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Parenting Stress and Parental Self-Efficacy in Parents of Autistic and Non-Autistic Children: A Comparative Study

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Abstract

Parenting stress has been highlighted as concerning among parents of autistic children. However, no comparative analysis has investigated the differences between these parents and parents of non-autistic children. The current study investigated parenting stress and the combined influence of parental self-efficacy and current behavioural difficulties among both groups. Parents (n = 155) completed a survey regarding their perceived stress, their perceived competence as parents, and their child's emotional and behavioural challenges. Results indicated that parents of autistic children experienced significantly greater stress than parents of non-autistic children. Parental self-efficacy significantly predicted parenting stress and the child's behavioural difficulties. In contrast, the child's age was not a significant predictor of parenting stress. When parental self-efficacy was controlled for, the relationship between parenting stress and their child's behavioural problems was no longer significant. No differences emerged between mothers and fathers in perceived stress. Overall, the findings highlight the crucial role of parental self-efficacy and provide important directions for future research.

Keywords: autism, parents of autistic children, autistic children, autism in adolescence, autism-diagnosis

Introduction

Autism is a neurodevelopmental condition typified by impairments in social communication and interaction, normally manifesting in early childhood. Autism can also be typified by restrictive and repetitive behaviours and interests, and can significantly affect an individual's day-to-day life. Autism presents as a spectrum, with symptoms varying based on age, gender, condition severity, and developmental stage (American Psychiatric Association, 2022).

The worldwide estimate of autism prevalence is one in 154 individuals (Zeidan et al., 2022). The rise of autism during recent years is impacted by a number of factors, including changes to diagnostic criteria, increased awareness of autism, greater access to services, greater education concerning the topic, and more individualised programs designed for autistic children (Hansen et al., 2015; Hirota & King, 2023; Zeidan et al., 2022). The male-to-female ratio among autistic children is approximately 3:1 (Hirota & King, 2023; Loomes et al., 2017), and it is suggested that the 'female protective effect' may play a role (Zeidan et al., 2022), and that females are more likely to hide their symptoms (Fombonne, 2020). This may also explain why, when identified as being autistic, females are more likely to present severe traits (Zeidan et al., 2022).

A range of genetic and environmental factors have been associated with autism, although none are exclusively specific to its development (Hirota & King, 2023). Moreover, no medications have been shown to effectively treat the core diagnostic symptoms of autism, and first-line therapy consists of behavioural interventions and specific treatment of co-occurring conditions (Hirota & King, 2023).

In terms of caring for autistic children, this can often place significant pressure on parents (Miranda et al., 2019) and the challenges experienced by parents are notably greater than those faced by parents of non-autistic children (Hastings & Brown, 2002; McStay et al., 2014). Among the wide range of stressors, autism-specific behaviours have been identified as a significant source of parenting stress (McStay et al., 2014; Miranda et al., 2019). However, evidence suggests that parents with a strong sense of self-efficacy are better prepared to manage these challenging child behaviours (Bandura, 2002; Strauss et al., 2022), indicating that parental self-efficacy (PSE) may be an important factor in raising an autistic child.

Many researchers have investigated why parenting an autistic child is more challenging than parenting a non-autistic child. However, there is negligible literature concerning comparative analyses on the combined influence of PSE, current behavioural difficulties, and parenting stress. Therefore, this comparative study investigates parenting stress in families of autistic and non-autistic children, identifying key associative factors.

Parenting Stress

Stress concerns the interplay between an individual's personal attributes and the environmental pressures they encounter. It is conceptualised as an individual's mental assessment of a demanding situation, and perception of it as overwhelming, which may impact their overall well-being (Lazarus & Folkman, 1984). Parental stress can

be understood as a parent's perception of challenges and feelings of inadequacy in fulfilling the demands of their parenting role. This involves behavioural, cognitive, and emotional factors linked to how an individual views their parental responsibilities. Elevated stress levels in this domain can contribute to further difficulties, such as the development of cardiovascular diseases, and negatively impact cognition, the immune system, and memory (Zafar et al., 2021). Evidence suggests that the stress of parents of autistic children occurs at clinically significant levels in 77% of cases (Kiami & Goodgold, 2017).

Although parenting stress is a well-researched issue among parents of autistic children, the mechanisms underlying it are still unclear. A meta-analysis performed by Hayes and Watson (2013) highlights that parents of autistic children experience greater levels of stress compared to families with non-autistic children or those with other diagnoses (see also Estes et al., 2013; McStay et al., 2014; Miranda et al., 2019). It is important to note, however, that autism is not a singular condition but a spectrum involving diverse pathophysiologies (Casanova et al., 2020). Indeed, mental health issues (e.g. anxiety disorders, obsessive-compulsive disorder [OCD]) and neurodevelopmental conditions (e.g. attention-deficit hyperactivity disorder [ADHD]) are significantly more prevalent among autistic individuals compared to the general population. Mosner et al. (2019) report that 70% to 95% of autistic children and adolescents, and 73% to 81% of autistic adults, meet the criteria for at least one such condition. These comorbidities in autism do not occur uniformly, and autistic individuals may present one or more additional diagnoses, such as epilepsy, cerebral palsy, and those mentioned above (Casanova et al., 2020; Hayes & Watson, 2013).

