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Associations between Parental Conflict and Externalising Behaviours in Children with ASD in a Local Singaporean Sample: Parenting Style as a Moderating Mechanism

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ABSTRACT

The present study examined the associations between parental conflict and externalising behaviours, specifically in children with Autism Spectrum Disorder (ASD). In addition, parenting styles is explored to moderate the relationship between parental conflict and externalising behaviours in these children with Autism Spectrum Disorder(ASD). Participants comprised of 106 parents of Singaporean children with ASD. Parents were required to complete assessments of autism severity, externalising behaviours, parenting style and interparental conflict. The results from the regression analyses and ANOVA reveal that parenting styles can reduce externalising behaviours in children with ASD, in the context of parental conflict. The findings from the study have implications in designing targeted interventions and parent training programmes to equip parents with appropriate skills to nurture their child, thereby reducing the detrimental outcomes of parental conflict.

1. Introduction

Parental conflict is defined as the extent of disagreement between the couple in a home which can result in either an increase or a decrease in the interaction between the couple (Goeke-Morey, Cummings & Papp, 2007). A sizeable amount of research on typically developing (TD) children has found that a high level of parental conflict can lead to a wide array of negative outcomes in children (Cummings & Davies, 2002, Cummings & Davies, 1994; Grych, Grych & Fincham, 2001, Richmond & Stocker, 2008), including adverse consequences in child functioning and behavioural problems (Stroud, Meyers, Wilson, & Durbin, 2015). In fact, these studies have shown strong associations between parental conflict and children's externalising behaviours such as risky behaviours, conduct problems, callous-unemotional traits, aggression, and others. Parental conflict is also increasingly correlated to adverse outcomes in both young children and adolescents (Moore, 2010).

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This situation is relevant to consider for a country like Singapore. In Singapore, The Ministry of Social and Family Development has reported an increase of marital conflicts by thirty percent in the past 2 years (Wong, 2020 July 6). Such conflicts in families can lead to more negative outcomes in children then parental divorce. This is mainly due to frequent, unsettled problems within the couple being strongly associated with ambiguous or harsh parenting styles (Davies et al., 2015). Likewise, Cowan, Cowan & Mehta (2009) found that the degree of parents' dispute in a conversation was correlated to lesser amounts of care, sensitivity and consistency during isolated interaction times with their children.

At the same time, parenting styles have also been linked to have a direct effect on child development and this has led to research on whether parenting style may play a less direct and instead, a more moderating role in a number of variables. Parenting style can be broadly defined as the behaviour and attitudes of a parent towards a child (Darling & Steinberg, 2017).

As Singapore is a multiracial and multicultural society with an ethnic composition of the Chinese(74.1%), Malay (13.6%) , Indian (9.0%) and Others (3.3%) racial groups (Singapore Department of Statistics, 2022), there are a mix of traditional practices that can be noticed. For instance, some practices within the Eastern collectivist cultures which are observed among the Chinese include being cautious about the display of affection and emotions openly. In fact, Quah (2012) found that being a Buddhist or Taoist parent is correlated with a 51 percent decrease in displaying love to children by physical touch. On the other hand, Singapore in the has also been heavily westernised with English being the first language of instruction and administration for the residents here. Thus, with globalisation and education, while the individual cultural differences in parenting styles are less significant, the cultural difference as an unique Singaporean parent continue to exist (Quah, 2012).

In Singapore, the prevalence of Autism has also been increasing (Health Xchange, 2021). There are about 50,000 individuals with ASD in Singapore. That is approximately 1% of the population (Health Xchange, 2021). Of this, over 11, 500 individuals are under the age of 19. Furthermore, an estimated of 1 in 150 children are diagnosed annually with ASD. This is higher than the World Health Organisation's figure of 1 in 160 children (Health Xchange, 2021). Singapore's high autism rate places a great emphasis on training families and caregivers to be able to communicate and respond effectively with their children to improve autism symptoms, thus this research hopes to contribute to the training dimension in the sector by understanding the role of parenting styles in managing challenging behaviours in children with ASD.

While the topic of parenting style in TD children has received more attention in the past decade locally, very few number of studies have looked at the impact of parenting styles on children with ASD. Caring for children with ASD can influence parenting styles in a detrimental way as the communication deficits in the child hinders the formation of a mutually responsive relationship (Rutgers, et al., 2007).

While numerous studies (Osborne & Reed, 2008; Siller & Sigman, 2002; Richmond & Stocker, 2008), on parenting have suggested that parenting styles impact child development, there have also been findings that indicate a more two-way relationship, meaning that a child's responses can also impact the type of parenting style a parent implements (Aunola & Nurmi, 2005). This is particularly relevant in this context as the challenging behaviours that accompanies a child with ASD can direct the parenting style of the parent.

Therefore, in this current research proposal, the relationship between parenting styles, parental conflict, and externalising behaviours in children with ASD will be examined. The current research hopes to highlight the importance of parenting style as a protective factor during

parental conflict, particularly in children with disabilities and to provide useful insights in the development of training for parents.

2. Literature review

In this literature review, the main effect of the impact of parental conflict on externalising behaviours in ASD children will be discussed. Next, the role of parenting style as a potential moderator in the relationship between parental conflict and externalising behaviours will be explored.

2.1. Parental conflict and its impact on externalising behaviours

Bronfenbrenner's bioecological systems (Bronfenbrenner, 1989) highlights that parents plays an instrumental role in a child's environment which then influences the child's behaviours. Likewise, the Family systems theory (Cox & Paley, 1997) also exerts that parents' behaviour has a direct influence on children's behaviour. In addition, there is numerous research that has well established the significance of parent-level factors in predicting children's externalising behaviours in TD children (Clark et al., 2018, Chang et al., 2004).

Holtrop, et al., (2015), found that the quality of parenting has a substantial influence on the proportion of externalising behaviours in TD children. For instance, a study found that increased parental conflict led to increased externalising behaviours among siblings (Richmond & Stocker, 2008) and two-year olds (Davies, Martin & Cicchetti, 2012). In general, TD children whose parents display elevated levels of conflict, are more likely to engage in externalizing behaviours (Rhoades, 2008).

This can be explained by Bandura's Social Learning theory (1977), which explains that children who regularly witness parental conflict have an increased tendency to observe, model and imitate externalising behaviours such as aggression and violent tendencies. This effect was observed in Bandura's bobo dolls experiment (Bandura et al., 1961), in which children were observed to pay attention and encode the behaviour of adults and later on, imitate them. A more recent study (Subiaul & Stanton, 2020) also enforced on the relevance of imitation and social learning skills, in both children and adults.

We can also explain the relationship between parental conflict and externalising behaviours with reference to the Emotional Security Theory (Davies & Cummings, 1994). This developmental theory explains that a child's state of emotional security is improved or worsened by the quality of interactions with parents. The theory also describes that increased parental conflict leaves children to become vulnerable to maladaptive emotional regulation, ineffective coping mechanisms, and form negative representations of their parental relations. These factors, in turn, predicts poorer outcomes for these children (Davies & Martin, 2014). Thus, parental conflict is not just a stressor but plays a significant role in how children process their coping skills.

Thus parent conflict is especially concerning in families with children with Autism as contrary to couples with TD children, couples with ASD children indicated increased regular, severe and unsettled couple conflict (Hartley et al., 2017) and poorer quality of couple interaction (Goetz, Rodriguez, & Hartley,2019). In addition, Saini et al., (2015) found that marital dissatisfaction in couples with ASD children was higher among females than males, as they had a greater caregiver burden (Higgins et al., 2005). While it has already been established that when TD children are regularly subjected to parental conflict, it increases the levels of child externalizing behaviours (Gartstein & Fagot, 2003), there is a scarcity in the research investigating the impact of parental conflict on the behaviours of children with ASD.

2.2. The case for children with Autism

Autism spectrum disorder (ASD) is a developmental disorder characterised by impairments in social communication as well as the emergence of restrictive and repetitive behaviours (Frith & Happé, 2005). ASD occurs across a spectrum from low to high functioning and symptoms may vary from child to child depending on various reasons such as age, developmental level, and severity. In the past decade, other conditions that frequently co-occur with ASD have been examined. These comorbid conditions include intellectual disabilities, mood disorders, physical disabilities as well as challenging externalising behaviours (Matson & Goldin, 2013).

