher levels of parenting stress, and with ASD reporting worse communication behaviours. For children with ASD, but not parents of children with AD, parental limit setting mediated the relationship between parenting stress and child behaviour problems. Although exploratory, these data suggest that

different patterns of parenting experiences and skills exist for ASD and AD, and that these could form the basis of differential support strategies.

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Table 1: Characteristics of sample

	Neither	ASD	AD	Both
n	30	25	29	71
Age	37.17 (7.06)	41.84 (8.49)	44.72 (10.52)	40.38 (8.60)
Marital	79%	83%	79%	65%
Children	1.92 (.89)	2.27 (.82)	3.22 (1.95)	2.40 (1.24)
Child age	10.43 (4.05)	11.50 (5.83)	11.07 (3.34)	10.11 (4.36)
Child Gender	52% female	20% female	45% female	27% female
SCQ	6.55 (3.72)	22.73 (5.17)	8.12 (3.46)	22.82 (5.99)
RADQ	49.55 (10.01)	53.91 (8.56)	89.52 (20.39)	97.87 (22.3)
SDQ	13.69 (5.85)	19.88 (4.92)	23.33 (5.46)	26.91 (5.50)

Table 2: Mean parenting stress (PSI) for parents of children with ASD (clinical diagnosis) and AD (RADQ threshold) for children who are removed from the care of their birth parents, or remain with their birth parents.

ASD	AD	Removed	Mean (SD)	n
No	Above	Not Removed	119.419 (28.769)	39
		Removed	129.074 (18.859)	22
	Below	Not removed	118.212 (28.437)	21
		Removed	107.679 (31.888)	19
Yes	Above	Not Removed	115.520 (19.543)	27
		Removed	99.233 (36.068)	6
	Below	Not Removed	114.230 (23.562)	13
		Removed	114.000 (0)	1

Table 3: Pearson correlations between Parenting Stress (PSI), Child Behaviour problems (SDQ), and Parenting Behaviours (PCRI) for the four psychometrically-defined groups (Neither; ASD alone; AD alone; Both).

	SDQ	Comm	Limit	Satisfaction	Involvement
<hr/>					
Neither					
Stress	.569**	-.701***	-.567***	-.679***	-.630***
Behaviour		-.458*	-.483*	-.420*	-.391*
<hr/>					
ASD					
Stress	.551**	-.415	-.601***	-.552**	-.379
Behaviour		.186	-.641***	-.008	-.018
<hr/>					
AD					
Stress	.452*	-.428*	-.725***	-.532**	-.478**
Behaviour		-.024	-.310*	-.168	-.010
<hr/>					
Both					
Stress	.392**	-.526***	-.392***	-.735***	-.638***
Behaviour		-.065	-.178	-.194	-.179
<hr/>					

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

Figure 1 displays the mean levels of parenting stress (PSI) for the four psychometrically-defined groups (Neither; ASD alone; AD alone; Both). Error bars = 95% confidence intervals.

