Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

The Associations Between Internalizing and Externalizing Behaviors in Children with Autism and Parenting Stress: A Systematic Review

Madyson Messiaen

madyson.messiaen@umons.ac.be

University of Mons

Michel Sfeir

University of Mons

Justine Gaugue

University of Mons

Sarah Galdiolo

University of Mons

Research Article

Keywords: autism spectrum disorder, child internalizing behaviors, child externalizing behaviors, parenting stress, transactional relationships

Posted Date: April 10th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-8346730/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Additional Declarations: No competing interests reported.

The Associations Between Internalizing and Externalizing Behaviors in Children with Autism and Parenting Stress: A Systematic Review

Abstract

Children with autism often exhibit behavioral problems, which can significantly affect family's well-being by increasing parenting stress. A thorough understanding of the interactions between child behavioral problems and parenting stress is critical for developing effective support strategies. This systematic review synthesized findings from 88 studies investigating the associations between internalizing and externalizing behaviors and parenting stress in families of children with autism. The review specifically examined age-related changes in children's behavioral patterns, identified behavioral subtypes most strongly linked to parenting stress, compared mothers' and fathers' experiences, and explored the evolution of these relationships over time. Studies assessing interventions designed to reduce behavioral problems and/or alleviate parenting stress were also included to evaluate their effectiveness. Across studies, higher levels of child behavioral problems were consistently linked to increased parenting stress. However, findings regarding the influence of the child's age on the severity of behavioral problems, as well as the differences between mothers' and fathers' parenting stress levels, remained inconsistent. Longitudinal evidence supports transactional and bidirectional interactions that may intensify over time. Intervention programs demonstrated beneficial effects on both child behaviors and parenting stress, with effect sizes varying according to intervention type (parent-focused, child-focused, or parent–child interaction-centered). This review underscores the bidirectional relationship between child behavioral problems and parenting stress, highlighting the importance of interventions tailored to children's developmental stage and family context.

Keywords**:** autism spectrum disorder, child internalizing behaviors, child externalizing behaviors, parenting stress, transactional relationships

Autism Spectrum Disorder (ASD) is a lifelong neurodevelopmental disorder affecting approximately 65/10.000 children worldwide (Zeidan et al., 2022). ASD is characterized by an association of clinical signs, including deficits in social interactions and communication skills, as well as restricted and/or repetitive patterns of thoughts, behaviors, and interests (American Psychiatric Association, 2013). Beyond these core symptoms, a recent large-scale study which was carried out among 42,569 individuals with ASD under the age of 18, reported that 74% had at least one comorbid disorder (Khachadourian et al., 2023). These comorbidities generally manifest as internalizing behaviors (IBs) and externalizing behaviors (EBs) (Achenbach & Rescorla, 2000). While IBs refer to psychological states exhibited by emotional symptoms, including anxiety, depressive mood, social withdrawal, and somatic complaints, EBs reflect actions directed towards the environment, including aggression, defiance and opposition, as well as impulsive, inattentive, and hyperactive behaviors (Eisenberg et al., 2001).

Extensive research indicates that children with ASD experience elevated levels of both IBs and EBs compared to children with other neurodevelopmental disorders or typically developing peers (Bauminger et al., 2010; DeFilippis, 2018; Dominick et al., 2007; Siu et al., 2019), regardless of their developmental stage (Brookman-Frazee et al., 2018; Greenlee et al., 2016; Joshi et al., 2013; Mayes et al., 2012; Salazar et al., 2015). These behavioral problems often emerge early in childhood and may persist into adulthood, affecting both children's functioning and family well-being (Ayres et al., 2018; Bacherini et al., 2021; Hong et al., 2021; Kozlowski & Matson, 2012; MacDonald et al., 2007; O'Halloran et al., 2022). Their prevalence and persistence increase caregiving demands and create conditions under which parenting stress is particularly likely to develop. This issue is especially salient in the context of ASD, where the core features of the disorder often require intensive support and complex management of daily routines, exposing parents to higher baseline stress than parents of typically developing children (Baker et al., 2003; Estes et al., 2009). Understanding how behavioral difficulties and parenting stress are interconnected is therefore critical for gaining insight into both parental well-being and child developmental outcomes. In addition, examining the trajectories of IBs and EBs is essential for clarifying the mechanisms that drive them and for understanding their long-term implications for children and their families. This developmental perspective provides the conceptual foundation for investigating how behavioral change over time interacts with parenting stress and broader family dynamics.

Developmental Trajectories of Behavioral Problems in Children with ASD

Research investigating the developmental trajectories of IBs has mainly focused on anxiety and depressive symptoms. While some studies indicate an increase in anxiety symptoms from childhood to adolescence (Llanes et al., 2020; Soke et al., 2018), others show an opposite trend (Verheij et al., 2015) or no age effect (Meyer et al., 2006; White & Roberson-Nay, 2009). Regarding the evolution of depressive symptoms, studies consistently show a significant increase during adolescence, which appears to be more pronounced in adolescents with better verbal and cognitive performance (Bougeard et al., 2021; Hudson et al., 2019; Kuusikko, 2008; Mayes et al., 2012; Van Steensel et al., 2011). Due to their deficits in social interactions, adolescents with ASD may struggle to form friendships, increasing their risk of rejection, isolation, and depressive symptoms (Dahl, 2004; Greenlee et al., 2016; Mutluer et al., 2022; Pezzimenti et al., 2019; Picci et al., 2015; Whitehouse et al., 2009).

Findings regarding the developmental course of EBs are also mixed. Some studies suggest that EBs could be more prevalent in early childhood and adolescence before decreasing in adulthood, with greater improvement in children with better verbal and cognitive skills (Anderson et al., 2011; Graziosi & Perry, 2023; Hartley et al., 2008; McTiernan et al., 2011; Newcomb & Hagopian, 2018; Seltzer et al., 2004; Shattuck et al., 2007). On the contrary, other studies found no significant effect of age on the intensity of these, even after controlling verbal and cognitive performance (Kanne & Mazurek, 2011; Lecavalier et al., 2006; Park et al., 2012). For example, using a longitudinal design, Hollocks and colleagues (2023) reported stability of attention and emotional problems from childhood to adolescence in a study of 277 children assessed during childhood (4–9 years), early adolescence (11–15 years), and mid-to-late adolescence (13–17 years).

Despite these inconsistencies, most available evidence derives from cross-sectional studies that compare different age groups rather than longitudinal designs tracking the same individuals over time. This methodological limitation constrains our understanding of intra-individual developmental changes. Nevertheless, these behaviors exert significant effects on both the child's functioning and the parental wellbeing, as they disrupt daily routines, increase caregiving demands, and heighten parenting stress (Dovgan & Mazurek, 2019; Storch et al., 2013). Elucidating their developmental mechanisms and trajectories is therefore crucial for advancing early identification and informing targeted intervention strategies.

Behavioral Problems in Children Linked to Parenting Stress: Cross-Sectional Evidence

Children with ASD frequently exhibit persistent behavioral challenges that place considerable demands on their parents. When these demands exceed parents' capacity to adapt, parenting stress can emerge, potentially reducing parents' capacity to respond effectively to their child's needs, and contributing to more behavioral problems (Weiss et al., 2012). Understanding these relationships is therefore essential, as elevated stress not only affects parental functioning, but it can also exacerbate behavioral problems in children, creating a transactional cycle in which stress and behaviors mutually reinforce one another over time.

Parenting stress refers to the stress experienced by parents specifically in relation to the demands and challenges of raising a child (Holly et al., 2019; McStay et al., 2014). Abidin (1992) conceptualized this construction as three-dimensional, as reflected in the short version of the Parenting Stress Index (PSI). The first dimension, Difficult Child Behavior, assesses the child's characteristics that may make parenting more or less challenging, capturing how these traits influence parents' perception of the difficulty involved in carrying out educational tasks. The second dimension, Parent–Child Dysfunctional Interaction, reflects parents' frustration or dissatisfaction with the quality of their interactions with the child, for instance when relational expectations are unmet. The third dimension, Parental Distress, refers to parents' own emotional discomfort or sense of being overwhelmed by parenting demands.

Although sometimes conflated in the literature, "parenting stress" is a specific dimension of the broader concept of "parental stress", which encompasses all sources of stress experienced by parents, including contextual and extrafamilial pressures such as financial strain or social isolation (Coulacoglou & Saklofske, 2017; Iadarola et al., 2019). While parenting stress is directly linked to the child and the caregiving role, parental stress reflects the overall strain of being a parent. Thus, to examine the specific associations between behavioral problems in children and parenting stress, we used parenting stress as a keyword in the article selection process to allow for the capture of all three constituent dimensions.

Previous research has consistently shown positive associations between children's IBs, EBs, and Parenting Stress (PS) in ASD populations (Giovagnoli et al., 2015; Guralnick, 2011; Olson et al., 2022; Vasilopoulou & Nisbet, 2016). EBs appear most strongly linked, likely because their overt and disruptive nature poses challenges for parents (Huang et al., 2014; Mello et al., 2022). However, IBs can also contribute to PS by affecting parent–child interactions. For example, anxiety symptoms may lead to social withdrawal, reduced

engagement, and heightened parental concern (Ding et al., 2021). Together, these findings stress the need to differentiate behavioral subtypes when examining their respective contributions to the dimensions of PS. They also highlight the importance of shifting from cross-sectional work toward longitudinal approaches to better understand how these associations unfold and potentially intensify over time (Woodman et al., 2015).

Longitudinal Dynamics and Transactional Effects

Some longitudinal studies have sought to clarify the transactional dynamics between PS and child behaviors among children with ASD. Lecavalier and colleagues (2006) investigated the transactional relationships between behavioral problems in children aged 3 to 18 and PS over a 12-month period. Their findings indicated that initial levels of PS predicted the severity of child behaviors one year later, and vice versa. Jiang and colleagues (2021) examined the relationships between behavioral problems in 888 children and maternal stress when the child was 3, 5, 9, and 15 years of age. The results revealed both child-driven and parent-driven effects in early childhood (ages 3–5), while from ages 5 to 15, only a cross lagged-effect from the child's behavioral problems to subsequent maternal stress was found. Lastly, de Maat and colleagues (2021) reported a cross-lagged effect whereby maternal stress at age 13 predicted child's EBs at age 18, but not the reverse.