The symptoms of co-occurring conditions may be easily masked as maladaptive, or 'autistic,' behaviours. When comparing the parenting stress of parents of autistic children, this can present confounding effects with other hidden conditions, as several characteristics overlap across different conditions (Casanova et al., 2020). This suggests that parenting stress levels may be impacted by the presence of diagnoses rather than the presence of autism alone.

Parental self-efficacy

Self-efficacy refers to an individual's confidence in their ability to successfully execute a task within a given situation (Bandura, 1977). Accordingly, parental self-efficacy (PSE) encompasses parents' beliefs regarding their influence on their children (Glatz et al., 2024) and their perceived competence in their parenting responsibilities (Wittkowski et al., 2017). Elevated PSE is important for fostering the well-being of both parents and their children (Albanese et al., 2019; Kishimoto et al., 2023). Furthermore, heightened PSE has been linked to a reduction in parenting stress (Glatz et al., 2024; Kishimoto et al., 2023). Consequently, PSE may play an important role in neurodivergent families, where greater PSE may result in more confident parenting, more active engagement with children, and adoption of healthy parenting styles (Kishimoto et al., 2023).

Interestingly, the self-efficacy of parents of autistic children has only recently seen increased attention in the literature (Glatz et al., 2024). For example, Kishimoto et al. (2023) report a moderate correlation between PSE and parenting stress, emphasising the important role of PSE in reducing parenting stress (see also Batool & Khurshid, 2015). Importantly, such studies help to inform potential strategies to support parents of autistic children.

Child behaviour

Enea and Rusu's (2020) systematic review highlights that children's behavioural characteristics have a relationship with parenting stress. Some, commonly seen in autistic children, involve stereotypical repetitive behaviours, difficulty with sensory processing, atypical behaviours, problematic behaviours, issues with Performance Intelligence Quotient (PIQ), sleeping difficulties, and pro-social behaviours. Many autistic children also present ADHD, and the specific hyperactivity element can impact parenting stress, often as a result of external disapproval and social judgement (McStay et al., 2014). Moreover, externalising behaviours (e.g. aggression) and internalising behaviours (e.g. anxiety) are also commonly observed among autistic children (Zaidman-Zait et al., 2014).

Interestingly, Hastings (2002) proposed a model to examine specific behavioural problems in children with developmental disabilities, and suggested a bidirectional relationship between children's problem behaviours and parenting stress. In this model, problem behaviours contribute to parenting stress, with parenting stress, in turn, influencing parenting behaviours, possibly exacerbating the child's problem behaviours, creating a cycle.

Hasting's model encouraged researchers to adopt a broader perspective on how child behaviour may interact with other variables. For instance, McSherry et al. (2019) suggest that problematic child behaviours have a strong relationship with parenting stress; however, the direction of this relationship remains challenging to determine. Indeed, Strauss et al. (2022), who investigated the mediating role of PSE in the relationship between parenting stress and a child's behavioural problems, posit that self-efficacy plays a mediating role for fathers, while this effect is not observed in mothers. This is an important finding, given that mothers are typically the primary carers of autistic children (Miranda et al., 2019).

Furthermore, some studies suggest that parents of non-autistic children exhibit lower levels of stress compared to parents of autistic children (Estes et al., 2013; Hayes & Watson, 2013), suggesting that autism-specific behaviours may predict parenting stress (Miranda et al., 2019). Interestingly, no research to date has comparatively investigated the role of parental-reported child behavioural issues on parenting stress, while controlling for PSE. This study aims to investigate this particular issue.

Parent's gender

Gender differences in child-rearing have been studied extensively, with mothers typically assuming the nurturing role and fathers often adopting a more protective one (Yaffe, 2023). Evidence suggests that such gender differences are also observed when parenting an autistic child, with mothers being more impacted by their child's behavioural problems. This distinction is largely attributed to mothers' greater involvement in the care of their autistic child, as well as gender-related differences in coping strategies (Hastings et al., 2005). Specifically, mothers are more likely to adopt emotion-focused coping mechanisms, with fathers adopting problem-focused coping (Al-Oran et al., 2022; Hastings et al., 2005), suggesting differences in how mothers and fathers might experience behaviourally-related situations.

Several studies on the impact of parents' gender on parenting stress levels present conflicting findings. A mounting body of evidence suggests no significant differences in stress levels between mothers and fathers of autistic children (see Di Renzo et al., 2022; Hastings, 2003; Hastings et al., 2005; Rodriguez et al., 2019). Conversely, other

studies highlight higher stress levels among mothers, with mothers being more likely to score above the clinical cut-off points for parenting stress (see Batool & Khurshid, 2015; Davis & Carter, 2008). Moreover, maternal parenting stress is reported to be higher even when compared to fathers in the same family (Hastings & Brown, 2002).