In addition, approximately one-third of children with ASD exhibit externalising behaviours, which is significantly higher than that occurring in TD children (Bauminger, Solomon, & Rogers, 2010). These behaviours included impulsiveness, hyperactivity and aggression and led to poor outcomes in ASD children(Hartley et al., 2008). Yerys et al., (2009) found that externalising behaviours exacerbated impairments in adaptive behaviours and executive control which led to poor adaptive functioning. Similarly, Mahan and Matson (2011) also found that ASD children displayed greater levels of externalising behaviour (e.g. conduct problems, hyperactivity), while showing poorer levels of adaptive behaviour (e.g. daily living skills) as compared to their TD peers. Likewise, a local study (Poon, 2012) looking at children with ASD in Singapore found that this group of children showed a higher level of challenging behaviours, such as disruptive behaviours and social-relating problems as compared to children with multiple disabilities.

Moreover, in the local context the level of externalising behaviours also has a great impact on their schooling opportunities. Singapore is home to 19 schools that offer special education for an estimated number of 6000 children with varied needs, including ASD (Sung et al., 2020). In Singapore, there are only four schools that are autism schools in Singapore: Pathlight School, Asian Women's Welfare Association (AWWA) school, St Andrews's Autism School and Eden School (Homage, 2022). In addition, there are two special schools that offer Autism Programs: Metta School and Grace Orchard School. After graduating from these schools, students with moderate to high support needs then proceed on to Day activity centres where they expand on their vocational skills. However, there are limited vacancies and the waiting lists can range from 6 months to 5 years (The Straits Times, 2022). As the special education schools are all run by social service agencies in Singapore, there are limited resources for manpower and funding. Managing a child's externalising behaviour will definitely open up more opportunities for the child with ASD as these behaviours in ASD children can continue to middle childhood and negatively impact the child's school achievement, bonds the child forms with friends and also the child's psychological well-being (Aunola & Nurmi, 2005). It also improves the possibility of children with mild ASD to assimilate into the mainstream schools and also find open employment.

Thus, we can infer that externalising behaviours have a negative impact on children with ASD on how they function and adapt in their daily lives. Hence, it becomes even more crucial to identify the predictors that impact these externalising problems in children with ASD as by analysing these predictors, we become better equipped to develop suitable and targeted interventions.

2.3. Parental conflict and externalising behaviour in ASD Children

Limited studies have looked at parental impact on children with ASD. There were some studies that investigated the marital quality of parents who have children with ASD. Findings from these studies revealed that parents of children with ASD have a higher rate of divorce (Hartley et al., 2010) and a lower self-reported level of global marital satisfaction (Santamaria, Cuzzocrea, Gugliandolo, & Larcan, 2012) than parents of children without disabilities. It remains unclear however, if frequent, intense, and unresolved parental conflicts result in greater risk in children's externalising behaviour due to challenges associated with ASD. This is because children with ASD have different abilities with regards to perspective-taking, understanding others' emotions and social reasoning and the findings from other studies may not be applicable to this special group of children. Thus, in this study, the impact of parental conflict on children with ASD will be explored.

2.4. Parenting styles

Three styles of parenting have been established by Diane Baumrind (Baumrind, 1966) to describe the connection between a parent and child. These styles are the authoritarian, authoritative and permissive style. The authoritarian style is characterised by high control and low responsiveness to the child. In other words, strict and harsh parenting. This style has been associated with poor academic and social outcomes as a strict demeanour tends to diminish the accomplishments of a child (Rauf et al., 2017).

A local systematic review on parenting in Singapore (Cheung, 2021) found that like research done in the western countries, the authoritarian style is associated with a decreased level of confidence and esteem. In addition, this style of parenting was also correlated with adjustment issues, aggressive and defiant behaviours in children in Singapore.

Likewise, a permissive style, characterised by low control and low demands from the child, is also associated with poor behavioural and social outcomes in a child (Aunola & Numi, 2005).

However, the permissive parenting style presented with mixed findings in the Singapore context. Cheung (2021) found that permissive parenting style was linked to a higher incidence of aggressive behaviours in children due to the absence of rules and expectations which creates opportunities for children to mix freely with deviant friends. To the contrary, permissive parenting was also associated with higher levels of positive emotions and social skills in children in Singapore.

Lastly, the authoritative parenting style is defined by high expectations for achievement while being sensitive and nurturing at the same time. Authoritative parents are positive, firm and supportive. Such parenting practices have been correlated to academic achievements (Zahedani et al., 2016), social communication skills and independent problem-solving skills (Landry, Smith and Swank, 2006). Thus, Baumrind and Thompson (2002), affirm that the authoritative parenting style is the most encompassing way of raising successful children. Cheung (2021) also affirmed in the systematic review, the benefits of authoritative parenting style in children in Singapore which included gains in behavioural and social-emotional outcomes.

From Cummings and Davies' theory of emotional security (2015), we also know that factors that destabilise the parental relationship can cause insecurities and jeopardise the parent's competency in bonding in a positive and forthcoming manner with their child. Thus, when there is high parental conflict in the household, it negatively influences the way the relationship with the child is formed. Hence, understanding the impact of parenting styles from the context of parental conflict will inform us of the kind of parenting practices that will protect the children in a high conflict household. Furthermore, a review of literature revealed that past studies have examined the impact of parenting style on crucial factors of child development but less focus

is paid on parenting styles interact with parental conflict to contribute to children's externalising behaviours.

2.5. Parenting style and externalising behaviours in ASD children

It has been reviewed that ASD children develop similar attachment styles to their mothers as their TD peers (Oppenheim et al., 2012). In fact, a sizeable proportion of 47% of children with ASD in the study were able to form secure attachments. (Teague et al., 2017). In addition, parenting styles had similar uses to that of TD children such as being a safety net during stressful situations. In other words, an effective parenting style will encompass a parent who is attentive and responsive to the child's cues. Moreover, authoritative parenting has been recognised to be one of the significant contributors to the child's physical, intellectual, emotional and social development(Ainsworth, 1979).

Healey et al., (2011) found that authoritative parenting was successful in moderating the relationship between externalising behaviours and child impairment. Another study looking at children with developmental delays affirmed that aspects of positive parenting style such as responsiveness and sensitivity, eased the development of positive play and social behaviours (Girolametto et al., 1994). Lastly, a meta-analysis by Dyches et al., (2012) validated past literature on authoritative parenting and behaviours in children with development delays, including ASD. The analysis revealed that authoritative parenting led to more positive outcomes in children and reduced their levels of externalising behaviours. On the other hand, harsh and strict parenting can have an opposite effect and intensify a child's poor outcomes. For example, Osborne & Reed,(2008) discovered that poor parenting can counteract the effectiveness of an early intervention programme in ASD children.

One explanation could be due to the fact that young children are not capable of self-regulation on their own as their frontal cortex is still developing, even more for children with developmental delays, hence they depend predominantly on their parent or caregiver for support. Thus, a sensitive and warm caregiver will provide a positive experience in regulation which will then equip the child with skills to self-regulate subsequently (Calkins & Fox, 2002). In fact, children who are not able to pick up these skills in regulating their emotions are found to have an increased level of externalising behaviour (Cicchetti, Ackerman & Izard, 1995). Thus, authoritative parenting plays a critical role in early childhood development. In addition, Bradley & Corwyn, (2008), found that this benefit extended and continued to protect children in middle childhood as well. TD children who had responsive, sensitive and warm mothers, especially those with difficult temperaments, developed lesser externalising behaviours.

Likewise, there has been evidence of correlations between parental sensitivity and the development of the ASD child's social emotional skills (Siller & Sigman, 2002). However, studies looking at parenting styles and its associations with children who have ASD is not only scarce, but have yielded inconsistent results. For instance, while Dyches et al., (2012), found that the use of positive parenting practices led to positive outcomes in children with disabilities. (Woolfson & Grant, 2006) also found that the use of authoritative parenting style created a greater level of parenting stress when parenting children with developmental disabilities.

These examples above, do imply that authoritative parenting can impact certain aspects of developmental delays. However, limited research in the field leaves a gap in the full analysis of the relationship between parenting styles and ASD, especially in the local context.. Hence, it is relevant and necessary to understand the impact of parenting style on children's

externalising behaviours since ASD children will require more assistance to subdue the effects of parental conflicts.