These findings consistent with transactional models, which offer a comprehensive framework for understanding of the bidirectional and dynamic exchanges between children and their social environment, especially parents (Sameroff & Chandler, 1975). Children are viewed as then conceptualized as both agents and outcomes of their context: they influence their environment while simultaneously being shaped by it (Sameroff, 2009). From this perspective, behavioral problems in children may elicit specific cognitive, emotional, and behavioral responses from parents which, in turn, can modify the caregiving and educational environment. Such environmental changes may subsequently impact the quality of parent-child interactions, a critical determinant of children's socio-emotional and behavioral development (Pallini et al., 2018; Stormshak et al., 2002).

While interesting, most studies examining the transactional associations between behavioral problems in children and PS in the context of ASD have primarily focused on mother-child dyads, potentially due to societal norms that still view mothers as the primary caregivers (Grebe et al., 2022; Lashewicz et al., 2019; Negraia et al., 2019; Phares et al., 1992). Yet, some studies have shown that fathers may experience and

respond to PS in different ways, emphasizing the need to pay closer attention to paternal experiences (Kayfitz et al., 2010; Tehee et al., 2009).

Gender Differences in PS Levels

The few studies examining the experiences of both mothers and fathers of children with ASD report mixed findings, with some indicating significant differences in PS levels (Rivard et al., 2014; Soltanifar et al., 2015), while others find no such gender effect (Harper et al., 2013; Hastings et al., 2005a; Ozturk et al., 2014). These differences may partly reflect variations in caregiving roles, which can differ between couples. In families of children with ASD, mothers typically spend more time on daily caregiving tasks, including personal care, feeding, and monitoring their child's routines, whereas fathers often dedicate more time to economic provision (García-López et al., 2016; Herrero et al., 2024; McDonnell et al., 2019). Consequently, mothers' PS is often directly influenced by their child's regulatory challenges, such as difficulties with sleeping, eating, emotional regulation, and social interactions. Fathers, on the other hand, may experience PS in response to the severity of behavioral problems in children, such as aggression or defiance (Allen et al., 2013; Tomanik et al., 2004). Since they spend less time in daily caregiving routines, they may have fewer opportunities to build strategies for behavior management, which can make confronting EBs more difficult (Falk et al., 2014).

Although differences in parental roles within families can be inferred, much research continues to examine mothers and fathers independently, rather than recognizing them as interdependent units encompassed within the broader family system (McCubbin & Patterson, 1983; Minuchin, 1984). This approach limits the ability to capture the family as a cohesive system, in which the emotions and behaviors of one can directly influence those of others, thereby affecting overall family well-being (Cox & Paley, 1997). In families of children with ASD, PS experienced by one parent can have significant crossover effects, spilling over to affect the other parent (Sim et al., 2017). For instance, Hartley and colleagues (2018) found a bidirectional association between daily PS and marital tension, highlighting the mutual emotional influence between partners. These findings highlight the importance of including fathers in research, as understanding the reciprocal dynamics between parents is essential for capturing how family interactions shape parental well-being and, ultimately, child outcomes.

Building on this systemic perspective, acknowledging the reciprocal influence between children's behavioral problems and PS emphasizes the importance of interventions that simultaneously support both children and parents, to ensure adaptive functioning and overall well-being within the entire family system.

Reducing Behavioral Problems in Children and PS Through Interventions

A wide range of interventions has been developed to reduce behavioral problems in children and alleviate PS in families of children with ASD. However, these interventions differ according to their primary aim, with some targeting the child only, others the parents, and ones emphasizing the family by centering on parent–child interactions.

Child-centered interventions primarily aim to enhance the child's behavioral, social, and adaptive skills. They are grounded in behavioral and developmental frameworks, such as Applied Behavior Analysis (Lovaas, 1987), the Early Start Denver Model (Dawson et al., 2010), or social skills training (Laugeson et al., 2009) and focus on reducing challenging behaviors while promoting communication and daily living skills (Estes et al., 2015; Rogers & Dawson, 2010). The emphasis is on direct work with the child through structured learning opportunities. However, these approaches often pay less attention to the parent, making it more difficult to study parental outcomes (Blackledge & Hayes, 2006). In contrast, parent-focused interventions aim to strengthen parental competencies, coping strategies, and emotional regulation, with the premise that improving parental skills can also benefit the child. Typical approaches include structured parent training, psychoeducational programs, cognitive-behavioral therapy, mindfulness-based stress reduction, and behaviorally oriented programs (Frantz et al., 2018). Although these interventions operate through different mechanisms, their shared objective is to better equip parents to respond to their child's needs, potentially influencing child functioning (Iida et al., 2018; Tarver et al., 2019). Finally, interaction-focused interventions, such as Parent–Child Interaction Therapy, train parents to respond consistently and appropriately to their child's behaviors, targeting both disruptive and prosocial behaviors. These programs use the parent–child relationship as the primary mechanism for change, helping parents to reinforce adaptive behaviors, manage challenging situations effectively, and promote meaningful daily interactions (Mahoney & Perales, 2003; Eyberg, 1988).

Considering these different types of interventions and their respective aims is essential for identifying which strategies most effectively address both behavioral problems in children and PS in the context of ASD.

Such comparisons can inform the development of more tailored interventions that maximize benefits for all family members and support overall family functioning.

The Current Study

The literature highlights the complex interplay between children's behavioral problems and PS in families of children with ASD. Despite considerable research, key gaps remain which concern the longitudinal trajectories of these behaviors, the transactional dynamics between children and parents, gender-related differences in PS, and the differential effects of intervention types on both children and parents. To address these gaps, the present systematic review aims to:

1. Characterize the developmental trajectories of behavioral problems in children with ASD, to offer a comprehensive understanding of how these difficulties evolve across childhood and adolescence, integrating longitudinal evidence from diverse age groups.

2. Examine cross-sectional links between children's behavioral problems and dimensions of PS, identifying which behavioral subtypes (e.g. internalizing vs. externalizing) are most strongly associated with specific dimensions of PS (i.e. Difficult Child Behavior, Parent-Child Dysfunctional Interaction, and Parental Distress).

3. Investigate longitudinal associations between children's behavioral problems and PS, to explore the directionality and transactional mechanisms over time, thereby offering a dynamic perspective on parent–child interactions.

4. Explore gender differences in the experience of PS by comparing mothers and fathers (both within the same dyads and across separate samples) to allow for a more nuanced analysis of how PS manifests and interacts within and between families.

5. Evaluating the effectiveness of intervention programs targeting children's behavioral problems and PS within an ASD context (i.e. parent centered, child centered, or parent-child interaction centered).

Method

This systematic review is registered in the PROSPERO database (**CRD42024524871**). The Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocol (PRISMA-P) and PRISMA guidelines were followed to conduct this review (Moher et al., 2009; Moher et al., 2015; Page et al., 2021).

Eligibility Criteria

The screening process was conducted by two of the co-authors of this review who assessed all papers for eligibility. Exclusion reasons were independently coded by each reviewer, and when multiple reasons for exclusion applied to a single study, all relevant codes were reported to ensure transparency (see Table 1). Any disagreement was resolved through consultation with a third independent reviewer.

Studies were included if they involved children or adolescents formally diagnosed with ASD through standardized diagnostic criteria, clinical evaluation, or validated assessment tools. Studies with mixed populations were eligible only if ASD-specific data were reported separately, while studies including children or adolescents only with autistic traits (without a formal diagnosis) were excluded. Eligible studies were required to assess both PS and internalizing and/or externalizing behaviors using self-report or parent-report questionnaires, observational measures, or physiological assessments. Some studies were identified as using the term parenting stress, but the instruments they employed primarily assessed broader parental stress. Although such studies may not have captured all dimensions of parenting stress, they were retained in the database, as parenting stress constitutes a subset of parental stress and can be assumed to be represented in these studies. Both mothers and fathers could be included in the studies, either individually (i.e., only mothers or only fathers) or together as parent dyads. Only quantitative studies (cross-sectional, longitudinal, or cohort) published in English in peer-reviewed journals were included. Excluded studies comprised case reports, qualitative studies, editorials, opinion papers, non-published dissertations, or studies failing to report at least one of the required outcomes.

Search Strategy

Eligible papers were selected from four online databases: PubMed, ProQuest, Scopus, and Wiley on October 29th 2025, using the following keywords: ("Autism" OR "Autism disorder" OR "Autism Spectrum Disorder" OR "ASD" OR "Autistic" OR "Autistic disorder" OR "Pervasive developmental disorders" OR "Asperger"

OR "Asperger syndrome") AND ("Parenting stress") AND ("Externalizing behaviors" OR "Internalizing behaviors" OR "Behavioral problems") AND ("Parents" OR "Parent" OR "Mothers" OR "Mother" OR "Fathers" OR "Father" OR "Children" OR "Child" OR "Adolescents" OR "Adolescent"). Although the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) incorporated the diagnoses of Autistic Disorder, Asperger syndrome, and Pervasive developmental disorder into a broader category known as Autism Spectrum Disorder (ASD) (American Psychiatric Association 2013), no deadline was set for the selection of papers. Thus, to be as inclusive as possible, these different keywords were included in the different databases.

Procedure For Screening

The screening process was conducted by two independent reviewers who assessed all papers for eligibility. All papers were downloaded from the databases and put into one spreadsheet with the following information: source, title, authors, year of publication, keywords, DOI, and the link to the full paper. The process was divided into three parts: (1) removing duplicates, (2) screening title and abstract, and (3) screening full text.