Interestingly, a systematic review reported only a limited number of studies that included fathers and caregivers (Barroso et al., 2018). As an example, Rivard et al. (2014) found that fathers reported higher stress levels than mothers, with a larger proportion of fathers (61%) scoring in the clinical range compared to mothers (54%). Consequently, and following from Barroso et al.'s position, the level of parenting stress of mothers and fathers for both autistic and non-autistic children is explored in this study.

Terminological considerations in the current study

In the present paper, the authors employ neuroaffirmative terms in line with current best practice, for example, employing the terms 'autistic child' or 'autistic children.' The authors further considered certain terms for the comparison group, such as 'neurotypical' and 'non-autistic.' For precision, as a notable percentage of parents of the comparison group may report their children as having another diagnosis, which may be classified as another neurodevelopmental condition, this study opted to adopt the term 'non-autistic' for the comparison group. Therefore, both comparison groups are heretofore referred to as 'autistic' and 'non-autistic.'

Current study

Despite the growing body of research on parenting autistic children, significant gaps remain in understanding the factors contributing to parenting stress. Among the gaps in the literature, one key area is PSE and parenting stress among parents of autistic children and non-autistic children. Another gap concerns the relationship between parenting stress and the child's behavioural difficulties while considering the influence of PSE. Lastly, the underrepresentation of fathers in prior studies is considered, to examine whether this has biased findings on parenting stress or whether the observed differences reflect genuine variations between mothers and fathers. The aim of this study is to explore such gaps and compare the parents of autistic children with the parents of non-autistic children.

Investigating the combined influence of PSE, child behavioural difficulties, and parenting stress, the study can identify critical and modifiable factors, directly informing the design of evidence-based psychological and behavioural interventions aimed at boosting PSE, which is strongly linked to reduced parenting stress and better management of challenging child behaviours. The research will clarify the sometimes-conflicting roles of parents' gender on stress levels, leading to support programs that are specifically tailored to the distinct needs of mothers and fathers. The high prevalence of clinically significant stress and the identification of key associative factors can be used to advocate for and guide policymakers in allocating resources for family support services, mental health services, and educational programs for neurodivergent families.

Therefore, the first hypothesis is that there will be a relationship between parenting stress and child behavioural difficulties while controlling for PSE. The second hypothesis is that parents of autistic children will report significantly higher levels of parenting stress compared with parents of non-autistic children. The third hypothesis

is that fathers and mothers will significantly differ in their experience of stress levels. Finally, the fourth hypothesis predicts that parenting stress will increase as PSE decreases.

Methodology

Participants

A quantitative, comparative survey was employed in this study to investigate the parents of non-autistic children and the parents of autistic children. The inclusion criteria were as follows:

1) Parents of a child aged between 4–17 years old
2) Able to provide informed consent
3) Over 18 years of age

The study employed snowball and convenience sampling via social media platforms, with a focus on parent support groups for the general population and those with autistic children. In total, 172 parents engaged with the survey, with 17 cases deemed ineligible, including parents who did not provide consent (n = 5), parents who had children three years of age or younger (n = 9), parents whose answers lacked reliability or validity (n = 1), and participants who did not have a child (n = 2). The final sample consisted of 155 parents, of which 76 were parents of autistic children (49%), and 79 parents of non-autistic children (51%). The sample size was determined based on previous studies with similar populations and research design (McStay et al., 2014).

Participants were predominantly female (61.3%). The parents' ages ranged from 28 to 59, with an average age of 42.6 years (Standard Deviation = 6.26). Participants were most commonly white (95.5%), married (69.7%), with a master's degree or higher (39.4%), and working full-time (58.7%). The children of participants ranged in age from 4–17 years (Median = 10.02, SD = 4.00), with boys comprising the majority (57.3%).

Among the autistic children, 35.5% were reported as having no co-occurring conditions, 22.4% as having one co-occurring condition, 21.1% as having two, and 19.6% as having three or more co-occurring conditions. Among the non-autistic children, 64,5% were reported as having no diagnoses, 28.9% were reported as having one diagnosis other than autism, and 6,6% reported as having two diagnoses other than autism. As previously outlined, to avoid assumptions and imprecise terminology, this study adopted the term 'non-autistic' rather than 'neurotypical,' given that some children were reported as not autistic, but as having other diagnoses which may include neurodevelopmental conditions.

Materials

Parental Stress Scale

Parenting stress was measured using the parental stress scale (PSS; Berry & Jones, 1995). The PSS is an 18-item, self-reporting questionnaire designed to assess parental stress. Parents have to respond to statements regarding their relationship with their child, capturing both the rewards and demands of parenting. Answers ranged on a five-point, Likert-type scale from (1) strongly disagree to (5) strongly agree, and consisted of statements such as 'The behaviour of my child is often embarrassing or

stressful to me.' The total score on the scale ranged from 18 to 90, with higher scores indicating greater levels of parental stress. Cronbach's α coefficients from previous studies have demonstrated good internal reliability (e.g., .83; Berry & Jones, 1995). The Cronbach's α in the current study was .89.