3. Materials and methods

3.1. Research questions

Following the literature review on parental conflict, parenting style and externalising behaviour, the following research questions were explored.

1. Does parental conflict lead to an increase in externalising behaviour in children with ASD?
2. Does parenting style moderate the relationship between parental conflict and externalising behaviours in children with ASD?

3.2. Hypotheses

Based on the literature, on parenting conflict, externalising behaviours in children with ASD and parenting styles, it was hypothesized that an increase in parental conflict will lead to an increase in the externalising behaviours of children in ASD.

Secondly, it was hypothesized that the parenting style would moderate the relationship between parental conflict and the child's externalising symptoms. More specifically, the authoritative parenting style in parents will reduce the level of externalising behaviours in children with ASD, in the context of increased parental conflict. On the other hand, an authoritarian or permissive parenting style in parents will increase the level of externalising behaviours in children with ASD, in the context of increased parental conflict.

3.3. Significance and aims of the study

Inter-parental conflict is regarded as a major predictor for a child's externalising behaviours. (Davies, Martin, & Sturge-Apple, 2016). While there has been ample research on families of TD children that analyse the parent-level factors, literature looking at parents of ASD children is limited and studies that understand parent-level factors in specific to the Singapore context is scarce. Therefore the first aim of the study is to examine the relationship between parental conflict and externalising behaviours in children with ASD.

Secondly, the correlation between parent conflict and externalising problems is strong (Rhoades, 2008) among TD children. Yet, studies to investigate the moderating and mediating variables is sparse, particularly among ASD children. Hence, the second aim of the study is to investigate the moderating role of parenting styles in this relationship.

In the current study, we collected data from parents (i.e. both fathers and mothers) of children with ASD. As it has been identified that most children got a formal diagnosis of ASD after the age of 3, we are beginning the age range of the study at a minimum of 3 years old (Rydzewska, 2019). Also, children in Singapore attend primary level education up till the age of 12, after which they move on to secondary school where they are considered as youths.. Thus we will be looking at children up to a maximum of 12 years old in the current study. The data will be analysed to understand the correlation between interparental conflict and externalising problems. To add on to existing research, we will further examine the moderating role of

parenting style in this relationship, thus providing insights to the development of specific and targeted training programmes to meet the needs of parents and their ASD child.

3.4. Participants

Based on an a priori estimation of statistical power of (1- β) = .38, an alpha level of .05, and a slightly conservative estimated medium effect size of r = .30 (based on an r = .36 derived from Yorke., I. et al., 2018), 82 participants were required for this experiment.

A total of 128 participants were recruited for the study. Of these, 22 participants had incomplete questionnaires. Hence their data was excluded and the data from the remaining 106 participants was used in the study. Majority of the participants (84%) were mothers, who were married and had at least one child who was diagnosed with ASD for at least 2 years. 52.8% of the participants belonged to the Chinese ethnic group, 21.7% from the Malay ethnic group and 25.5% from the Indian ethnic group. As these three ethnic groups form about 98.5% of the population in Singapore (Singapore Department of Statistics, 2022), the ethnic distribution is overall representative of the local context and the results from the study can be generalised to the population here. About half the participants (53.8%) had a university degree, 20.8% had a diploma qualification while the rest had a secondary educational qualification. The participants' ages ranged from 31 to 62 (M = 40.08, SD = 6.99). The demographic characteristics of the participant variables can be found in Table 1.

Table 1.
Demographic characteristics of the participant sample

Demographic characteristics	Frequency(n)	Percent
Gender		
Female	89	84.0
Male	17	16.0
Race		
Chinese	56	52
Malay	23	21.7
Indian	27	25.5
Household Income		
$1,000 - $3,999	30	28.3
$4,000 - $6,999	28	26.4
$7,000 - $9,999	22	20.8
More than $10,000	26	24.5
Parent Education		
Secondary	25	23.6
Diploma	22	20.8
Degree	59	55.7

Participants were recruited online through convenience sampling and snowball sampling where a survey link was circulated through WhatsApp and email to recruit participants. Participants were also recruited from liaising with parents from Special Education (SPED) schools, Early Intervention (EI) centres through parent support groups on Facebook, Instagram and telegram groups. Examples of these support groups include Special Needs Kids Singapore, Singapore Special Voices, Singapore Autism – Parents Need Support too!, Ausometots and iautistic Whatsapp community group. The survey was conducted online using the Qualtrics platform, where the participants were presented with an informed consent form and a survey. The survey

comprised of the following measures – Demographic questionnaire, Autism Treatment Evaluation and Checklist (ATEC), Home Situations Questionnaire – ASD (HSQ-ASD, Chowdhury et al 2016), Conflict and Problem-Solving Scale (CPS, Kerig, 1996) and the Parenting Styles and Dimensions Questionnaire (PSDQ; Robinson et al., 2001).

3.5. Procedures

A cross-sectional study design was adopted in which the measures were administered through the above-mentioned questionnaires. Recruited participants were tasked to complete the survey online which took approximately 20 minutes. Firstly, they were informed of the objectives, intent and rationale of the study, what exactly is required of them and on their entitlement to withdraw from the study at any point in time without any consequences. Participants only proceeded with the study when they gave their informed consent by signing on the online consent form. Following which, they were asked to proceed to commence the questionnaires. Participants completed the Demographic questionnaire, Autism Treatment Evaluation and Checklist (ATEC), Home Situations Questionnaire – ASD (HSQ-ASD, Chowdhury et al 2016), Conflict and Problem-Solving Scale (CPS, Kerig, 1996) and the Parenting Styles and Dimensions Questionnaire (PSDQ; Robinson et al., 2001). At the end of the survey, participants were debriefed online and were also provided the contact details of the researchers should they need to get in touch with them regarding any queries they had. After completing the survey, the participants were thanked for their time and participation and debriefed with regards to the objectives of the study.

No identifying details of the participants were requested to ensure anonymity and confidentiality of the participants. All data was aggregated and the data file was encrypted with a password for security, so as to ensure the confidentiality and anonymity of participants Only the researcher had access to the data and the data was only used for the purposes of completing the Masters' Thesis.

3.6. Measures

3.6.1. Control variables

Child's age, child's gender, IQ levels, autism severity, level of support required have been linked to externalising behaviour in children. Thus, they were identified to be control variables.

3.6.2. Parent variables

Household income was categorised from '$1,000 to $3,999' (coded as 1) to 'More than $10,000' (coded as 4). The income level was evenly distributed across the 4 groups. Parent's educational level was coded as Secondary = 0, Diploma = 1 and University = 2. There were no parents in the sample with education level below the primary level or above the university level. About half the participants (55.7%) had an university degree. Most of the parents in the sample had either 1 child (32.1%) or 2 children (44.3%).

3.6.3. Children variables

Children's ages ranged from 5 to 12 years old (M = 8.16, SD = 2.16). There were no children under the age of 5 or over the age of 12. Majority of the children (64.2%) were girls and had a moderate level of ASD, as measured by the ATEC (M = 69.35, SD = 14.45). Most of the children (70.8%) also required a substantial amount of support in their day to day activities.

About one-third (34.0%) of the children also had a mild level of intellectual disability (IQ 50 to 70).

3.6.4. Autism Severity

The severity of Autism symptoms was measured using the Autism Treatment Evaluation and Checklist (ATEC). The scale comprises of 77 items across four subscales: Speech/Language/Communication, Sociability, Sensory/Cognitive Awareness, and Physical/Health/Behaviour. The items have to be rated on a 3 point scale – Not true, somewhat true, Very true. The ATEC serves as a free and convenient tool for caregivers to monitor the progress of symptoms over time. A total score that ranges from 0 -179 is given, with scores on the lower end of the spectrum meaning milder ASD symptoms and greater scores being associated with more severe symptoms of ASD (Mahapatra et al, 2018) . Researchers have reported good internal consistency as well as good correlations with other established measures(Howlin, Magiati, & Charman, 2009). There have also been studies that have reported good validity as the ATEC has been sensitive to changes caused from intervention/therapy (Jarusiewicz, 2002, Lonsdale, 2002). Furthermore, for this research, an Cronbach's Alpha of 0.905 was scored for the scale showing good internal consistency of the scale.