Quality Assessment

A critical evaluation of the methodological quality of each included study was performed using the short version of the Appraisal Tool for Cross-Sectional Studies (AXIS; Downes et al., 2016; Sacolo et al., 2018). This tool was chosen to provide a homogeneous and consistent assessment across studies, regardless of whether they employed cross-sectional or longitudinal designs. Although originally developed for cross-sectional studies, AXIS includes items addressing study design rigor, measurement validity, sample selection, and general bias management (Downes et al., 2016). Furthermore, the literature indicates that quality assessment tools for observational studies are frequently applied across various study designs due to the lack of consensus on a single universally applicable instrument (Mueller et al., 2018). Employing a single tool also simplified the evaluation process, ensured comparability across studies, and minimized potential bias that could arise from using multiple different appraisal instruments. The AXIS (short version) consists of 10 items assessing the quality and risk of bias in studies focusing on the aims, methodology, results, discussion and other aspects of the study (e.g., study limitations and ethical considerations). Items and scoring can be found in Table 1. Each item was rated as 1 if the criteria fit and 0 if it did not. Scores ranged from 0 to 10, with higher scores indicating a higher quality and lower risk of bias.

The quality of the studies included was independently assessed by two co-authors of this review. Each reviewer conducted the appraisal separately to ensure objectivity and reduce potential bias. Following their independent evaluations, the reviewers compared their ratings and reached complete agreement (ICC = 1) on all items and overall quality scores, demonstrating excellent consistency and a shared understanding of the assessment criteria. All papers scored between 8 and 10, indicating a high quality, except for one paper (score of 7), indicating moderate quality.

[Insert Table 1 here]

Results

Search Results

The initial search yielded a total of 2141 papers which were exported to Zotero. Of these, 121 were duplicates and were excluded from the database. Of the remaining 2020 papers, 1913 were excluded as they did not meet our inclusion criteria. A full-text check was carried out on 107 papers, allowing 88 to be included in this review. More information and details on the exclusion criteria can be found in the following flowchart (Figure 1).

[Insert Figure 1 here]

Overview of Study Characteristics

A total of 88 studies were included in this review. Table 2 provides an overview of the main characteristics of the studies included.

[Insert Table 2 here]

Most of the studies were conducted in the United States (US) (*n*=30, 34%), Italy (*n*=11, 12.5%), and China (*n*=10, 18%). Other studies were conducted in Australia (*n*=8, 9.1%), the United Kingdom (*n*=5, 5.7%), Taiwan (*n*=4, 4.5%), Israel (*n*=3, 3.4%), Spain (*n*=2, 2.3%), Korea (*n*=2, 2.3%), Finland (n=2, 2.3%), Belgium (*n*=1, 1.1%), Greece (*n*=1, 1.1%), Jordan (n=1, 1.1%), Romania (*n*=1, 1.1%), the Netherlands (*n*=1, 1.1%), and Singapore (*n*=1, 1.1%). Furthermore, a few studies employed a cross-cultural design, comparing participants from multiple countries. Bauminger and colleagues (2010) included samples from the US and Israel, Mazzoni and colleagues (2023) focused on the US, Italy, and Spain, and Porter and colleagues (2025) examined

participants from the US and Japan. Only one paper did not specify in which country the study was carried out (Singh et al., 2021).

Regarding the design, most studies (*n*=63, 71.5%) were cross-sectional. The 25 (28.4%) remaining studies employed a longitudinal approach to investigate the effect of age on the evolution of behavioral problems or the transactional relationships between behavioral problems and PS. Among these, 13 studies tested the effectiveness of different intervention programs.

Sample Characteristics

Thirty-one (34.9%) studies focused exclusively on mothers, while 57 studies (64.8%) included both mothers and fathers. Among these, less than half (*n*=24, 42.1%) paired mothers and fathers from the same coparental dyad. A small proportion (*n*=10, 11.4%) explored gender differences in PS levels, either by comparing mothers and fathers from the same coparental dyad (Brian et al., 2021; Craig et al., 2016; Davis & Carter, 2008; Greenlee et al., 2023; Operto et al., 2021b; Rodriguez et al., 2019; Strauss et al., 2024), or from independent samples (Doo & Wing, 2006; Efstratopoulou et al., 2022; Samadi & Rashid, 2024). More than half of the studies (*n*=60, 68.1%) focused exclusively on children and adolescents with ASD, while the remaining 28 compared ASD with typical development (*n*=11, 12.5%), other diagnoses (*n*=12, 13.6%), or both conditions (*n*=5, 5.7%). Concerning the children's age, 10 (11.4%) studies only mentioned the average age of the children.

Fifty-nine (67%) studies focused on children aged 12 or under, 24 (27%) studies included children aged 18 or under, and four studies (4.5%) included children aged up to 19 years (Samadi et al., 2024), from 2 to 19 (Siracusano et al., 2021), 4 to 20 (Siegel et al., 2015), and 12 to 21 years old (Weiss et al., 2015). Kurtz and colleagues (2021) also considered some adults in their sample (up to the age of 38), although 90% of participants were under 18 years of age. Given the small proportion of participants over the age of 18 in these studies, they were all included in the present review.

Assessment Methods for Children's IBs and EBs

The Child Behavior Checklist (CBCL) was most used to assess both children's IBs and EBs (*n*= 34, 38.6%) followed by the Strengths and Difficulties Questionnaire (SDQ) (*n*=13, 14.8%) and the Aberrant Behavior Checklist (ABC) (*n*= 11, 12.5%). Seven studies (8%) used the Eyberg Child Behavior Inventory, which only assesses children's EBs, and 5 studies (5.7%) focused on children's sleep problems by using the Children's Sleep

Habits Questionnaire (CSHQ). Many other questionnaires (*n*=28) listed in Table 2 were used only once or twice among the 76 included studies. Chen and colleagues (2020) used a self-designed questionnaire where parents answered 6 questions about their child's behaviors during the Covid-19 pandemic on a Likert scale. A confirmatory factor analysis of the questionnaire confirmed its validity, revealing two main factors: regulatory problems and externalizing problems. Two studies used direct observation to assess only children's EBs, either by using videotapes in different everyday contexts (e.g. homework, play time) (Mueller & Moskowitz, 2020) or under experimental conditions (e.g. play, attention condition) (Kurtz et al., 2021). Finally, the study by Singh and colleagues (2021) collected data using an app that asked mothers to rate their child's behaviors on a daily basis after identifying their idiosyncratic behaviors individually.

Assessment Methods for PS

The Parenting Stress Index (PSI) was most used to assess PS (*n*=71, 80.7%). It is divided into 3 main factors which are combined to yield a total parenting stress score: Child Difficult Behavior (e.g. *"My child demands more from me than most children do*"), Parent-Child Dysfunctional Interaction (e.g. *"When I do something for my child, I have the feeling that my efforts are not appreciated*"), and Parental Distress (e.g. *"I often feel that I cannot handle situations very well"*). Over half of the studies (*n*=51, 56.8%) used its shorter version, which contains 36 items. One study used the Korean version of the scale (Jung et al., 2023). Six studies (6.8%) used the Parental Stress Scale, and the remaining 12 studies used the Burden Interview (*n*=2), the Questionnaire on Resources and Stress - Short form (*n*=2), the Autism Parenting Stress Index (*n*=3), the Family Impact Questionnaire (*n*=2), the Nijmegen Parental Stress Index - Short (*n*=1) and the Opvoedingsbelasting vragenlijst (*n*=1).

Developmental Trajectories of Behavioral Problems in Children with ASD

We identified 11 studies (12.5%) that addressed our first objective, which aimed to determine the developmental trajectories of IBs and EBs in ASD children. However, only 4 of these examined potential changes over time using a longitudinal design. The remaining 7 studies compared children of different ages using a cross-sectional design.

Regarding cross-sectional studies, certain studies (*n*=3) found a positive correlation between the children's age and the intensity of both IBs and EBs (Clauser et al., 2021; Gong et al., 2015; Serur et al., 2023).

The samples included children of varying ages, ranging from 3 to 18 years (Clauser et al., 2021), from 2 to 12 years (Gong et al., 2015), and from 3 to 8 years (Serur et al., 2023). Comparing a group of children under 4 years old with one over 4, Esposito et al. (2024) found that older children displayed more oppositional behaviors.

The findings of Stephenson and colleagues (2023) contrast with previous results, as they reported no association between the children's age and the intensity of EBs in a sample of children aged 3 to 13. Interestingly, they observed a negative relationship between age and the intensity of IBs, which is consistent with the findings of Doo and Wing (2006). Finally, Operto and colleagues (2021a) compared children under the age of 6 with those over 6 and found no significant differences in the intensity of either IBs or EBs.

Using two 9-to-10-month longitudinal studies, Osborne and Reed (2009) showed a significant reduction in certain subtypes of EBs, including ADHD symptoms and oppositional behaviors. The first study focused on very young children aged 2:6 to 4:0 years, while the second examined school-aged children and adolescents aged 5:0 to 16:0 years. These findings are globally consistent with Gruescu and colleagues (2023), who reported a reduction in different subtypes of IBs (i.e., emotional response problems, anxiety, depression, and somatic complaints) and EBs (i.e., aggressive behaviors, ADHD, and Oppositional-Defiant Disorders) over a three-year period, with the mean age at Time 1 being 3:4 years. However, this study also showed a stabilization of other behaviors, such as social withdrawal, attention problems, and pervasive disorders. Two additional studies (Postorino et al., 2015; Rodriguez et al., 2019) similarly reported a stabilization of both IBs and EBs over two years for children aged 2:0 to 5:4 at Time 1 (Postorino et al., 2015) and over three years for children aged 2:0 to 5:4 at Time 1 (Rodriguez et al., 2019).

Behavioral Problems in Children Linked to Parenting Stress: Cross-Sectional Evidence

Our second objective was to identify the behavioral problems most associated with PS. We found 60 studies (68.1%) addressing this question, with half (*n*=30) using correlations, and 30 using regression analyses.