Brief parental self-efficacy scale

To measure the parents' perceived confidence and efficacy in their parenting role, the study used the brief parental self-efficacy scale (BPSES; Woolgar et al., 2023). The BPSES is a five-item model assessing competence and efficacy on a five-point, Likert-type scale ranging from (1) strongly disagree to (5) strongly agree. An example of a statement includes, 'I am able to do the things that will improve my child's behaviour.' Higher scores reflect greater levels of PSE. Previous research by Woolgar et al., (2023) reported a Cronbach's α of .75, demonstrating good internal consistency, and converged with an already solid but longer measure of PSE. The Cronbach's α coefficient in the present study was .83.

Child behavioural problems measure

Children's behavioural difficulties were assessed by the strengths and difficulties questionnaire (SDQ; Goodman, 1997). The SDQ is a 25-item questionnaire developed to assess emotional and behavioural problems in children and adolescents. The items are rated on a three-point Likert scale ranging from (0) not true, (1) somewhat true, or (2) certainly true. It consists of four subscales to measure major difficulties: emotional symptoms, conduct symptoms, hyperactivity/inattention, and peer relationships. Additionally, it has one subscale to assess strengths: prosocial behaviour. The scale can be completed by parents or teachers of children aged from four to 17 years old. Examples of statements include 'See tasks through the end' and 'Constantly fidgeting or squirming.' Total scores range from zero to 40, with a higher total score indicating a greater total difficulties score (based on 20 items of the four subsections; prosocial behaviour is calculated separately). SDQ is a widely used and well-established scale used to measure adjustment and psychopathology of children and adolescents, previously demonstrating reliability of α = .73 (Goodman, 2001). The current study's Cronbach's α was .83.

Procedure

Ethical approval for the current study was obtained via the Dublin Business School Human Research Ethics Committee. Parents completed a questionnaire of self-report measures, including sociodemographic items, questions about their children, and questions regarding the presence or not of an autism diagnosis, followed by the BPSES, the SDQ, and the PSS scales. Diagnoses of autism were self-reported and not validated through third-party clinical sources. Parents were instructed to prioritise their responses in a specific order, and in the case of having an autistic child, they should answer about them. In the case of not having an autistic child, parents were asked to answer for the child who required the most attention or support from them. If it occurred that parents had more than one child on the spectrum, they were instructed to respond based on only one of those children. Consent was sought from participants. To guarantee anonymity, no identifiable information was collected.

Data analysis

Data from 155 responses were analysed. Two parental groups were established, 'Parents of autistic children' and 'Parents of non-autistic children,' with descriptive statistics presented for both groups concerning the outcome variables for mothers and fathers. The age of diagnosis for autistic children is further presented. Alpha values were established for the measures used in the study.

A two-way analysis of covariance measured group differences for parental group and child behavioural difficulty level on parental stress while controlling for PSE. Further group differences were explored for the sex of the parent across both parental groups on parental stress. Associations were measured for parenting stress and PSE within both parental groups. Regression explored whether age predicted parental stress. Finally, Spearman's rho analysis was used to measure the association between parental stress and child comorbidity in the autistic child group.

Results

Characteristics of respondents

In total, 155 completed surveys were collected. Table 1 summarises the general characteristics of the respondents.

Table 1. Socio-demographic characteristics of respondents (n = 155)

Demographics	Parents of autistic children M (SD) / %	Parents of non-autistic children M (SD) / %
Age	43.11 (6.23)	42.13 (6.28)
Gender	-	-
Male	27.6	43
Female	69.7	53.2
Marital status	-	-
Married	69.7	69.6
Divorced	10.5	8.9
Parents' education	-	-
College diploma	21.1	20.3
Bachelor's degree	31.6	30.4
Master's degree or higher	36.8	41.8

Annual household income		
Less than €30,000	7.9	7.6
Between €30–75,000	29	24.1
Between €75–130,000	32.9	31.6
Between €130–220,000	6.6	11.4
Above 220,000	2.6	8.9
Employment status	-	-
Full-time employed	51.3	65.8
Part-time employed	9.2	11.14
Homemaker	18.4	6.3
Child's age	10.59 (4.08)	9.45 (3.88)
Number of children	2.12 (1.04)	2.04 (.95)
Child's age at autism diagnosis	7.20 (4.45)	-
Child's additional diagnoses	-	-
No known diagnoses	35.5	63.6
One diagnosis	22.4	28.9
Two diagnoses	21.1	6.5
Three or more diagnoses	21	-

Among parents of autistic children (n = 76), mothers comprised 69.7% of the sample group and fathers 27.6%. Most of them had either two children (50%) or one child (27.6%) in the family. Of the parents with more than one child (72.4%), about 27.6% reported having two autistic children. Boys (n = 49; 64.5%) accounted for the majority of autistic children, and ages generally ranged from four to 17, with a mean age of 11.48 (SD = 4.12). Boys were diagnosed on average at the age of 5.69 years (SD = 3.49). Meanwhile, the girls (n = 23; 30.3%) had an average age of 11.48 (SD = 4.12) with ages also ranging from four to 17 and were diagnosed on average at the age of 9.32 years (SD = 4.80).