3.6.5. Externalising behaviours

Externalising behaviours was measured using the Home Situations Questionnaire – ASD (HSQ-ASD, Chowdhury et al 2016). This questionnaire is adapted from the original HSQ as well as the HSQ for Pervasive Developmental Disorders to be utilised in the evaluation of children, specifically with Autism aged 3 to 12 years old. The questionnaire is rated by the caregiver to measure behavioural non-compliance in daily situations. The greater the score, the more severe and intense the problem behaviour. The 24-item questionnaire comprises of two 12-item subscales and is rated on a 9-point Likert score ranging from 0 (no problems) to 9 (Severe problems). The HSQ-ASD has been reported to have good construct, divergent, and concurrent validity, as well as reliability (Chowdhury et al., 2016). In the present research, the internal consistency is high at $\alpha = 0.98$ for the Social Inflexibility subscale and $\alpha = 0.867$ for the Demand specific subscale.

3.6.6. Parental conflict

Parental conflict is multidimensional with a diverse range of consequences on children. On one hand, there is positive and functional conflict that allows the couple to grow. On the other hand, there is harmful, dysfunctional conflict that increases the stress and negativity between couples (McCoy, George, Cummings & Davies, 2013). The variation in the conflict also have difference in the impact on children. Thus, the scale used will measure several aspects of conflicts that the participants experienced in the past one year. Parental conflict was measured through self-reported couple conflict by participants. The Conflict and Problem-Solving Scale (CPS, Kerig, 1996) was used and the marital conflict dimensions that were used comprised of four dimensions of couple conflict – Frequency, Severity, Efficacy and Resolution (Kerig, 1995). Frequency measures how regularly participants have a minor or major disagreement with their spouse over the course of the year and ranges from "Once a year or less" to "Just about every day". Scores for both minor and major conflicts are totalled up and can range from 3 to 18. As for the dimension of the Severity, it measures the degree to which parent's disagree with regards to 22 matters such as personal goals, children, money and religious issues. These content areas are similar to those used in other marital dispute measures such as the Marital Adjustment Test (Locke & Wallace, 1959). The scores are summed and the average rating then determines the total score the dimension of severity. Higher scores reflect a more regular and severe inter parental conflict (Kerig, 1998). Efficacy dimension uses the same 22 items as the

Severity scale but this time it gives us the percentage of problems (from o to 100%) that the participant think that they are able to resolve. Finally, the resolution dimension measures the emotional outcomes that come about following the problem solving attempts of the participant. Participants rate 13 items on a 4-point Likert scale. Some examples of the items include "We don't speak to one another for a while" and "The whole family ends up feeling upset". Items are weighted by the quality of resolution and hence the score for this scale can range from -48 to 24. The CPS is found to be a highly reliable and valid (Kerig, 1998) based on a sample of 273 married couples.

3.6.7. Parenting Style

Parenting Style will be measured by The Parenting Styles and Dimensions Questionnaire (PSDQ; Robinson et al., 2001) which is a self-report instrument. This questionnaire has 32-items that measures authoritative, authoritarian, and permissive parenting styles. There are 15 items measuring authoritative style, 12 items measuring the authoritarian style and 5 items describing the permissive style. All participants have to indicate their agreement with each statement on a 5-point Likert scale, ranging from 1= never to 5 = always. The instrument gives an individual scoring for each style of parenting and the greater the score for a particular style implies a greater practice of that style. The scale has consistently replicated good internal validity and adequate reliability (Hubbs-Tait et al., 2008, Robinson et al., 2001). Furthermore, Locke & Prinz (2002), reviewed that the PSDQ is a reliable and valid measurement in assessing parenting styles. The Cronbach alpha internal reliabilities for the authoritative, authoritarian and permissive subscales were .86, .87 and .80 respectively. In the present study, Cronbach alpha for the three subscales were - .96, .90 and .86 respectively.

4. Results

4.1. Descriptive statistics for independent and dependent variables

For the analysis, SPSS version 26 was used. The means, standard deviations and Pearson correlations for the predictor and outcome variables were first analysed. In general, the mean score of 69.34, with a SD=14.49 on the ATEC revealed a moderate level of Autism symptoms in the sample. Secondly, for parental conflict there were 4 different dimensions measured. The descriptive statistics for the 4 dimensions (frequency, severity, efficacy and resolution) are given in Table 2. As for the HSQ, which measures children's externalising behaviours, there are 2 subscales – the Social Inflexibility subscale and the Demand specific subscale. Descriptive statistics are outlined in Table 3. The overall mean score for the HSQ is 4.41, with a SD=1.93, indicating a moderate level of non-compliant behaviour in the sample. Lastly, for the PSDQ, parents had reported a slightly higher level of authoritative parenting style (M= 2.98, SD=1.23), then permissive parenting style (M=2.85, SD=1.07) and lastly authoritarian parenting style (M= 2.79, SD= 1.20). Respective scatterplots of these variables were also inspected to reveal normal distributions and homoscedasticity.

Table 2.
Descriptive statistics of independent variables

	N	Minimum	Maximum	Mean	Std Deviation
Authoritative Mean Score	106	1.00	5.00	2.9821	1.23315
Authoritarian Mean Score	106	.33	5.00	2.7931	1.20137
Permissive Mean Score	106	.80	4.80	2.8509	1.07606
Child ATEC Score	106	35.00	107.00	69.3491	14.49403
CPS Frequency Subscale	106	2.00	17.00	8.7028	4.20871
CPS Severity Subscale	106	11.00	87.40	49.4823	16.66075
CPS Mean efficacy score	106	11.20	91.80	51.3851	18.29765

CPS Resolution	106	-38.00	23.00	5.6792	11.38047
Valid N	106				

Table 3.
Descriptive statistics of dependent variables

	N	Minimum	Maximum	Mean	Std Deviation
HSQ Inflexibility subscale	106	.25	10.00	4.4387	2.53338
HSQ Demand Specific scale	106	1.00	9.00	4.4410	1.68564
Mean HSQ Score	106	.00	9.00	4.4116	1.93575
Valid N	106				

4.2. Association between parental conflict and parental styles

Pearson coefficients were then computed between the dimensions of parental conflict and the three parenting styles. Generally, there were no statistically significant correlations found between the dimensions of parental conflict(Frequency, severity, efficacy and resolution) and the three parenting styles (Authoritative, authoritarian and permissive) except for one. There was a significant correlation $r(104)= 0.256$, $p <0.05$ between authoritarian parenting style and the frequency of couple conflict.

4.3. Association between parental conflict and externalising behaviour

Next, the associations between parental conflict and the externalising behaviours in children were examined. As expected, all the four dimensions of the CPS are strongly associated with each other. The CPS severity scale also is significantly correlated at the 0.01 level with both the subscales of the HSQ. As shown in Table 4, the correlation between the severity of couple conflict and the level of externalising behaviour is $r(104)= 0.317$, $p <0.01$. The correlations between the HSQ's Social Inflexibility scale and the CPS frequency, severity and efficacy scale were also significant. In general, children's externalising behaviours were greater when the couple conflict was more severe (severity scale), regular (frequency scale) and less likely to be resolved (efficacy scale). The resolution scale was not significantly correlated with the scales in the HSQ.

Table 4.
Correlations between CPS and HSQ

		HSQ Inflexibility subscale	HSQ Demand Specific subscale	Mean HSQ score	CPS Frequency score	CPS Severity score	CPS Mean efficacy score	CPS Resolution score
HSQ Inflexibility subscale	Pearson Correlation	1	.679**	.944**	.192*	.388**	-.252**	-.166
	Sig (2 – tailed)		.000	.000	.049	.000	.009	.088
HSQ Demand Specific subscale	Pearson Correlation	.679**	1	.871**	-.011	.187	-.086	-.021
	Sig (2 – tailed)	.000		.000	.909	.055	.380	.831
Mean HSQ score	Pearson Correlation	.944**	.871**	1	.119	.317**	-.188	-.109
	Sig (2 – tailed)	.000	.000		.226	.001	.054	.265
CPS Frequency score	Pearson Correlation	.192*	-.011	.119	1	.512**	-.324**	-.270**
	Sig (2 – tailed)	.049	.909	.226		.000	.001	.005

CPS Severity score	Pearson Correlation	.388**	.187	.317**	.512**	1	-.693**	-.426**
	Sig (2 – tailed)	.000	.055	.001	.000		.000	.000
CPS Mean efficacy score	Pearson Correlation	-.252**	-.086	-.188	-.324**	-.693**	1	.688**
	Sig (2 – tailed)	.009	.380	.054	.001	.000		.000
CPS Resolution score	Pearson Correlation	-.166	-.021	-.109	-.270**	-.426**	.688**	1
	Sig (2 – tailed)	.088	.831	.265	.005	.000	.000	

4.4. Hierarchical regression – parental conflict and externalising behaviours in children

The analysis was done with externalising behaviours as the dependent variable and the four parental conflict dimensions (frequency, severity, efficacy and resolution) as independent variables. The control variables such as parental age, parental gender, child age, child gender, Autism severity and child IQ were added in to investigate any shared variance with the predictor variables.