Correlational studies found that higher total scores for children's IBs and EBs were positively associated with PS levels, regardless of the age group considered (Greenlee et al., 2023; Koller et al., 2022; Madarevic et al., 2022; Miranda et al., 2019; Operto et al., 2021a; Reed & Osborne, 2013; Roselló et al., 2022; Siracusano et al., 2021; Stephenson et al., 2023; Strauss et al., 2024; Ten Hoopen et al., 2022; Wang et al.,

2013). All subtypes of EBs (i.e., ADHD, aggression, impulsiveness, difficulties with frustration tolerance, irritability, and conduct problems), and IBs (related to anxiety, depression, inappropriate social behavior, social withdrawal, somatic complains, and emotional and thought problems) were positively associated with PS (Doo & Wing, 2006; Efstratopoulou et al., 2022; Esposito et al., 2024; Gharaibeh et al., 2025; Jung et al., 2023; Levin et al., 2016; Olson et al., 2022; Ooi et al., 2016; Palmer et al., 2023; Papadopoulos et al., 2021; Samadi & Rashid, 2024; Scibelli et al., 2021; Weiss et al., 2015). When considering the PSI dimensions, four studies found that IBs and EBs were significantly correlated with the domains of Child Difficult Behavior and Parent-Child Dysfunctional Interaction (Huang et al., 2014; Operto et al., 2021b; Operto et al., 2022; Porter et al., 2025). These associations were notably stronger in the Parent-Child Dysfunctional Interaction domains for IBs, and in the Child Difficult Behavior domain for EBs. However, concerning the Parental Distress domain, only Zaidman-Zait and colleagues (2011) found evidence of small associations with both IBs and EBs.

Most of the regression studies (*n*=21) showed a predominant effect of children's behavioral problems on PS (Blacher et al., 2019; Brobst et al., 2009; Chen et al., 2020; Chen et al., 2023; Demirpençe Seçinti et al., 2024; Dilbaz-Gürsoy et al., 2025; Gong et al., 2015; Hou et al., 2018; Manning et al., 2011; Martin et al., 2021; Mazzoni et al., 2023). More specifically, PS was particularly elevated in relation to children’s anxiety, depressive symptoms, emotional problems, as well as somatic complaints, social withdrawal, oppositional defiant behavior, aggression, and irritability (Buchwald et al., 2025; Choi et al., 2023; Cochrane et al., 2023; Craig et al., 2016; Davis et al., 2017, Postorino et al., 2019). Siu and colleagues (2019) found that children's hyperactivity and emotional problems were significantly associated with total PS in mothers. Moreover, one study comparing parents within the same coparental dyad found that maternal stress was more strongly influenced by children’s social interaction difficulties and dysregulation, while paternal stress was primarily linked to children’s EBs (Davis & Carter, 2008). Finally, two studies analyzed the effects of sleep disorders in children on PS. Hoffman and colleagues (2008) found that sleep disorders in children were strongly associated with PS, while considering the severity of autism, the child's age, gender, and maternal sleep quality. Tang and colleagues (2025) found that insomnia and sleep disorders in children were positively associated with a moderate to high risk of stress in parents.

Conversely, the remaining studies (*n*=9) found a predominant effect of PS on children’s IBs and EBs (Bauminger et al., 2010; Chen et al., 2021; Cheung et al., 2019; Clauser et al., 2021; Hou et al., 2023; Long et

al., 2024; Serur et al., 2023; Suvarna et al., 2025a; Ueda et al., 2020). Among these studies, Chen et al. (2021) was the only one to analyze specific subtypes of IBs and EBs, showing that PS has a strong effect on certain IBs (psychosomatic problems and anxiety) and EBs (conduct problems, impulsiveness, and hyperactivity).

Longitudinal Dynamics and Transactional Effects

Our third aim was to analyze long-term associations between children's behavioral problems and PS over time, focusing on the direction of these effects. In our sample, 10 studies (11.4%) examined transactional relationships between children's behavioral problems and PS. More than half (*n*=6) provided evidence of transactional relationships between the two variables (Green & Carter, 2014; Lin et al., 2021; O'Connor et al., 2023; Osborne & Reed, 2009; Rodriguez et al., 2019; Zaidman-Zait et al., 2014), while the others (*n*=4) did not find cross-lagged effects (Paynter et al., 2025; Postorino et al., 2015; Roubinov et al., 2023; Zaidman-Zait et al., 2017). Notably, Paynter and colleagues (2025) and Postorino and colleagues (2015) found that, although no cross-lagged effects were observed, PS and behavioral problems in children remained consistently high across all measurement points.

Osborne and Reed (2009) found a cross-lagged effect from PS to later children's behavioral problems in their two studies of very young children and school-aged children and adolescents. Consistent with these findings, Lin and colleagues (2021) also showed a cross-lagged effect from PS to children's IBs and EBs in very young children (aged 18 months to 3 years) over an 18-month period.

Beyond the influence of PS on subsequent children's behavioral problems, Zaidman-Zait and colleagues (2014) also found a cross-lagged effect from children's IBs and EBs to PS over a four-year period. Similarly, Green and Carter (2014) reported that children's behaviors at Time 1 predicted changes in PS at Time 3 across a three-year period. Rodriguez and colleagues (2019) observed a bidirectional effect between early children's EBs and PS over three years, whereas only a parent-driven effect was found for children's IBs. Finally, O'Connor and colleagues (2023) found modest evidence of transactional associations between children's IBs and PS over a one-year period, with both parent-driven and child-driven effects, and also identified a parent-driven effect from PS to children's EBs.

Gender Differences in PS Levels

Our fourth objective was to investigate potential gender differences in PS levels. A small proportion (*n*=10, 11.4%) explored gender differences in PS levels, either by comparing mothers and fathers from the same coparental dyad (Brian et al., 2021; Craig et al., 2016; Davis & Carter, 2008; Greenlee et al., 2023; Operto et al., 2021b; Rodriguez et al., 2019; Strauss et al., 2024), or from independent samples (Doo & Wing, 2006; Efstratopoulou et al., 2022; Samadi & Rashid, 2024).

Only 10 studies were identified as addressing this objective, with seven collecting data from matched parents (i.e. from the same coparental dyad), and three from independent parental samples. Three studies on coparental dyads showed no gender-related statistical effect on PS across all PSI domains (Brian et al., 2021; Craig et al., 2016; Samadi & Rashid, 2024). In contrast, other studies (*n*=4) highlighted significant gender differences in PS levels, with mothers experiencing higher PS at a single point (Brobst et al., 2009; Davis & Carter, 2008; Operto et al., 2021b) or across longitudinal assessments (Rodriguez et al., 2019). Among these studies, Brobst and colleagues (2009) found that mothers perceived their children as more difficult than fathers did, whereas Davis and Carter (2008) reported that mothers scored significantly higher than fathers on the Parental Distress and Difficult Child domains of the PSI. In contrast, Greenlee and colleagues (2023) reported opposing findings, suggesting that fathers experience approximately twice as much parenting-related stress as mothers. The studies comparing mothers and fathers from independent samples found no gender differences across all PSI subscales (Doo & Wing, 2006; Efstratopoulou et al., 2022).

Reducing Behavioral Problems in Children and PS Through Interventions

Several included studies (*n*=10) showed that parents of children with ASD experience higher PS levels than those of children with other neurodevelopmental disorders, often due to the additional burden of behavioral problems (Bauminger et al., 2010; Craig et al., 2016; Griffith et al., 2010; Hou et al., 2018; Jung et al., 2023; Olson et al., 2022; Operto et al., 2021b; Siu et al., 2019; Ueda et al., 2020; Zlomke et al., 2019). To reduce the intensity of these behaviors and decrease PS in daily life, 13 studies (14.8%) tested the effectiveness of different intervention programs (Allen et al., 2023; Brian et al., 2021; D'Elia et al., 2014; Kuravackel et al., 2018; Kurtz et al., 2021; Lecavalier et al., 2018; Mueller et al., 2020; Ni et al., 2025; Parladé et al., 2020; Ros-DeMarize et al., 2025; Singh et al., 2020; Suvarna et al., 2025b; Valeri et al., 2020). In line with our final

objective, we examined the effects of these different intervention programs to identify those most effective at reducing children's behavioral problems and alleviating PS.

Three studies tested the effectiveness of "Parent-Child Interaction Therapy" in improving the quality of parent-child interactions. They demonstrated a significant reduction in children's EBs and PS from pre- to- post-treatment, with large to very large effect sizes (Allen et al., 2023; Parladé et al., 2020; Ros-DeMarize et al., 2025). Furthermore, Brian and colleagues (2021) focused on the "Stepping Stones Triple P" program, showing a significant improvement in children's hyperactivity/attentional problems and prosocial behaviors, with small effect sizes. Parents also reported lower PS levels, with medium effect sizes. Finally, Kuravackel and colleagues (2018) reported that the "Model for Promoting Competence and Success for Hope" produced moderate effects on PS and strong effects on reducing children's behavioral problems compared to the control group.

Five studies used parent training through various intervention programs aimed at enhancing positive parenting, behavioral support and competences. Among these, D'Elia and colleagues (2014) used the "Treatment and Education of Autistic and Communication Handicapped Children" program, Mueller and colleagues (2020) used "Positive Family Intervention", and Valeri and colleagues (2020) focused on "Cooperative Parent-Mediated Therapy". All these studies demonstrated improvements in children's behavioral problems and perceived PS, with greater effects on the quality of parent-child interactions (D'Elia et al., 2014; Valeri et al., 2020). More recently, Suvarna and colleagues (2025b) tested a new intervention program (The Two Hearts Mindful Parenting Program) and found preliminary improvements in both PS ($r = -.64$) and children's EBs ($r = -.58$), reflecting large effect sizes. In the same vein, Ni et al. (2025) evaluated an Acceptance and Commitment Therapy-based parenting approach and reported significant decreases in both PS ($U = 303.00$, $p = .006$) and children's EBs ($U = 302.50$, $p = .006$) among parents receiving the intervention.