Among the parents of non-autistic children (n = 79), mothers comprised 53.2% of the sample group while fathers comprised 43%. Approximately a third of parents had one child (32.9%), with a little more having two children (39.2%). A little over one in five parents had three children (20.3%), with 7.6% having four or more in the family. Among the non-autistic children, gender was more balanced, with both boys (n = 39; 50.6%) and girls (n = 37; 48.1%) presenting an average age of nine years (SD = 3.56), ranging from four to 17.

To evaluate the reliability of these scales and subscales, a Cronbach alpha (Cronbach, 1951) was calculated. The Cronbach's alpha reliabilities for the measuring scales PSS, BPSES, and SDQ indicated good internal reliability consistency, being parental stress (α = .89), PSE (α = .83), and SDQ (α = .83). The subscales of SDQ

demonstrated good internal reliability overall, and peer problems (α = .68) presented a reliability slightly below the recommended cut-off (Tavakol & Dennick, 2011).

Table 2. Criteria for Mean Values

Scale	Low / Slightly low/ Slightly Raised /	Moderate / Close to Average/	High / Low	Very high / Very low
BPSES	5–12	13–19	20–25	-
PSS	18–42	43–66	67–90	-
SDQ	0–13	14–16	17–19	20–40
Emotional Problems	0–3	4	5–6	7–10
Conduct Problems	0–2	3	4–5	6–10
Hyperactivity	0–5	6–7	8	9–10
Peer Problems	0–2	3	4	5–10
Prosocial	8–10	7	6	0–5

Based on the criteria set out in Table 2, both groups scored moderate on levels of parenting stress, and comparatively, parents of autistic children scored higher on levels of behavioural difficulties. Moreover, parents of autistic children performed moderately on levels of PSE, while the non-autistic group reported high levels of competence in their parenting role. In the child behavioural difficulties subscales, the autistic group scored close to average to slightly raised in three out of five subscales, except for prosocial behaviour, where scores were low to very low on average (m = 5.47), and emotional problems, in which scores were slightly raised to close to average (m = 4.79). Interestingly, the mean scores of non-autistic children across all subscales presented average to slightly elevated mean values (see Tables 2 and 3).

Table 3. Mean total and subscales scores on PSS, BPSES, and SDQ (yes, n = 76; no, n = 77)

Autism	Scales and subscales	M	SD	Variance	Min	Max
Yes	BPSES	19.78	3.03	9.19	12	25
	PSS	52.16	10.03	100.53	30	76
	SDQ	19.25	5.64	31.87	00	31
	Emotional Problems	4.79	2.62	6.89	00	10
	Conduct Problems	2.68	2.13	4.54	00	10
	Hyperactivity	7.01	2.42	5.88	1	10
	Peer Problems	4.76	2.13	4.56	1	9
	Prosocial	5.47	2.79	7.80	0	10

No	BPSES		21.09	3.03	9.17	7	25
	PSS		46.97	9.74	94.81	31	75
	SDQ		12.74	6.63	44.01	00	31
		Emotional Problems	3.49	2.59	6.69	00	10
		Conduct Problems	2.08	2.05	4.20	00	10
		Hyperactivity	5.11	2.99	8.95	00	10
		Peer Problems	2.23	2.10	4.41	00	8
		Prosocial	7.88	1.83	3.35	4	10

To test the first hypothesis, investigating the relationship between parenting stress and child behavioural difficulties while controlling for parental self-efficacy, a two-way, between-groups analysis of covariance explored differences in child behaviour difficulties and parenting stress between autistic children and non-autistic children, controlling for PSE as a covariate, resulting in a non-significant difference ($F(3, 143) = 1.70$; $p = .17$; effect size = .03) (see Figure 1).

However, a significant relationship between parenting stress and child behavioural problems was observed ($F(3, 143) = 8.55$; $p < .001$), with a non-significant relationship between autism diagnosis and parenting stress also observed ($F(1, 143) = .09$; $p = .76$). The covariate, PSE, had a weak significant relationship with stress ($F(1, 143) = 1.71$; $p < .001$; effect size = .09).