The results revealed that the model was statistically significant and the variables explained 48% of the variance ($R^2 = .419$), $F(7, 98) = 10.10$, $p < .001$. The severity of parental conflict was significant (b..245, p<.05). Gender of the child (b.-.254, p<.05) and autism severity (b..545, p<.05) were also found to be statistically significant. The child's IQ was not significant. The other dimensions of parental conflict – Frequency, efficacy and resolution were also not significant in predicting externalising behaviours in children. Hence, the subsequent analyses will be looking into only the conflict severity dimension.

4.5. Mean differences in externalising behaviours across different parenting styles

Next, the mean scores for HSQ, that is used to measure externalising behaviours in children will be analysed across the three parenting styles – Authoritative, Authoritarian and permissive. A one-way ANOVA was conducted as there were more than 2 subgroups. The results revealed differences in the mean scores in externalising behaviours across the 3 different parenting styles. The mean score of 3.70 was lowest for children of parents who had adopted an authoritative parenting style. The mean score was 4.74 for children who were raised by the authoritarian style and 5.18 for the permissive style. $F(2,103) = 6.551$, $p = .002$ is statistically significant and can be interpretated as three groups having a statistically different mean for externalising behaviours.

Next by studying the Levene statistic of .473 (based on a means comparison), the statistic is found to be insignificant, thereby implying that the variance is homogenous enough and that the one way ANOVA model is strong.

There was a statistically significant difference between the three parenting styles as shown by the one-way ANOVA ($F(2,103) = 6.551$, $p = .002$). Further post hoc test was conducted to further understand which subgroups were statistically significant. The Tukey post hoc test, as seen in Table 5, showed that children from the Authoritative parenting style group displayed a lower level of externalising behaviour than children from the Permissive parenting style group ($p = .002$). Likewise, there was also a significant difference between the Authoritarian and Authoritative groups ($p = .045$). There was no statistically significant difference between the permissive and authoritarian groups ($p = .631$).

Table 5.

One Way ANOVA – Post hoc Tests (Multiple Comparisons)
Dependent Variable: Mean HSQ Score

(I)Dominant Parenting Style	(J) Dominant Parenting Style	Mean Difference (I-J)	Std Error	Sig.	95% Confidence Level	
					Lower Bound	Upper Bound
Authoritative	Authoritarian	-1.04511*	.43201	.045	-2.0725	-.0178
	Permissive	-1.48122*	.43201	.002	-2.5086	-.4539
Authoritarian	Authoritative	1.04511*	.43201	.045	.0178	2.0725
	Permissive	-.43611	.47531	.631	-1.5664	.6942
Permissive	Authoritative	1.48122*	.43201	.002	.4539	2.5086
	Authoritarian	.43611	.47531	.631	-.6942	1.5664

4.6. Parenting style as a moderator

To establish whether parenting styles moderate the relationship between parental conflict and externalising behaviours, all scores were standardised first and interaction terms were computed. As the severity dimension of couple conflict was found to be significant in predicting externalising behaviours, the analysis will focus on the severity of the couple conflict. Also 3 different interaction terms were computed – one for each parenting style.

A linear regression analysis is conducted to test the interaction effect for authoritative parenting and the interaction term has a p value of .025 which is lower than 0.05, as shown in Table 6. Hence we can imply that Authoritative parenting style has an effect on the relationship between parental conflict and their child's externalising behaviour. However similar linear regression analyses revealed insignificant results with both authoritarian (p = 0.24) and permissive (p=0.735) parenting styles.

Table 6.
Interaction Effect between Conflict severity and Authoritative parenting

Model		Unstandardised B	Coefficients Standard Error	Standardised Coefficients Beta	t	Sig.
1	(Constant)	3.839	.665		5.775	.000
	CPS Severity	.039	.010	.334	3.746	.000
	AuthoritativeMean Score	-.452	.140	-.288	-3.229	.002
2	(Constant)	3.789	.652		5.810	.000
	CPS Severity	.040	.010	.340	3.891	.000
	AuthoritativeMean Score	-.440	.137	-.280	-3.204	.002
	INT Authoritative	-.397	.175	-.198	-2.269	.025

5. Discussion

The findings revealed that autism severity, as expected, was significant in predicting externalising behaviours in children. However, after controlling for autism severity, findings from the regression models showed that households with more severe and frequent parental conflict resulted in their ASD children to exhibit more externalising behaviours. Parents being less efficient in solving their marital conflicts was also correlated with socially inflexible behaviours in children. This meant that children from a household where parents had severe conflicts faced difficulties in adjusting to social situations that might be unfamiliar to them and displayed greater externalising behaviours such as hostility and aggression. These findings

regarding the relationship between parental conflict and child's externalising behaviours are in line with previous studies (Grych, Grych & Fincham, 2001, Cummings & Davies, 2002).

The findings from the current study contributes to the existing literature by having an unique sample of children with ASD. Children with ASD have been found to have traits, such as increased emotional reactivity, decreased adaptability and can be easily distressed (Pisula, 2015). These are characteristics of a difficult temperament which makes them even more vulnerable to parental conflict (Davies & Windle, 2001). Children with a difficult temperament are also inclined to hostility and self-reproach as reactions to parental conflict. The results of the study also reveal that children from a high conflict household display greater externalising behaviours. This could be due to the spill over of negative emotions from the couple conflict which impairs the parent-child relationship. Another explanation is poor social modelling of managing emotions and conflicts especially since children with ASD have been found to use imitation as a critical for their development (Vivanti & Hamilton, 2014).

Unique to the present study is data that shows that parenting styles can moderate the relationship between parental conflict and externalising behaviours in children with ASD. An authoritative parenting style has been found to have reduced the externalising behaviours in children from a high conflict household. This is in contrast to both permissive and authoritarian parenting styles which were not successful in achieving the same result. The authoritative parenting style likely created a positive mental state that encourages parents to be more empathetic to the necessities of their children. On the other hand, permissive parents are defined by their reluctance to impose limits which might exacerbate some of the hostile and aggressive behaviours in children with ASD. Permissive parents also fail to establish a functional In this current study, children from permissive homes displayed the greatest levels of externalising behaviours.

Likewise, authoritarian parenting style which is characterised by parents setting high demands, will put undue pressure on the parents when the demands are not met and results in fatigue. These demands are even harder on a child with ASD, thus leading to poor parent-child relationship and an increase in problematic behaviour.

Authoritative parenting style has been found to help children with their oral language skills. (Bingham et al., 2017). This could have equipped children from an authoritative home with better expressive skills to communicate effectively and in turn exhibit lesser externalising behaviours.

It is also likely that the authoritative parenting style builds a nurturing and positive parent-child bond that seems to shield these children from the impact of parental conflict.

Strengths of the study includes having a diverse racial representation. Most literature on parental conflict has focused on parents from the western societies and there has been interest in the validity of the findings to other culturally diverse populations (Lindahl et al., 2004). The present study adds to the literature by looking at the Chinese, Malay and Indian ethnic groups in Singapore.

5.1. Recommendations

The present paper marks the beginning of an attempt to comprehend how parenting styles interact in the context of a parental conflict household to mould an ASD child's behaviour. However, the paper is not without its limitations. The current study is limited as there was only a focus on one of the parents' perception of level of conflict. Collecting data from both partners in the marriage will give a more complete picture of the dynamics and the complexity of the conflict. Moreover, the children's level of externalising behaviours was also measured through

parent's self-report. Hence, these is a possibility of increased correlation due to shared method variance. Future research can measure externalising behaviours by gathering information from other sources such as the educator. Though challenging, alternative methods such as direct observation of the child in a naturalistic home environment can give greater depth in the understanding of the issue.