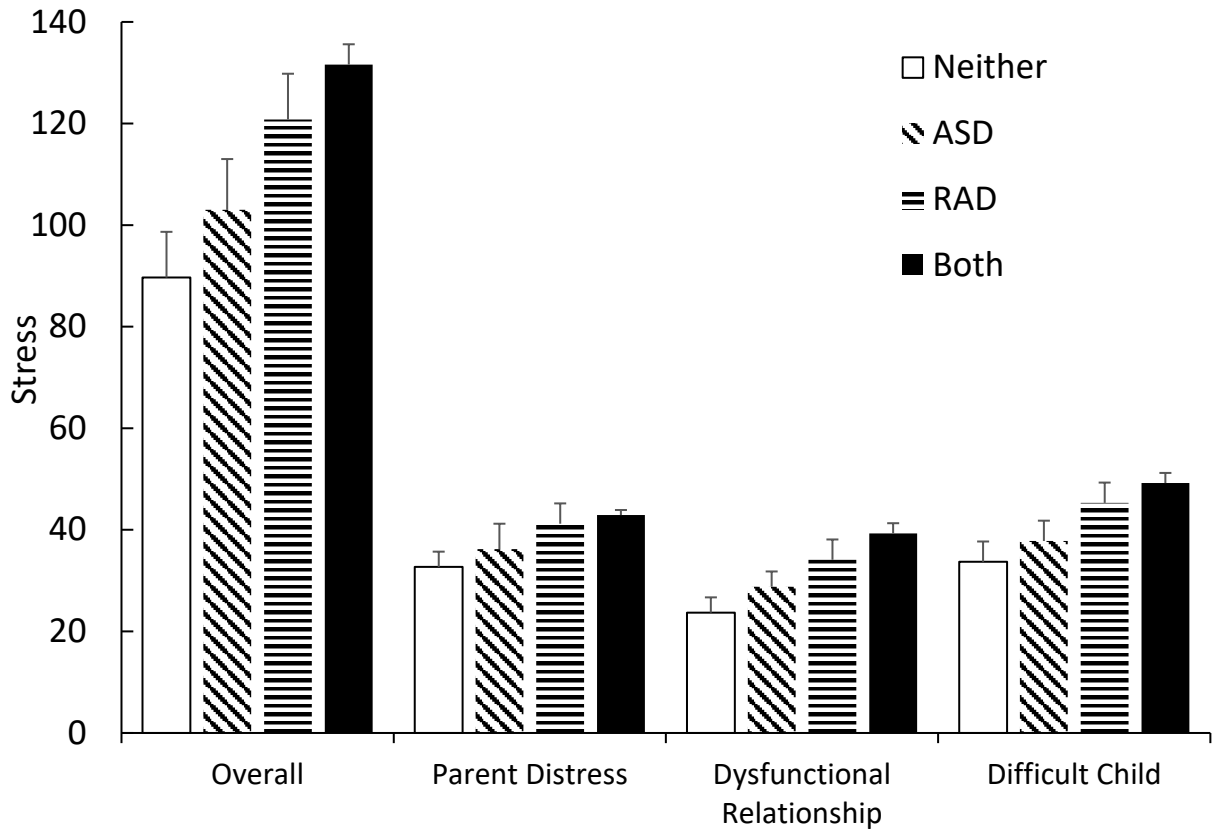


Figure 2: Mean parenting behaviours (PCRI) for the four psychometrically-defined groups (Neither; ASD alone; AD alone; Both). Error bars = 95% confidence intervals.

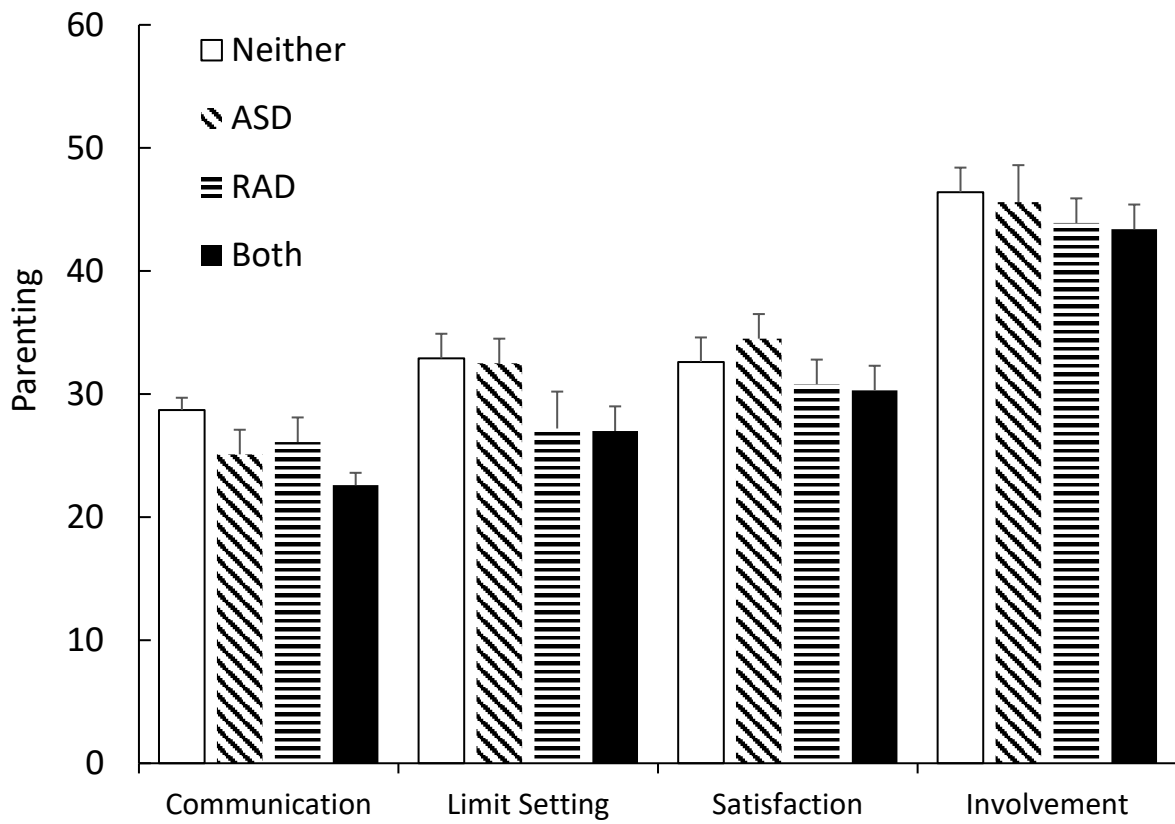


Figure 3: Relationships between parenting stress, child behaviour problems, and parenting behaviours for the four groups: Neither (top left); ASD alone (top right); AD alone (bottom left); and Both (Bottom right).