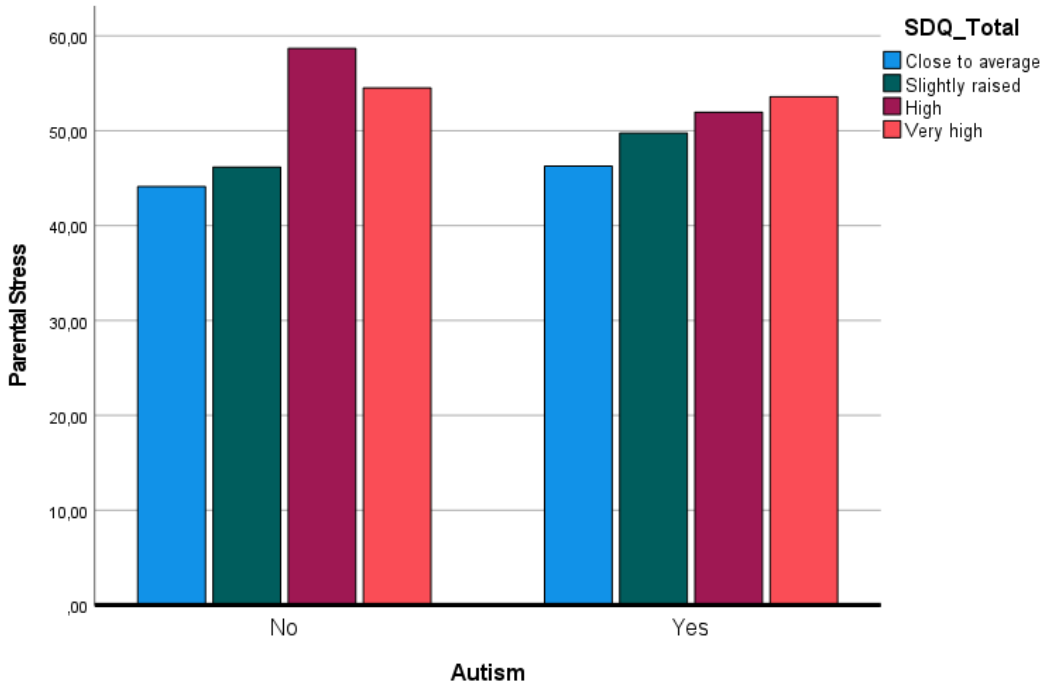

Figure 1. This bar chart illustrates the levels of parenting stress across child behavioural difficulties. The colours indicate the child's behavioural difficulties levels.

Figure 1 illustrates that across both groups, parents experience an increase in perceived stress with higher emotional and behavioural problems in children, as measured by the SDQ. Interestingly, parents of non-autistic children showed higher levels of stress compared to parents of autistic children when the child presented higher behavioural difficulties.

For the second hypothesis, investigating whether parents of autistic children experience higher levels of parenting stress compared with parents of non-autistic children, an independent samples t-test revealed a significant difference in parenting stress between parents of autistic (m = 52.16; SD = 10.03) and non-autistic children (m = 46.97; SD = 9.74), with higher scores among parents of autistic children (t(151) = -3.24; p = .001; CI (95%) -8.34, -2.03).

A two-way, between-groups Analysis of Variance (ANOVA) explored the difference in parenting stress between mothers (m = 47.63) and fathers (m = 45.44) of non-autistic children, and mothers (m = 51.89) and fathers (m = 53.19) of autistic children, with no significant differences observed (*F*(1, 144) = 1.07; p = .303, np2 = .007).

Additionally, no association was found for gender and parenting stress (*F*(1, 144) = .07; p = .795), while a moderate association was found for autism and parenting stress (*F*(1, 144) = 12.68; p = .001; np2 = .08).

Table 4. Pearson's correlation between PSS and BPSES

	Autistic		Non-autistic	
Variables	M (SD)	PSS	M (SD)	PSS
PSS	52.16 (10.03)	-	46.97 (9.74)	-
BPSES	19.78 (3.03)	-.49**	21.09 (3.03)	-.42**

***p < 0.01*

Pearson's correlation analysis found that parenting stress (m = 46.97; SD = 9.74) in parents of non-autistic children, was associated with PSE (m = 21.09; SD = 3.03; r (77) = -.42, p < .01). Similarly, for parents of autistic children, parenting stress (m = 52.16; SD = 10.03) significantly predicted PSE (m = 19.78; SD = 3.03) (r (76) = -.49, p < .01). Correlations in both groups demonstrated a moderate negative relationship, indicating that as parenting stress increased, PSE decreased (see Table 4).

Additionally, a linear regression analysis found no association between child's age and parenting stress (*F*(1,149) = .371, p < .543, R2 = -.004) (age, beta = -.05, p < .543, CI (95%) -.59, .31). In other words, variations in parenting stress were not attributed to the child's age.

Parents reported the prevalence of comorbidities. Among autistic children, 35.5% had no additional diagnosis, 22.4% had one, 21.1% had two, and 19.6% had three or more comorbidities. A Spearman's rho correlation analysis examined the relationship between the child's comorbidities (m = 1.28; SD = 1.16) and parental stress among the autistic group. The results did not indicate a significant correlation (rs(76) = .158, p < .173). Specifically, the number of comorbidities was not associated with parenting stress when parenting an autistic child.