In addition, the focal point of this study was to look at how parental influences can impact children's behaviours. However, Bell (1979) has discussed about the reciprocal nature of a parent-child relationship. More so in the case of children with ASD, as the behavioural issues can cause greater parenting stress and result in parent conflict (Ekas & Kouros, 2021). Thus how children's behaviour shape parenting styles will be worth exploring in future to understand the two-way parent-child relationship.

Lastly, as prior research has shown that parental conflict can have an impact in other areas of child development such as academic performance, physical development and even social interaction, future research can also look into these areas.

Despite the limitations, the research plays a critical role in understanding the role of parenting styles. Hence, training programmes and counselling sessions can be tailored to parents at risk of couple conflicts. Workshops that educate parents on communicating effectively and solving conflicts to ensure optimal family health and to reduce child externalising behaviours in ASD children. In addition, as the present study had found the role of parenting styles to be significant in shaping a child's behaviour, relevant and high-quality programmes can be designed to educate parents on positive parenting practices, emotional regulation as well as conflict resolution.

Appropriate parent training in the areas of authoritative parenting and managing autism symptoms can empower parents by equipping them with the right skill sets to manage to their couple relationship, as well as, the behaviours that come with an ASD diagnosis. These changes are essential to promote the development of self-efficacy and independence of the child with ASD, which in turn can improve their quality of life.

Thus, the findings inspire additional research to explore the impact of parental conflict on the adaptability of ASD children, with the purposes of designing targeted parent-focused programmes to improve parenting styles, thereby impacting the behaviour and well-being of children with ASD.

Disclosure statement

No potential conflict of interest was reported by the authors.

References

Achenbach, T. M., & Rescorla, L. A. (2000). *Manual for the ASEBA preschool forms and profiles* (Vol. 30). Burlington, VT: University of Vermont, Research center for children, youth, & families.

Ainsworth, M. S. (1979). Infant–mother attachment. American psychologist, 34(10), 932. https://doi.org/10.1037/0003-066X.34.10.932

Aunola, K., & Nurmi, J. E. (2005). The role of parenting styles in children's problem behavior. *Child development,* 76(6), 1144-1159. https://doi.org/10.1111/j.1467-8624.2005.00840.x-i1

Bandura, A., Ross, D., & Ross, S. A. (1961). Transmission of aggression through imitation of aggressive models. *The Journal of Abnormal and Social Psychology*, 63(3), 575. https://doi.org/10.1037/h0045925

Bandura, A., & Walters, R. H. (1977). *Social learning theory* (Vol. 1). Prentice Hall: Englewood cliffs.

Baumrind, D. (1966). Effects of authoritative parental control on child behavior. *Child development*, 887-907. https://doi.org/10.2307/1126611

Baumrind, D., & Thompson, R. A. (2002). The ethics of parenting. *Handbook of Parenting*, Volume 5 Practical Issues in Parenting, 3. https://doi.org/10.4324/9780429401695-1

Bauminger, N., Solomon, M., & Rogers, S. J. (2010). Externalizing and internalizing behaviors in ASD. *Autism Research,* 3(3), 101-112. https://doi.org/10.1002/aur.131

Bell, R. Q. (1979). Parent, child, and reciprocal influences. *American Psychologist,* 34(10), 821. https://doi.org/10.1037/0003-066X.34.10.821

Bingham, G. E., Quinn, M. F., & Gerde, H. K. (2017). Examining early childhood teachers' writing practices: Associations between pedagogical supports and children's writing skills. *Early Childhood Research Quarterly,* 39, 35-46. https://doi.org/10.1016/j.ecresq.2017.01.002

Bradley, R. H., & Corwyn, R. F. (2008). Infant temperament, parenting, and externalizing behavior in first grade: A test of the differential susceptibility hypothesis. *Journal of child Psychology and Psychiatry*, 49(2), 124-131.

Bronfenbrenner, U. (1989). Ecological Systems Theory. *Annals of Child Development*, 6, 187-249.

Calkins, S. D., & Fox, N. A. (2002). Self-regulatory processes in early personality development: A multilevel approach to the study of childhood social withdrawal and aggression. *Development and psychopathology*, 14(3), 477-498. https://doi.org/10.1017/S095457940200305X

Chang, L., Lansford, J. E., Schwartz, D., & Farver, J. M. (2004). Marital quality, maternal depressed affect, harsh parenting, and child externalising in Hong Kong Chinese families. *International Journal of Behavioral Development*, 28(4), 311-318. https://doi.org/10.1080/01650250344000523

Chao, R. K., & Willms, J. D. (2002). The effects of parenting practices on children's outcomes. Vulnerable children: Findings from Canada's national longitudinal survey of children and youth, 149-165.

Cheung, H. S., & Lim, E. (2021). A Systematic Review of Parenting in Singapore: Insights to the Culture-Specific Functions of Styles and Practices. https://doi.org/10.31234/osf.io/8xjzb

Chowdhury, M., Aman, M. G., Lecavalier, L., Smith, T., Johnson, C., Swiezy, N., ... & Scahill, L. (2016). Factor structure and psychometric properties of the revised Home Situations Questionnaire for autism spectrum disorder: The Home Situations Questionnaire-Autism Spectrum Disorder. Autism, 20(5), 528-537. https://doi.org/10.1177/1362361315593941

Cicchetti, D., Ackerman, B. P., & Izard, C. E. (1995). Emotions and emotion regulation in developmental psychopathology. *Development and psychopathology*, 7(1), 1-10. https://doi.org/10.1017/S0954579400006301

Clark, D. A., Klump, K. L., & Burt, S. A. (2018). Parent depressive symptomatology moderates the etiology of externalizing behavior in childhood: An examination of gene-environment

interaction effects. *Developmental psychology*, 54(7), 1277. https://doi.org/10.1037/dev0000522

Cowan, P. A., Cowan, C. P., & Mehta, N. (2009). Adult attachment, couple attachment, and children's adaptation to school: An integrated attachment template and family risk model. *Attachment & Human Development,* 11(1), 29-46. https://doi.org/10.1080/14616730802500222

Cox, M. J., & Paley, B. (1997). Families as systems. Annual review of psychology, 48(1), 243-267. https://doi.org/10.1146/annurev.psych.48.1.243

Cummings, E. M., & Davies, P. T. (2002). Effects of marital conflict on children: Recent advances and emerging themes in process-oriented research. *Journal of child psychology and psychiatry*, 43(1), 31-63. https://doi.org/10.1111/1469-7610.00003

Darling, N., & Steinberg, L. (2017). Parenting style as context: An integrative model. In Interpersonal development (pp. 161-170). Routledge. https://doi.org/10.4324/9781351153683-8

Davies, P. T., & Cummings, E. M. (1994). Marital conflict and child adjustment: An emotional security hypothesis. *Psychological Bulletin*, 116, 387– 411. https://doi.org/10.1037/0033-2909.116.3.387

Davies, P., & Martin, M. (2014). Children's coping and adjustment in high-conflict homes: The reformulation of emotional security theory. *Child Development Perspectives*, 8(4), 242-249. https://doi.org/10.1111/cdep.12094

Davies, P. T., Martin, M. J., & Cicchetti, D. (2012). Delineating the sequelae of destructive and constructive interparental conflict for children within an evolutionary framework. *Developmental psychology*, 48(4), 939. https://doi.org/10.1002/9781119125556.devpsy106

Davies, P. T., Martin, M. J., & Sturge-Apple, M. L. (2016). Emotional security theory and developmental psychopathology. Developmental psychopathology, 1-66. https://doi.org/10.1111/1467-8624.00340

Davies, P., & Windle, M. (2001). Interparental discord and adolescent adjustment trajectories: The potentiating and protective role of intrapersonal attributes. *Child development*, 72(4), 1163-1178. https://doi.org/10.1111/1467-8624.00340