The remaining studies (n=3) implemented interventions focused on children's EBs, either, combining medication with parent training (Lecavalier et al., 2018), using outpatient/inpatient treatment for resistant behavioral problems (Kurtz et al., 2021), or applying a mindfulness-based procedure (Singh et al., 2020). Using a combined effect of atomoxetine and parent training, Lecavalier and colleagues (2018) found a significant decrease in children's ADHD, behavioral non-compliance, irritability, and social withdrawal. A reduction in PS levels was also observed, although the effects were small, and no significant difference was found compared to the placebo group. Kurtz and colleagues (2021) showed an improvement in behavioral problems between

admission to discharge from hospital, with greater effects in children whose problematic behaviors were linked to attention-related functions. The same result was observed for PS, which had significantly decreased at discharge. However, improvements in PS levels were modest, with small effect sizes. Finally, Singh and colleagues (2020) specifically targeted adolescents' physical aggression using a mindfulness-based approach. The results demonstrated a marked reduction in aggressive behaviors, from 14–20 incidents per week at baseline to 4–6 per week during the mindfulness training, with no incidents reported during the last four weeks of the intervention.

To conclude this section, a synthesis of the studies is presented below (see Table 3), showing which studies addressed each of the five research objectives. Table 3 also summarizes the main findings obtained for each objective.

[Insert Table 3 here]

Discussion

This review was conducted to synthesize the existing literature on the associations between IBs, EBs, and PS in families of children with ASD. We first examined how children's behavioral problems evolve with age in the context of ASD. We then analyzed both cross-sectional and longitudinal associations between these behavioral problems and PS. In addition, we compared the experiences of mothers and fathers to identify potential gender differences in PS. Finally, we evaluated the effectiveness of intervention programs, the objective of which was to reduce both behavioral problems in children and PS. Below, we present the main findings organized by research objective, and outline perspectives for future research in this field.

Developmental Trajectories of Behavioral Problems in Children with ASD

Our first objective was to investigate the developmental trajectory of both IBs and EBs in ASD populations, considering cross-sectional and longitudinal studies. The results differed across study designs, revealing inconsistencies in the relationship between age and the severity of behavioral problems.

Approximately half of the cross-sectional studies have reported either a negative correlation between children's age and behavioral problems or no significant relationship. In contrast, the remaining studies have identified a positive correlation between age and both IBs and EBs, indicating greater intensity of problems

among older children. These inconsistencies likely stem from both the limitations of cross-sectional designs and variations in individual child characteristics. Indeed, cross-sectional studies compare different age groups at a single point in time, limiting their ability to capture age-related longitudinal changes. Moreover, differences in clinical profiles, such as ASD severity or cognitive functioning, may influence behavioral outcomes, suggesting that the observed effects may reflect sample composition rather than true developmental patterns. Some studies suggest that children with severe levels of ASD impairments exhibit more behavioral problems than those with mild or moderate symptoms (Hill et al., 2014; Jang et al., 2011; Matson et al., 2014). Similarly, children with lower cognitive performance are likely to exhibit more EBs and fewer IBs (Anderson et al., 2011; Bougeard et al., 2021; DeFilippis, 2018; Estes et al., 2007). Therefore, the diversity of children's characteristics across studies may complicate the establishment of a consensus on these findings. In addition, only one study included adolescents in its sample, limiting our ability to obtain a comprehensive overview of the intensity of IBs and EBs across all developmental stages. This emphasizes the need to account for age-related diversity when examining the evolution of behavioral problems associated with ASD (Dahl, 2004; Picci et al., 2015).

Interestingly, longitudinal studies showed a reduction or a stabilization of behavioral problems over time. It is possible that the implementation of intervention programs might have contributed to the alleviation of certain subtypes of behavioral problems or at least prevented their worsening over time. However, we lack available details on any potential follow-up, which hinders our ability to assess the existence and effectiveness of these interventions. Beyond the potential effects of interventions, the evolution of behavioral problems may be explained by the maturation of executive functions (involving working memory, inhibitory control, and cognitive flexibility), which are closely linked to emotional and behavioral regulation in youth (Frazier et al., 2022; Vogan et al., 2018). Several studies have shown positive correlations between executive functions development and age in children with ASD, suggesting that improvements in these skills may enable better control of impulses and emotional responses, thereby reducing the intensity of behavioral problems (Rosenthal et al., 2013; Van Den Bergh et al., 2014; Yeung & Chan, 2020). Although this mechanism was not directly studied in this review, it would be relevant for future research to include measures of executive functions to better understand longitudinal changes in children's behaviors. Finally, it is also possible that parents' development of adaptive management strategies contributed to a gradual reduction in both children's

behavioral intensity and PS over time. Research has clearly demonstrated that parents' cognitive, emotional, and behavioral responses significantly influence the emotional and behavioral development of their children (Chang et al., 2003; Stack et al., 2010). By closely monitoring their child's needs and responding appropriately, parents facilitate the development of self-regulation, thereby enabling children to manage their emotions and behaviors more effectively in unexpected or challenging situations (Zaidman-Zait et al., 2014).

Despite this, these arguments may be nuanced by the fact that repeated assessments were based solely on parents' questionnaires, which likely introduced subjectivity in evaluating their child's behaviors (Adams et al., 2023). Therefore, we might also hypothesize that parents became "accustomed" to their child's behaviors, which may lead to a less critical or less accurate perception of the actual changes (Bennett et al., 2012). To address this methodological limitation, incorporating more objective measurements would allow for a comparison of the two types of assessments and provide a more certain confirmation of any changes.

Behavioral Problems in Children Linked to Parenting Stress: Cross-Sectional Evidence

Studies consistently reported positive associations between children's IBs, EBs and PS, whether examined through correlational or regression analyses. EBs were generally more strongly linked to PS, likely due to their visibility, which makes them more noticeable and potentially problematic for parents, as they can lead to public embarrassment and disrupt daily routines. In contrast, IBs, which reflect internal psychological states, are less apparent, easier to manage, and less likely to elicit overt reactions from parents (Leyfer et al., 2006; Stewart et al., 2006).

Interestingly, most studies used the PSI to assess PS, and found distinct associations between PSI scales (Difficult Child Behavior, Parent-Child Dysfunctional Interaction and Parental Distress) and children's behavioral problems. The first scale, Difficult Child Behavior, was more strongly and positively associated with children's EBs than with IBs. This stronger association likely reflects the greater visibility and disruptive nature of EBs, which can interfere with daily routines and require increased disciplinary effort (Vaughan et al., 2013). Consequently, parents may perceive themselves as less capable of managing these behaviors effectively, experiencing a sense of ineffectiveness. Since this subscale specifically captures parents' perceived difficulty in handling challenging behaviors, it reflects the increased stress associated with managing EBs, explaining the stronger association observed. The second scale, Parent-Child Dysfunctional Interaction, was more strongly associated with children's IBs. One possible explanation is that children displaying IBs may be more emotionally

withdrawn, leading to reduced engagement in interactions with their parents. As a result, parents may interpret this withdrawal as indicative of low-quality exchanges. In the long term, the lack of parent-child interactions can hinder the child's socio-emotional development, reinforce emotional insecurity and impair social skills (Luecken et al., 2013; Wu & Lee, 2020). Finally, the third scale, Parental Distress, showed inconsistent associations with children's behavioral problems across studies. This may be partly because the Parental Distress subscale focuses exclusively on parents' personal discomfort in the parenting role, without directly assessing the child's related difficulties. In contrast, the other two subscales include items that reflect the child's behavior, which may create an overlap and result in stronger associations with behavioral problems. Another factor which may have contributed to this variability is children's age and timing of diagnosis. Parental distress is often higher in parents of young children or those recently diagnosed, as the first symptoms can challenge parents' sense of competence and ability to adapt (Osborne & Reed, 2009). Over time, parents generally learn to cope and adapt, increasing resilience and reducing distress (Barker et al., 2011). This combination of measurement focus and developmental factors likely explains why associations between Parental Distress and children's behavioral problems are weaker and more variable compared with the other PSI subscales (Bohadana et al., 2019; Yorke et al., 2018).

Studies using questionnaires other than the PSI also reported positive associations between children's IBs, EBs, and PS. However, because these questionnaires measure both stress directly related to parenting and stress from other sources, it is difficult to know which specific aspects of parenting stress were affected. For example, the Parental Stress Scale includes items about parenting stress, such as *"Taking care of my child sometimes takes more time and energy than I have to give"*, alongside items about broader parental stress, such as *"Having a child is a financial burden".* As these studies showed a general connection between children's behavioral problems and stress experienced by parents, they do not reveal which dimensions of parenting stress were involved.

Longitudinal Dynamics and Transactional Effects

Our third aim was to examine the transactional relationships between children's IBs, EBs, and PS. Over half of the studies provided evidence of such longitudinal associations, aligning with transactional models that conceptualize the relationship between PS and children's behavioral problems within a dynamic and interactive process (Sameroff, 2009).

Studies indicated that high levels of IBs and EBs in children increased PS (Hastings, 2002). Consequently, parents experiencing elevated stress levels may find it difficult to respond appropriately to their child's needs, often resorting to coercive parenting practices which may hinder the child's socio-emotional development (Romero et al., 2021). This reciprocal pattern of influence can progressively alter the quality of parent–child interactions, contributing to a deterioration of the relational climate and a worsening of the child's behavioral problems over time (de Maat et al., 2021; Guralnick, 2011; Vasilopoulou & Nisbet, 2016).

Nevertheless, certain factors have been identified as mediators of these relationships, suggesting that they can influence the longitudinal dynamics between children's behaviors and PS. Among these, parental self-efficacy plays an important role (Kishimoto et al., 2023). Parents who perceive themselves as competent in their parenting role generally set clearer limits and manage their child's behaviors effectively, which tends to reduce PS over time (Osborne et al., 2008; Stephenson et al., 2023). Coping strategies are another key mediator. The Double ABCX Model (McCubbin & Patterson, 1983), adapted for families of children with ASD (Paynter et al., 2013), provides a useful framework for understanding this process, emphasizing that parents' adjustment depends on their coping strategies, cognitive appraisals, and social support rather than solely on the severity of the child's behavioral problems. For instance, Benson (2014) demonstrated that problem-focused strategies (e.g., treatment planning, reconceptualizing a problem) and strategies involving social support enhance parents' emotional regulation, thereby reducing PS. Parents who accept the situation and actively seek solutions and support may strengthen their sense of competence, mitigating the impact of their child's behavioral problems on psychological well-being (Weiss et al., 2012). This may explain why some studies report weaker or absent cross-lagged effects of child behaviors on PS over time, even when both remain high.