Spearman's rho analyses further revealed that, for both parents of autistic and non-autistic children, household income was not associated with either parenting stress or PSE. Similarly, no association was found for parents' education status on parenting stress or PSE across both groups.

Discussion

Parenting stress has been studied extensively, as it is believed to be an important factor in child behaviour. The purpose of the current study was to compare parents of autistic children with parents of non-autistic children and examine whether autism plays a role in how parents perceive their stress. This study provides a novel exploration of parenting stress, its relationship with child behavioural issues and PSE, comparing parents of autistic and non-autistic children. However, due to its cross-sectional design, the findings should be regarded as preliminary and do not establish causality. Further research and replication are essential, such as through adoption of longitudinal designs, which would provide more details of this association.

Overall, the study found no significant relationship between parenting stress and child behaviour when controlling for PSE in both groups, and no significant differences were identified between the groups regarding this relationship. Results contrasted with the research conducted by Strauss et al. (2022), which found that PSE plays a mediating role in parental stress and child behaviour among fathers of autistic children.

Nevertheless, a significant relationship was found between parenting stress and child behaviour, supporting research studies such as Barroso et al. (2018) and Clauser et. al (2021). Although there was a significant relationship in both groups, the current study identified a pattern of associations between child behavioural problems and parenting stress among parents of non-autistic children. Parents of non-autistic children tended to exhibit higher stress levels when their child presented high and very high behavioural challenges, while parents of autistic children presented higher parenting stress overall, but with a gradual increase in their parenting stress levels as the behaviours appeared to be more challenging. This pattern may suggest that parents of non-autistic children are comparatively less prepared to manage severe behavioural problems, potentially due to less experience with such behaviours on a daily basis. Parents of autistic children may have developed more effective coping mechanisms through exposure to their child's needs and challenges. Additionally, it may be that parental expectations influence these outcomes, as parents of autistic children may anticipate their children's behaviour and experience less abrupt increases in stress when more challenging behaviours occur.

Consistent with other findings which show that parents with greater confidence in their parenting abilities tend to experience lower levels of stress (Batool & Khurshid, 2015; Glatz et al., 2024; Kishimoto et al., 2023), this study found a significant inverse correlation between PSE and parenting stress. This suggests that parenting stress increases as PSE decreases. According to studies (e.g. Glatz et al., 2024), parents' sense of efficacy is shaped by their perception of their child's difficult behaviours, which may suggest that child behaviour may be affecting parenting stress indirectly.

In line with prior research suggesting an association between autism and parenting stress (Davis & Carter, 2008; Estes et al., 2013; Flenik et al., 2023; Hayes & Watson, 2013; McStay et al., 2014; Miranda et al., 2019), the results found a significant

difference in stress levels between parents of non-autistic and autistic children. This suggests that autism may influence how parents perceive stress (Davis & Carter, 2008). High levels of parenting stress in parents of autistic children have been associated with poor child outcomes, such as fewer gains in early teaching intervention for autistic children (Osborne et. al., 2008) and a decrease in child coping competence (Moreland et al., 2016).

Contrasting to our hypothesis, mothers and fathers presented no significant difference in levels of parenting stress across both groups. This is in line with other studies suggesting similar parenting stress among mothers and fathers (see also Di Renzo et al., 2022; Hastings, 2003; Hastings, et al., 2005; Rodriguez et al., 2019). This could be attributed to the fact that parental roles change over time (Bandalović & Gvozdenović, 2024), and fathers could be taking a more present and engaged role in the family. But some other studies suggest that mothers experience higher levels of stress compared to fathers (Batool & Khurshid, 2015; Davis & Carter, 2008) or that fathers experience greater stress (Rivard et al., 2014). Indeed, the higher prevalence of females in the autistic group is consistent with Barroso et al.'s (2018) systematic review, indicating that mothers are typically the primary carers of autistic children, which may explain the underrepresentation of fathers in this group.

Autism can be diagnosed as early as 18 months (van 't Hof et al., 2021), and parents usually report a suspicion of autism in the first 12 months. However, at this stage, some symptoms can be misinterpreted, such as impairment in language development and shyness (Elder et al., 2017). A recent meta-analysis identified that the global mean age at diagnosis of autism is 60.48 months, i.e. five years of age (van 't Hof et al., 2021). In the current study, the average age at diagnosis was 7.2 (SD = 4.45), and the age of the child at diagnosis showed no correlation with parenting stress. Even so, an additional pattern emerged in this study in which, on average, boys were diagnosed two years earlier than girls. The female's ability to hide autistic symptoms may explain this difference (Fombonne, 2020).