Department of Statistics (2022). *Population Trends 2022*. www.singstat.gov.sg

Dyches, T. T., Smith, T. B., Korth, B. B., Roper, S. O., & Mandleco, B. (2012). Positive parenting of children with developmental disabilities: A meta-analysis. *Research in developmental disabilities*, 33(6), 2213-2220. https://doi.org/10.1016/j.ridd.2012.06.015

Ekas, N. V., & Kouros, C. D. (2021). A pilot study of responses to interparental conflict in children with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 51(9), 3280-3290. https://doi.org/10.1007/s10803-020-04802-y

Frith, U., & Happé, F. (2005). Autism spectrum disorder. Current biology, 15(19), R786-R790. https://doi.org/10.1016/j.cub.2005.09.033

Gartstein, M. A., & Fagot, B. I. (2003). Parental depression, parenting and family adjustment, and child effortful control: Explaining externalizing behaviors for preschool children. *Journal of Applied Developmental Psychology*, 24(2), 143-177. https://doi.org/10.1016/S0193-3973(03)00043-1

Gilliam, J. (2006). GARS-2: Gilliam Autism Rating Scale–Second Edition. Austin, TX: PRO-ED. Lecavalier, L. (2005). An evaluation of the Gilliam Autism Rating Scale. Journal of Autism and Developmental Disorders, 35(6), 795-805. https://doi.org/10.1007/s10803-005-0025-6

Girolametto, L., & Tannock, R. (1994). Correlates of directiveness in the interactions of fathers and mothers of children with developmental delays. *Journal of Speech, Language, and Hearing Research*, 37(5), 1178-1191. https://doi.org/10.1044/jshr.3705.1178

Goeke-Morey, M. C., Cummings, E. M., & Papp, L. M. (2007). Children and marital conflict resolution: implications for emotional security and adjustment. *Journal of Family Psychology*, 21(4), 744. https://doi.org/10.1037/0893-3200.21.4.744

Goetz, G. L., Rodriguez, G., & Hartley, S. L. (2019). Actor-partner examination of daily parenting stress and couple interactions in the context of child autism. *Journal of Family Psychology*, 33(5), 554. https://doi.org/10.1037/fam0000527

Grych, J. H., Grych, J. H., & Fincham, F. D. (Eds.). (2001). Interparental conflict and child development: Theory, research and applications. Cambridge University Press. https://doi.org/10.1017/CBO9780511527838

Hartley, S. L., Barker, E. T., Seltzer, M. M., Floyd, F., Greenberg, J., Orsmond, G., & Bolt, D. (2010). The relative risk and timing of divorce in families of children with an autism spectrum disorder. *Journal of Family Psychology,* 24(4), 449. https://doi.org/10.1037/a0019847

Hartley, S. L., Sikora, D. M., & McCoy, R. (2008). Prevalence and risk factors of maladaptive behaviour in young children with autistic disorder. *Journal of intellectual disability research,* 52(10), 819-829. https://doi.org/10.1111/j.1365-2788.2008.01065.x

Hartley, S. L., Papp, L. M., Mihaila, I., Bussanich, P. M., Goetz, G., & Hickey, E. J. (2017). Couple conflict in parents of children with versus without autism: Self-reported and observed findings. *Journal of child and family studies*, 26(8), 2152-2165. https://doi.org/10.1007/s10826-017-0737-1

Healey, D. M., Flory, J. D., Miller, C. J., & Halperin, J. M. (2011). Maternal positive parenting style is associated with better functioning in hyperactive/inattentive preschool children. *Infant and Child Development*, 20(2), 148-161. https://doi.org/10.1002/icd.682

Health Xchange. (2021). Study: 1 in 150 Children in Singapore Has Autism. Retrieved from https://www.healthxchange.sg/news/study-1-in-150-children-in-singapore-has-autism

Higgins, D. J., Bailey, S. R., & Pearce, J. C. (2005). Factors associated with functioning style and coping strategies of families with a child with an autism spectrum disorder. *Autism,* 9(2), 125-137. https://doi.org/10.1177/1362361305051403

Holtrop, K., McNeil Smith, S., & Scott, J. C. (2015). Associations between positive parenting practices and child externalizing behavior in underserved Latino immigrant families. *Family process,* 54(2), 359-375. https://doi.org/10.1111/famp.12105

Homage Singapore (2022). A complete list of schools for children with Autism in Singapore. https://www.homage.sg/resources/autism-school-singapore/

Howlin, P., Magiati, I., & Charman, T. (2009). Systematic review of early intensive behavioral interventions for children with autism. *American journal on intellectual and developmental disabilities,* 114(1), 23-41. https://doi.org/10.1352/2009.114:23-41

Hubbs-Tait, L., Kennedy, T. S., Page, M. C., Topham, G. L., & Harrist, A. W. (2008). Parental feeding practices predict authoritative, authoritarian, and permissive parenting styles. Journal of the American Dietetic Association, 108(7), 1154-1161. https://doi.org/10.1016/j.jada.2008.04.008

Jarusiewicz, B. (2002). Efficacy of neurofeedback for children in the autistic spectrum: A pilot study. *Journal of Neurotherapy*, 6(4), 39-49. https://doi.org/10.1300/J184v06n04_05

Kerig, P. K. (1996). Assessing the links between interparental conflict and child adjustment: The conflicts and problem-solving scales. *Journal of family psychology,* 10(4), 454. https://doi.org/10.1037/0893-3200.10.4.454

Kerig, P. K. (1995). Triangles in the family circle: Effects of family structure on marriage, parenting, and child adjustment. *Journal of Family Psychology*, 9(1), 28. https://doi.org/10.1037/0893-3200.9.1.28

Kerig, P. K. (1998). Moderators and mediators of the effects of interparental conflict on children's adjustment. *Journal of abnormal child psychology*, 26(3), 199-212. https://doi.org/10.1023/A:1022672201957

Landry, S. H., Smith, K. E., & Swank, P. R. (2006). Responsive parenting: establishing early foundations for social, communication, and independent problem-solving skills. *Developmental psychology*, 42(4), 627. https://doi.org/10.1037/0012-1649.42.4.627

Lindahl, K. M., Malik, N. M., Kaczynski, K., & Simons, J. S. (2004). Couple power dynamics, systemic family functioning, and child adjustment: A test of a mediational model in a multiethnic sample. *Development and Psychopathology,* 16(3), 609-630. https://doi.org/10.1017/S0954579404004699

Locke, H. J., & Wallace, K. M. (1959). Short marital-adjustment and prediction tests: Their reliability and validity. *Marriage and family living,* 21(3), 251-255. https://doi.org/10.2307/348022

Locke, L. M., & Prinz, R. J. (2002). Measurement of parental discipline and nurturance. *Clinical psychology review*, 22(6), 895-929. https://doi.org/10.1016/S0272-7358(02)00133-2

Lonsdale, D., Shamberger, R. J., & Audhya, T. (2002). Treatment of autism spectrum children with thiamine tetrahydrofurfuryl disulfide: a pilot study. Neuroendocrinology Letters, 23(4), 303-308.

Mahan, S., & Matson, J. L. (2011). Children and adolescents with autism spectrum disorders compared to typically developing controls on the Behavioral Assessment System for Children, (BASC-2). *Research in Autism Spectrum Disorders*, 5(1), 119-125. https://doi.org/10.1016/j.rasd.2010.02.007

Mahapatra, S., Vyshedskiy, D., Martinez, S., Kannel, B., Braverman, J., Edelson, S. M., & Vyshedskiy, A. (2018). Autism Treatment Evaluation Checklist (ATEC) norms: A "growth chart" for ATEC score changes as a function of age. *Children*, 5(2), 25. https://doi.org/10.3390/children5020025

Matson, J. L., & Goldin, R. L. (2013). Comorbidity and autism: Trends, topics and future directions. *Research in Autism Spectrum Disorders,* 7(10), 1228-1233. https://doi.org/10.1016/j.rasd.2013.07.003

Mazefsky, C. A., Anderson, R., Conner, C. M., & Minshew, N. (2011). Child behavior checklist scores for school-aged children with autism: Preliminary evidence of patterns

suggesting the need for referral. *Journal of psychopathology and behavioral assessment,* 33(1), 31-37. https://doi.org/10.1007/s10862-010-9198-1

McCoy, K. P., George, M. R., Cummings, E. M., & Davies, P. T. (2013). Constructive and destructive marital conflict, parenting, and children's school and social adjustment. *Social Development*, 22(4), 641-662. https://doi.org/10.1111/sode.12015