Gender Differences in PS Levels

Our fourth objective was to examine differences in PS between mothers and fathers. Studies including coparental dyads allowed direct comparisons within the same family, while those using independent samples only enabled gender-based comparisons without capturing couple-specific dynamics.

Among studies comparing PS in couples, some reported higher stress in mothers, while others showed the opposite or no significant gender differences. This lack of consensus may be explained by considering two levels of variation: (1) *within-couple* differences (i.e., gender-related differences in PS levels within the same

parental couple) and (2) *between-couple* differences (i.e., differences in each parental couple's characteristics) (Hartley et al., 2017; Hilpert et al., 2018).

Regarding the *within-couple* level, differences in perceived stress can be related to the gender roles and responsibilities each partner assumes within the family, which are often strongly based on societal gender attributions. It is commonly suggested that mothers are more involved in domestic, caregiving, and educational tasks (Phares et al., 1992; Tehee et al., 2009). As a result, they would be more affected than fathers by the child's regulatory problems (e.g., feeding, sleeping, and emotional regulation). In contrast, fathers are often seen as playing a more supportive role for the mother in educational activities. Indeed, they generally spend less time with the child due to their work commitments to provide resources for the family (Li & Guo, 2023; Shave & Lashewicz, 2016; Skreden et al., 2012). When the child has an illness or disability, this division of parental roles can become more pronounced, as mothers generally reduce their working hours to provide care, while fathers increase theirs to compensate (Cappe et al., 2025; Flippin & Crais, 2011; Young et al., 2002). Thus, some authors suggest that fathers, due to their greater professional responsibilities, may experience less PS than mothers (Lo et al., 2023; Riina & Feinberg, 2012). Conversely, others argue that by spending less time with the child, fathers may experience greater difficulties in adapting when challenging behaviors arise, as they are not accustomed to managing such situations (Hartley et al., 2012). Moreover, the difficulties in reconciling professional and family responsibilities can increase fathers' stress levels, highlighting the importance of considering their experiences and specific challenges when raising a child with ASD (Pisula, 2011).

Beyond these differences based on parental role attribution, it is also crucial to consider variations in couples' specific characteristics (i.e., *between-couple* level). For instance, current studies suggest that both low and high socioeconomic status are associated with higher PS levels compared to an intermediate level (Parkes et al., 2015). Among parents with lower education levels and fewer financial resources, PS may be caused by limited access to healthcare and concerns about their financial ability to meet their children's needs (McStay et al., 2014; Pozo et al., 2014). Conversely, parents with a high socioeconomic status may experience increased stress in their parental role, as the demands of their professional activities interfere more with their personal time spent with the child (Nomaguchi & Brown, 2011). Additionally, parents who receive sufficient social support perceive less PS, and report a more positive experience of parenthood (Ostberg & Hagekull, 2000). When this support is insufficient, parents may feel less equipped to cope with stress, which can limit their ability to effectively address

challenges in parenting. Thus, the variation in these financial and social resources from one couple to another, in addition to the distribution of roles within each couple, may help explain why studies do not agree on the differences in stress levels between mothers and fathers.

As for studies involving mothers and fathers from independent samples, none of them revealed significant differences in PS levels. However, the fact that only one partner was considered at a time hinders the ability to identify *within-couple* and *between-couple* differences, limiting our understanding of potential differences in PS levels. This emphasizes the importance of considering both partners when analyzing the shared experiences of mothers and fathers in the context of parenthood. Furthermore, beyond examining gender differences within couples, it is also essential to consider the characteristics of each couple to better understand how this set of factors influences perceived stress within each family.

Reducing Behavioral Problems in Children and PS Through Interventions

In line with this last objective, we aimed to identify the effectiveness of intervention programs for improving the well-being of families of children with ASD. The results indicated that all programs reduced children's behavioral problems and PS, although the effect sizes varied across studies and intervention programs used.

The intervention programs targeting children's behavioral problems demonstrated significant improvements in addressing EBs, but had small effects on PS levels. This suggests that simply providing care for children is not sufficient to improve the well-being of parents, especially when the children exhibit severe behavioral problems. However, Lecavalier and colleagues (2018) showed that even without direct parental involvement in the child-focused intervention, regular parent-focused consultations delivered in parallel to the child’s treatment were sufficient to reduce PS.

Parent coaching interventions yielded varying effect sizes (from small to large) but demonstrated significant improvements in both IBs and EBs in children, as well as a decrease in PS, with more pronounced benefits on the quality of the parent-child relationship. Although their approaches are based on different methodologies and theoretical foundations, their common goal is to develop strategies to support parents by enhancing their skills, helping them identify and manage their child's behaviors, and modifying their own thoughts and emotions to create a more suitable and stable family environment (Roger et al., 2019). Thus, by

changing parents' perception of their children's difficulties and providing them with tailored strategies, they feel more competent in their role, thereby strengthening family dynamics and reducing the likelihood of behavioral problems in their child (Malucelli et al., 2021; Siller et al., 2018). These findings indicate that improvements across the family system occur primarily when interventions actively involve both the child and the parents, rather than focusing exclusively on the child.

Finally, interventions that focused on the quality of parent-child interactions also appear to be effective in improving children's behaviors and reducing daily PS. Among these, the “Parent-Child Interaction Therapy” showed the most significant effects on EBs and PS, with effect sizes ranging from large to very large. This intervention is also one of the most well-recognized family intervention programs, particularly due to its structured approach and real-time coaching, which promote lasting changes (Rojas-Torres et al., 2020). The “Model for Promoting Competence and Success for Hope” program also demonstrated positive effects on both PS and children's behaviors (Dahiya et al., 2021; de Nocker & Toolan, 2023). In contrast, the results of the “Stepping Stones Triple P” program indicated only small effects on reducing children's behavioral problems. This limited effectiveness may be explained by the initial characteristics of the children enrolled in the program, as the intensity of their behavioral problems were not clinically significant before the intervention. Including children with a wider range of behavioral intensities could have led to more significant results, as demonstrated by other similar studies (Simanjuntak et al., 2024; Tellegen & Sanders, 2014).

Limitations and Future Directions

It is important to acknowledge certain limitations of this review, which also provide directions for future research. First, although this review specifically focused on studies referring to parenting stress, we observed that some authors used the terms parenting stress and parental stress interchangeably, without explicitly distinguishing between them. These studies were included when their measures captured stress related to the parenting role, child characteristics, or parent–child interactions, even if certain items addressed broader contextual aspects. Nevertheless, by privileging studies explicitly using the term parenting stress, we may have excluded research that assessed parenting-related stress under the broader label of parental stress, thereby potentially overlooking complementary findings related to stress generated by child-rearing.

Secondly, during the quality assessment, it was noted that only a minority of studies (4/88) justified their sample size in relation to their research objectives. Although most studies were rated as having moderate

to high methodological quality, this lack of justification complicates estimating the number of participants needed for statistically robust results. This limitation is common in observational studies of specific populations, such as families with a child diagnosed with ASD, and is compounded by the considerable heterogeneity of ASD symptoms (Ahmed et al., 2020; Lord et al., 2020). To address these challenges, researchers could focus on more homogeneous subgroups or analyze variability within broader samples to identify which subgroups drive observed effects (Rødgaard et al., 2022). Careful subgroup definition and sample size justification will be essential to ensure reliable and meaningful results.

Another limitation concerns the frequent reliance on parents' self-assessment via questionnaires to assess PS and behavioral problems in children. While this approach allows for capturing the parent's subjective perception of their own stress levels and their child's IBs and EBs, it also presents certain limitations. Parents may underestimate the severity of their child's behaviors through habituation, or overestimate them under the influence of various factors, particularly cultural variations, which can modify their tolerance threshold (Bennett et al., 2012). Addressing this limitation could involve using more objective measures, including video observations or reports from third parties (e.g., teachers, therapists), to complement parental questionnaires and provide more robust evidence of behavioral changes.

Finally, the underrepresentation of fathers in the studies represents a significant limitation, as most focused primarily on maternal experience. This observation highlights the need for further research on fathers' experiences, as it could offer valuable insights for enhancing support strategies, thereby contributing more broadly to the overall well-being of the family (Grebe et al., 2022).

Clinical Implications

Our findings have clinical implications, particularly for supporting families of children who have behavioral problems associated with ASD. The selected studies highlighted clear transactional relationships between children's behavioral problems and PS, which emerge in early childhood and persist in adolescence. Therefore, addressing these dynamics as early as possible is crucial for promoting healthier parent-child interactions and supporting the child's socio-emotional and behavioral development. Additionally, our results demonstrated the effectiveness of several intervention programs aimed at reducing PS and improving children's daily behaviors. In sum, an integrated approach, combining interventions focused on both the child and parental support, could be the most beneficial for reducing daily PS and improving children's behavioral

problems. However, before any intervention, it is essential to conduct a comprehensive assessment of the child, parents, and environmental factors that may impact family well-being. Although this was not the focus of analysis in this review, several factors could have influenced PS (e.g., perceived social support, family functioning, severity of autistic symptoms, child's gender, and coping strategies) (Prata et al., 2019; Rivard et al., 2014). Further research exploring these factors over extended periods could provide valuable insights, enabling clinicians to adopt a more tailored and individualized approach that addresses the unique needs of each family.