Consistent with previous findings (Barroso et al., 2018; McStay et al., 2014), this study indicated no age effects on parenting stress, which may suggest that parenting stress is not predicted by a child's stage of development. Additionally, no significant association was found between autistic children's additional diagnoses and parenting stress. This suggests that parents of autistic children do not experience higher parenting stress due to their child's number of co-occurring conditions.

Concerning strengths, this study achieved reasonable representation with 155 participants, with a representative age range from 28 to 59, and with an even distribution between both autistic and non-autistic groups. It is argued that this study achieved broad representation concerning the relevant population. Moreover, the varied age range provides a broader understanding of the experiences of parents across different life stages. Moreover, the study's focus on parents of school-age children and adolescents offers valuable insight into a developmental period during which parental stress is known to be high (Rivard et al., 2014).

This research, to the best of the researcher's knowledge, is the first to explore such factors influencing parenting stress across both autistic and non-autistic populations. While Strauss et al. (2022) explored similar variables, their study focused on a single group. Furthermore, this study is one of the few comparative studies to assess self-report measures of a child's strengths and difficulties, PSE and parenting stress from the perspective of both mothers and fathers of autistic children. This provides further

contributions to the existing literature by addressing a gap highlighted by previous studies such as Barroso et al. (2018) and Flenik et al. (2023).

Limitations

Adopting a self-reporting design where parents themselves assessed their child's behaviour and their own parenting stress, means that some explanations cannot be ruled out, such as how parents – while experiencing high levels of stress – may be more inclined to perceive their child's behaviour more negatively (Miranda et al., 2019; Rodriguez et al., 2019). To address this challenge, replication studies are important. Moreover, employing teachers to complete the behaviour questionnaire may help mitigate common method bias. In addition, there may be an overlap between parenting-related stress and general stress, resulting in difficulty for parents to discriminate between them.

The results may not fully represent autistic girls, as most of the children in the current study are male. This distribution aligns with the general population of autistic children, as it is well documented that autistic females are underdiagnosed (Hirota & King, 2023). Therefore, findings may not be easily generalised to parents of girls, particularly for fathers, who have been reported to experience higher levels of stress towards parenting girls compared to boys (Rivard et al., 2014).

While this study adopted a developmental perspective, its scope was limited to parents of school-aged children and adolescents. Research indicates that PSE tends to decline during this developmental phase (Glatz et al., 2024), potentially contributing to increased stress levels. Furthermore, younger children often display more typical behaviours and fewer autistic characteristics. A study comparing parents of five-year-olds with those of two-year-olds revealed higher stress in parents of older children (Rivard et al., 2014). Consequently, it remains uncertain whether these findings apply to parents of children under the age of four.

Lastly, the current study investigated the presence of additional diagnoses beyond autism and their influence on parenting stress. However, conditions were not discriminated against, which limited the ability to identify the specific conditions present in both groups. Additionally, the study also lacked in identifying the additional diagnosis, associated health issues, and their influence on parenting stress. These factors may provide a more precise understanding of the nature, frequency, and intensity of influences concerning parenting stress.

Implications and future directions

The current study offers practical insights. The findings reinforce the understanding that parents of autistic children experience greater stress than other parents, and they point to a connection between child behaviour and parental stress. While the difficulties faced by parents raising an autistic child will be present, efforts should concentrate on lessening these stressors through supportive interventions and the development of effective coping mechanisms.

In the current study, participants were primarily white Europeans, married, and of middle socio-economic status, which in turn limits the generalisability of the results. Further research should investigate solo parenting and the experiences of parents from diverse cultural and socio-economic backgrounds.

Although this study considered the age of diagnosis, it did not investigate whether stress levels differed between parents whose children received a recent diagnosis and those diagnosed at an earlier stage. Prior research indicates that the period immediately following an autism diagnosis is particularly stressful for parents (Davis & Carter, 2008). Investigating this would help determine if the timing impacts parenting stress and whether stress levels change over time following the diagnosis.

In the present study, parents of non-autistic children reported higher mean scores for stress compared to parents of autistic children when facing higher behavioural challenges. Given that parents of non-autistic children reported higher mean stress levels when facing greater behavioural challenges, future research should explore potential differences in how these two groups manage behavioural difficulties. Additionally, assuming that PSE predicts parenting stress, further research should investigate whether behavioural challenges arising from a neurodevelopmental condition, which is outside of the parent's control, may impact parents' feelings of competence in their parenting role and their sense of influence over their child, as their challenges are attributed to the condition rather than to their parenting efforts. From an applied perspective, parents having more active involvement in children's support programmes and providing more tailored support for psychological well-being may contribute to increased PSE.

Conclusion

This study highlights important issues concerning parenting stress and its association with autism. Examination of the parents of both autistic and non-autistic children revealed distinct differences in how these groups experience stress. The research establishes a link between parenting stress and PSE, alongside a positive relationship between parenting stress and child behaviour, in line with previous research. The relevance of this study is underscored by the close link between parental stress, parental involvement in interventions for their child, and overall quality of family life.

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