Menon, M & Loke, D. (May 2022). Funding, staff limits cause up to 5 year wait at centres for adults with autism. https://www.straitstimes.com/singapore/funding-staff-limits-cause-up-to-five-year-wait-at-centres-for-adults-with-autism

Moore, G. A. (2010). Parent conflict predicts infants' vagal regulation in social interaction. *Development and psychopathology*, 22(1), 23-33. https://doi.org/10.1017/S095457940999023X

Niccols, A., & Feldman, M. (2006). Maternal sensitivity and behaviour problems in young children with developmental delay. I*nfant and Child Development,* 15(5), 543-554. https://doi.org/10.1002/icd.468

Oppenheim, D., Koren-Karie, N., Dolev, S., & Yirmiya, N. (2012). Maternal sensitivity mediates the link between maternal insightfulness/resolution and child-mother attachment: the case of children with Autism Spectrum Disorder. *Attachment & Human Development,* 14(6), 567–584. https://doi.org/10.1080/14616734.2012.727256

Osborne, L. A., McHugh, L., Saunders, J., & Reed, P. (2008). Parenting stress reduces the effectiveness of early teaching interventions for autistic spectrum disorders. *Journal of autism and developmental disorders*, 38(6), 1092-1103. https://doi.org/10.1007/s10803-007-0497-7

Pandolfi, V., Magyar, C. I., & Dill, C. A. (2010). Constructs assessed by the GARS-2: factor analysis of data from the standardization sample. *Journal of autism and developmental disorders,* 40(9), 1118-1130. https://doi.org/10.1007/s10803-010-0967-1

Pandolfi, V., Magyar, C. I., & Dill, C. A. (2012). An initial psychometric evaluation of the CBCL 6–18 in a sample of youth with autism spectrum disorders. *Research in Autism Spectrum Disorders*, 6(1), 96-108. https://doi.org/10.1016/j.rasd.2011.03.009

Pisula, E., & Ziegart-Sadowska, K. (2015). Broader autism phenotype in siblings of children with ASD—a review. International journal of molecular sciences, 16(6), 13217-13258. https://doi.org/10.3390/ijms160613217

Poon, K. K. (2012). Challenging behaviors among children with autism spectrum disorders and multiple disabilities attending special schools in Singapore. *Research in Developmental Disabilities*, 33(2), 578-582. https://doi.org/10.1016/j.ridd.2011.10.025

Quah, S. R. (2012). Ethnicity and Parenting Styles Among Singapore Families. In Parent-Youth Relations (pp. 59-78). Routledge. https://doi.org/10.4324/9780203725733-5

Rauf, K., & Ahmed, J. (2017). The relationship of authoritarian parenting style and academic performance in school students. *Pakistan Journal of Psychology,* 48(2), 61-71.

Richmond, M. K., & Stocker, C. M. (2008). Longitudinal associations between parents' hostility and siblings' externalizing behavior in the context of marital discord. *Journal of Family Psychology*, 22(2), 231. https://doi.org/10.1037/0893-3200.22.2.231

Rhoades, K. A. (2008). Children's responses to interparental conflict: A meta-analysis of their associations with child adjustment. *Child development*, 79(6), 1942-1956. https://doi.org/10.1111/j.1467-8624.2008.01235.x

Robinson, C. C., Mandleco, B., Olsen, S. F., & Hart, C. H. (2001). The parenting styles and dimensions questionnaire. In B. F. Perlmutter, J. Touliatos & G. W. Holden (Eds.), *Handbook of family measurement techniques:* Vol. 3. Instruments & index, (pp. 319 – 321). Thousand Oaks, CA: Sage.

Rutgers, A. H., Van Ijzendoorn, M. H., Bakermans-Kranenburg, M. J., Swinkels, S. H., Van Daalen, E., Dietz, C., ... & Van Engeland, H. (2007). Autism, attachment and parenting: A comparison of children with autism spectrum disorder, mental retardation, language disorder, and non-clinical children. *Journal of abnormal child psychology,* 35(5), 859-870. https://doi.org/10.1007/s10802-007-9139-y

Rydzewska, E., Hughes-McCormack, L. A., Gillberg, C., Henderson, A., MacIntyre, C., Rintoul, J., & Cooper, S. A. (2019). Age at identification, prevalence and general health of children with autism: observational study of a whole country population. BMJ open, 9(7), e025904. https://doi.org/10.1136/bmjopen-2018-025904

Saini, M., Stoddart, K. P., Gibson, M., Morris, R., Barrett, D., Muskat, B., ... & Zwaigenbaum, L. (2015). Couple relationships among parents of children and adolescents with autism spectrum disorder: Findings from a scoping review of the literature. *Research in Autism Spectrum Disorders*, 17, 142-157. https://doi.org/10.1016/j.rasd.2015.06.014

Santamaria, F., Cuzzocrea, F., Gugliandolo, M. C., & Larcan, R. (2012). Marital satisfaction and attribution style in parents of children with autism spectrum disorder, Down syndrome and non-disabled children. *Life span and disability*, 15(1), 19-37.

Shin, H., Park, Y. J., Ryu, H., & Seomun, G. A. (2008). Maternal sensitivity: A concept analysis. *Journal of advanced nursing,* 64(3), 304-314. https://doi.org/10.1111/j.1365-2648.2008.04814.x

Siller, M., & Sigman, M. (2002). The behaviors of parents of children with autism predict the subsequent development of their children's communication. *Journal of autism and developmental disorders*, 32(2), 77-89. https://doi.org/10.1023/A:1014884404276

Stroud, C. B., Meyers, K. M., Wilson, S., & Durbin, C. E. (2015). Marital quality spillover and young children's adjustment: Evidence for dyadic and triadic parenting as mechanisms. *Journal of Clinical Child & Adolescent Psychology,* 44(5), 800-813. https://doi.org/10.1080/15374416.2014.900720

Subiaul, F., & Stanton, M. A. (2020). Intuitive invention by summative imitation in children and adults. *Cognition*, 202, 104320. https://doi.org/10.1016/j.cognition.2020.104320

Sung M., Magiati I., Goh T., Fung D., Aljunied M., Phua D., Lam C., Khoo S., Sim Z., Lim S., Choo S., Poon K. (2020). Singapore and autism spectrum disorder. In Volkmar F. (Ed.) Encyclopedia. Springer. https://doi.org/10.1007/978-1-4614-6435-8_102038-2

Teague, S. J., Gray, K. M., Tonge, B. J., & Newman, L. K. (2017). Attachment in children with autism spectrum disorder: A systematic review. *Research in Autism Spectrum Disorders*, 35, 35-50. https://doi.org/10.1016/j.rasd.2016.12.002

Vivanti, G., & Hamilton, A. (2014). Imitation in autism spectrum disorders.

Wong, S. (2020, July 6) MSF receiving more enquiries on family and marital conflicts post-circuit breaker. The Straits Times. https://www.straitstimes.com/singapore/msf-receiving-more-enquiries-on-family-and-marital-conflicts-post-circuit-breaker

Woolfson, L., & Grant, E. (2006). Authoritative parenting and parental stress in parents of pre-school and older children with developmental disabilities. *Child: care, health and development,* 32(2), 177-184. https://doi.org/10.1111/j.1365-2214.2006.00603.x

Yerys, B. E., Wallace, G. L., Sokoloff, J. L., Shook, D. A., James, J. D., & Kenworthy, L. (2009). Attention deficit/hyperactivity disorder symptoms moderate cognition and behavior in children with autism spectrum disorders. *Autism Research*, 2(6), 322-333. https://doi.org/10.1002/aur.103

Yorke, I., White, P., Weston, A., Rafla, M., Charman, T., & Simonoff, E. (2018). The association between emotional and behavioral problems in children with autism spectrum disorder and psychological distress in their parents: a systematic review and meta-analysis. *Journal of autism and developmental disorders*, 48(10), 3393-3415. https://doi.org/10.1007/s10803-018-3605-y

Zahedani, Z. Z., Rezaee, R., Yazdani, Z., Bagheri, S., & Nabeiei, P. (2016). The influence of parenting style on academic achievement and career path. *Journal of advances in medical education & professionalism,* 4(3), 130.