Conclusion

Families of children with ASD face behavioral challenges that may evolve with age, highlighting the importance of interventions that adapt to each child's developmental stage. Cross-sectional evidence points to clear links between specific types of behavioral problems and PSI dimensions, highlighting the importance of considering both the child's behavioral profile and the specific aspects of stress experienced by parents. Longitudinal studies show that children's behavioral problems and PS can influence each other over time, reflecting the dynamic nature of these interactions. Interestingly, mothers and fathers may experience different levels of stress within the same household, making it essential to include both parents in research and intervention efforts. Finally, intervention programs that actively involve both children and parents appear most effective in reducing behavioral problems and PS. Taken together, these findings mean that supporting families of children with ASD requires flexible and tailored strategies that address the needs of the child, the parents, and their interactions, helping them navigate daily challenges more effectively.

List of Abbreviations:

ADHD: Attention Deficit Hyperactivity Disorder

ASD: Autism Spectrum Disorder

EBs: Externalizing Behaviors

IBs: Internalizing Behaviors

PS: Parenting Stress

PSI: Parenting Stress Index

References

Abidin, R. R. (1992). The determinants of parenting behavior. *Journal of Clinical Child Psychology, 21*(4), 407–412. https://doi.org/10.1207/s15374424jccp2104_12

Achenbach, T. M., & Rescorla, L. A. (2000). *Manual for the ASEBA preschool forms & profiles*. Burlington, VT: University of Vermont, Research Center for Children, Youth, and Families.

Adams, D., Dargue, N., & Paynter, J. (2023). Longitudinal studies of challenging behaviours in autistic children and adults: A systematic review and meta-analysis. *Clinical Psychology Review*, 102320. https://doi.org/10.1016/j.cpr.2023.102320

Adams, D., Stainsby, M., & Paynter, J. (2021). Autistic Mothers of Autistic Children : A Preliminary Study in an Under-Researched Area. *Autism In Adulthood*, *3*(4), 339-346. https://doi.org/10.1089/aut.2020.0078

Ahmed, K. L., Simon, A. R., Dempsey, J. R., Samaco, R. C., & Goin-Kochel, R. P. (2020). Evaluating Two Common Strategies for Research Participant Recruitment Into Autism Studies: Observational Study. *Journal of medical Internet research*, *22*(9), e16752. https://doi.org/10.2196/16752

Allen, K., Bowles, T.V., & Weber, L. (2013). Mothers' and Fathers' stress Associated with parenting a child with Autism spectrum Disorder. *Autism Insights, 5*(1), 1-11. http://dx.doi.org/10.4137/AUI.S11094

Allen, K., Harrington, J., Quetsch, L. B., Masse, J., Cooke, C., & Paulson, J. F. (2022). Parent–Child Interaction Therapy for Children with Disruptive Behaviors and Autism : A Randomized Clinical Trial. *Journal Of Autism And Developmental Disorders*, *53*(1), 390-404. https://doi.org/10.1007/s10803-022-05428-y

American Psychiatric Association, DSM-5 Task Force. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5™* (5th ed.). American Psychiatric Publishing, Inc.. https://doi.org/10.1176/appi.books.9780890425596

Anderson, D. K., Maye, M. P., & Lord, C. (2011). Changes in maladaptive behaviors from midchildhood to young adulthood in autism spectrum disorder. *American journal on intellectual and developmental disabilities*, *116*(5), 381–397. https://doi.org/10.1352/1944-7558-116.5.381

Ayres, M., Parr, J. R., Rodgers, J., Mason, D., Avery, L., & Flynn, D. (2018). A systematic review of quality of life of adults on the autism spectrum. *Autism : the international journal of research and practice*, *22*(7), 774–783. https://doi.org/10.1177/1362361317714988

Bacherini, A., Igliozzi, R., Cagiano, R., Mancini, A., Tancredi, R., Muratori, F., & Balboni, G. (2021). Behavioral and emotional problems of toddlers with autism spectrum disorder: Effects of parents' sociocultural level and individual factors. *Research in developmental disabilities*, *119*, 104106. https://doi.org/10.1016/j.ridd.2021.104106

Baker, B. L., Blacher, J., Crnic, K. A., & Edelbrock, C. (2002). Behavior problems and parenting stress in families of three-year-old children with and without developmental delays. *American journal of mental retardation : AJMR*, *107*(6), 433–444. https://doi.org/10.1352/0895-8017(2002)107%3C0433:bpapsi%3E2.0.co;2

Bauminger, N., Solomon, M., & Rogers, S. J. (2010). Externalizing and internalizing behaviors in ASD. *Autism research : official journal of the International Society for Autism Research*, *3*(3), 101–112. https://doi.org/10.1002/aur.131

Bennett, T., Boyle, M., Georgiades, K., Georgiades, S., Thompson, A., Duku, E., et al. (2012). Influences of reporting effects on the association between maternal depression and child autism spectrum disorder behaviors. *Journal of Child Psychology and Psychiatry, 53*, 89–96. https://doi.org/10.1111/j.1469-7610.2011.02451.x

Benson, P. R. (2014). Coping and psychological adjustment among mothers of children with ASD: an accelerated longitudinal study. *Journal of autism and developmental disorders, 44*(8), 1793–1807. https://doi.org/10.1007/s10803-014-2079-9

Blacher, J., & Baker, B. L. (2019). Collateral Effects of Youth Disruptive Behavior Disorders on Mothers' Psychological Distress : Adolescents with Autism Spectrum Disorder, Intellectual Disability, or Typical Development. *Journal Of Autism And Developmental Disorders*, *49*(7), 2810-2821. https://doi.org/10.1007/s10803-017-3347-2

Blackledge, J. T., & Hayes, S. C. (2006). Using acceptance and commitment training in the support of parents of children diagnosed with autism. *Child & Family Behavior Therapy, 28(1),* 1–18. https://doi.org/10.1300/J019v28n01_01

Bohadana, G., Morrissey, S., & Paynter, J. (2019). Self-compassion: A novel predictor of stress and quality of life in parents of children with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 49*(10), 4039–4052. https://doi.org/10.1007/s10803-019-04121-x

Bougeard, C., Picarel-Blanchot, F., Schmid, R., Campbell, R., & Buitelaar, J. (2021). Prevalence of autism spectrum disorder and co-morbidities in children and adolescents: a systematic literature review. *Frontiers in psychiatry, 12*, 744709. https://doi.org/10.3389/fpsyt.2021.744709

Brian, J., Tint, A., Branson, J. C., & Pilkington, M. (2021). Effectiveness of Group Stepping Stones Positive Parenting Program for children with autism spectrum disorder and disruptive behaviour: Program evaluation from a large community implementation. *Journal on Developmental Disabilities, 26*(2), 1-19. https://doi.org/10.1016/j.ridd.2013.01.022

Brobst, J. B., Clopton, J. R., & Hendrick, S. S. (2008). Parenting children with autism spectrum disorders. *Focus On Autism And Other Developmental Disabilities*, *24*(1), 38-49. https://doi.org/10.1177/1088357608323699

Brookman-Frazee, L., Stadnick, N., Chlebowski, C., Baker-Ericzén, M., & Ganger, W. (2018). Characterizing psychiatric comorbidity in children with autism spectrum disorder receiving publicly funded mental health services. *Autism : the international journal of research and practice*, *22*(8), 938–952. https://doi.org/10.1177/1362361317712650

Buchwald, K., Shepherd, D., Siegert, R. J., Vignes, M., & Landon, J. (2025). Factors predicting parenting stress in the autism spectrum disorder context: A network analysis approach. *PLoS One*, *20*(4), e0319036. https://doi.org/10.1371/journal.pone.0319036

Cappe, E., Despax, J., Pedoux, A., Zylberberg, P., Chaste, P., De Gaulmyn, A., Doyen, C., & Pommepuy, N. (2025). Parental involvement and adjustment during the diagnostic evaluation of autism spectrum disorder at two diagnostic centers. *L'Encephale, 51(*1), 53–60. https://doi.org/10.1016/j.encep.2024.01.002

Chang, L., Schwartz, D., Dodge, K. A., & McBride-Chang, C. (2003). Harsh Parenting in Relation to Child Emotion Regulation and Aggression. *Journal of Family Psychology, 17*(4), 598–606. https://doi.org/10.1037/0893-3200.17.4.598

Chen, K., Iao, L., & Wu, C. (2023). Impact of Child Behavior Problems on Parenting Stress and Depressive Symptoms Among Mothers of Children with Autism Spectrum Disorder : Mediation of Coping Strategies. *Journal Of Developmental And Physical Disabilities*, *36*(3), 489-509. https://doi.org/10.1007/s10882-023-09919-3

Chen, S., Chen, S., Li, X., & Ren, J. (2020). Mental Health of Parents of Special Needs Children in China during the COVID-19 Pandemic. *International Journal Of Environmental Research And Public Health*, *17*(24), 9519. https://doi.org/10.3390/ijerph17249519

Chen, S. D., Yu, Y., Li, X. K., Chen, S. Q., & Ren, J. (2021). Parental Self-Efficacy and Behavioral Problems in Children with Autism During COVID-19 : A Moderated Mediation Model of Parenting Stress and Perceived Social Support. *Psychology Research And Behavior Management*, *Volume 14*, 1291-1301. https://doi.org/10.2147/prbm.s327377

Cheung, R. Y. M., Leung, S. S. W., & Mak, W. W. S. (2019). Role of Mindful Parenting, Affiliate Stigma, and Parents' Well-being in the Behavioral Adjustment of Children with Autism Spectrum Disorder : Testing Parenting Stress as a Mediator. *Mindfulness*, *10*(11), 2352-2362. https://doi.org/10.1007/s12671-019-01208-5

Choi, H., Kim, J. H., Kim, H., & Cheon, K. (2023). Identifying major predictors for parenting stress in a caregiver of autism spectrum disorder using machine learning models. *Frontiers In Neuroscience*, *17*. https://doi.org/10.3389/fnins.2023.1229155

Clauser, P., Ding, Y., Chen, E. C., Cho, S., Wang, C., & Hwang, J. (2021). Parenting styles, parenting stress, and behavioral outcomes in children with autism. *School Psychology International*, *42*(1), 33-56. https://doi.org/10.1177/0143034320971675

Cochrane, K., Ronaghan, D., Cadieux, O., Ward, M. A., Henrikson, B., & Theule, J. (2023). Oppositional Defiant Disorder and ADHD Symptoms as Predictors of Parenting Stress in Mothers of Sons With Autism Spectrum Disorders. *The Family Journal*, *31*(2), 322-329. https://doi.org/10.1177/10664807221131007

Cook, M. L., Yan, J. J., & Butler, K. (2024). Maternal parenting stress and child externalizing behaviors: Low-income as a context. *Journal of Applied Developmental Psychology*, *93*, 101673. https://doi.org/10.1016/j.appdev.2024.101673

Coulacoglou, C., & Saklofske, D. H. (2017). The assessment of family, parenting, and child outcomes. *Psychometrics and psychological assessment*, 187-222. http://dx.doi.org/10.1016/B978-0-12-802219-1.00008-0

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

Craig, F., Operto, F. F., De Giacomo, A., Margari, L., Frolli, A., Conson, M., Ivagnes, S., Monaco, M., & Margari, F. (2016). Parenting stress among parents of children with Neurodevelopmental Disorders. *Psychiatry Research*, *242*, 121-129. https://doi.org/10.1016/j.psychres.2016.05.016

Crnic, K. A. (2024). Parenting stress and child behavior problems: Developmental psychopathology perspectives. *Development and Psychopathology*, *36*(5), 2369–2375. doi: https://doi.org/10.1017/S0954579424001135

D'Elia, L., Valeri, G., Sonnino, F., Fontana, I., Mammone, A., & Vicari, S. (2014). A Longitudinal Study of the Teacch Program in Different Settings : The Potential Benefits of Low Intensity Intervention in Preschool Children with Autism Spectrum Disorder. *Journal Of Autism And Developmental Disorders*, *44*(3), 615-626. https://doi.org/10.1007/s10803-013-1911-y

Dahiya, A. V., Ruble, L., Kuravackel, G., & Scarpa, A. (2021). Efficacy of a Telehealth Parent Training Intervention for Children with Autism Spectrum Disorder: Rural versus Urban Areas. *Evidence-Based Practice in Child and Adolescent Mental Health, 7*(1), 41–55. https://doi.org/10.1080/23794925.2021.1941431

Dahl, R. E. (2004). Adolescent brain development: a period of vulnerabilities and opportunities. Keynote address. *Annals of the New York Academy of Sciences*, *1021*, 1–22. https://doi.org/10.1196/annals.1308.001

Danker, J., Strnadová, I. and Cumming, T. M. (2016). School experiences of students with autism spectrum disorder within the context of student wellbeing: A review and analysis of the literature. *Australasian Journal of Special Education, 40*, 59–78. https://doi.org/10.1017/JSE.2016.1

Davis, A. L., & Neece, C. L. (2017). An Examination of Specific Child Behavior Problems as Predictors of Parenting Stress Among Families of Children With Pervasive Developmental Disorders. *Journal Of Mental Health Research In Intellectual Disabilities*, *10*(3), 163-177. https://doi.org/10.1080/19315864.2016.1276988

Davis, N. O., & Carter, A. S. (2008). Parenting stress in mothers and fathers of toddlers with autism spectrum disorders: associations with child characteristics. *Journal of autism and developmental disorders*, *38*(7), 1278–1291. https://doi.org/10.1007/s10803-007-0512-z

Dawson, G., Rogers, S., Munson, J., Smith, M., Winter, J., Greenson, J., Donaldson, A., & Varley, J. (2010). Randomized, controlled trial of an intervention for toddlers with autism: The Early Start Denver Model. *Pediatrics, 125*(1), e17–e23. https://doi.org/10.1542/peds.2009-0958

de Maat, D. A., Jansen, P. W., Prinzie, P., Keizer, R., Franken, I. H. A., & Lucassen, N. (2021). Examining longitudinal relations between mothers' and fathers' parenting stress, parenting behaviors, and adolescents' behavior problems. *Journal of Child and Family Studies, 30*(3), 771–783. https://doi.org/10.1007/s10826-020-01885-0

de Nocker, Y. L., & Toolan, C. K. (2023). Using telehealth to provide interventions for children with ASD: A systematic review. *Review Journal of Autism and Developmental Disorders*, *10*(1), 82-112. https://psycnet.apa.org/doi/10.1007/s40489-021-00278-3

DeFilippis, M. (2018). Depression in Children and Adolescents with Autism Spectrum Disorder. *Children*, *5*(9), 112. https://doi.org/10.3390/children5090112

Demirpençe Seçinti, D., Diş, D., Albayrak, Z. S., & Şen, E. (2024). Depression and parental distress among caregivers of autistic children: a serial mediator analysis in caregivers of autistic children. *BMC psychology, 12*(1), 339. https://doi.org/10.1186/s40359-024-01704-x

Dilbaz-Gürsoy, M., Noyan-Erbaş, A., Esen, H. T. Ç., Köse, A., & Özcebe, E. (2025). What Influences Parenting Stress? Examining Parenting Stress and Self-Efficacy Across Groups of Children With Autism Spectrum Disorder, at Risk of Developmental Language Disorder, and With Typically Developing Language. *Journal of speech, language, and hearing research : JSLHR*, *68*(6), 2837–2850. https://doi.org/10.1044/2025_JSLHR-24-00672

Ding, N., Gao, H., , J., Zhai, M., Shao, H., Fu, L., ... & Ke, X. (2021). The characteristics and factors of the internalizing and externalizing behaviours of children at high risk for autism spectrum disorder. *BMC psychiatry*, *21*, 1-10. https://doi.org/10.1186%2Fs12888-021-03479-6

Dominick, K. C., Davis, N. O., Lainhart, J., Tager-Flusberg, H., & Folstein, S. (2007). Atypical behaviors in children with autism and children with a history of language impairment. *Research in developmental disabilities*, *28*(2), 145–162. https://doi.org/10.1016/j.ridd.2006.02.003

Doo, S., & Wing, Y. K. (2006). Sleep problems of children with pervasive developmental disorders : correlation with parental stress. *Developmental Medicine & Child Neurology*, *48*(8), 650-655. https://doi.org/10.1111/j.1469-8749.2006.tb01334.x

Dovgan, K., & Mazurek, M. O. (2019). Impact of multiple co-occurring emotional and behavioural conditions on children with autism and their families. *Journal of applied research in intellectual disabilities : JARID*, *32*(4), 967–980. https://doi.org/10.1111/jar.12590

Downes, M. J., Brennan, M. L., Williams, H. C., & Dean, R. S. (2016). Development of a critical appraisal tool to assess the quality of cross-sectional studies (AXIS). *BMJ open*, *6*(12), e011458. https://doi.org/10.1136/bmjopen-2016-011458

Doyle, O., Weller, B. E., Daniel, S. S., Mayfield, A., & Goldston, D. B. (2016). Overcoming barriers to fathers' participation in clinically relevant research: Recommendations from the field. Social Work Research, 1-5. https://doi.org/10.1093/swr/svw015

Efstratopoulou, M., Sofologi, M., Giannoglou, S., & Bonti, E. (2022). Parental Stress and Children's Self-Regulation Problems in Families with Children with Autism Spectrum Disorder (ASD). *Journal Of Intelligence*, *10*(1), 4. https://doi.org/10.3390/jintelligence10010004

Eisenberg, N., Cumberland, A., SpiNSad, T. L., Fabes, R. A., Shepard, S. A., Reiser, M., Murphy, B. C., Losoya, S. H., & Guthrie, I. K. (2001). The relations of regulation and emotionality to children's externalizing and internalizing problem behavior. *Child development*, *72*(4), 1112–1134. https://doi.org/10.1111/1467-8624.00337

Esposito, D., Bernardi, K., Belli, A., Gasparri, V., Romano, S., Terenzi, L., Zanatta, M. E., Iannotti, S., & Ferrara, M. (2024). The Hidden Impact of ADHD Symptoms in Preschool Children with Autism : Is There a Link to Somatic and Sleep Disorders ? *Behavioral Sciences*, *14*(3), 211. https://doi.org/10.3390/bs14030211

Estes, A., Dawson, G., Sterling, L., & Munson, J. (2007). Level of intellectual functioning predicts patterns of associated symptoms in school-age children with autism spectrum disorder. *American journal of mental retardation : AJMR, 112*(6), 439–449. https://doi.org/10.1352/0895-8017(2007)112[439:LOIFPP]2.0.CO;2

Estes, A., Munson, J., Dawson, G., Koehler, E., Zhou, X. H., & Abbott, R. (2009). Parenting stress and psychological functioning among mothers of preschool children with autism and developmental delay. *Autism, 13*(4), 375–387. https://doi.org/10.1177/1362361309105658

Estes, A., Munson, J., Rogers, S. J., Greenson, J., Winter, J., & Dawson, G. (2015). Long-term outcomes of early intervention in 6-year-old children with autism spectrum disorder. *Journal of the American Academy of Child & Adolescent Psychiatry, 54*(7), 580–587. https://doi.org/10.1016/j.jaac.2015.04.005

Eyberg, S. M. (1988). Parent-Child Interaction Therapy: Integration of traditional and behavioral concerns. *Child & Family Behavior Therapy, 10*(1), 33-46. https://doi.org/10.1300/J019v10n01_04

Falk, N. H., Norris, K., & Quinn, M. G. (2014). The factors predicting stress, anxiety and depression in the parents of children with autism. *Journal of autism and developmental disorders, 44*(12), 3185–3203. https://doi.org/10.1007/s10803-014-2189-4

Flippin, M., & Crais, E. R. (2011). The need for more effective father involvement in early autism intervention: A systematic review and recommendations. *Journal of early intervention*, *33*(1), 24-50. https://doi.org/10.1177/1053815111400415

Frantz, R., Hansen, S.G. & Machalicek, W. (2018). Interventions to Promote Well-Being in Parents of Children with Autism: a Systematic Review. *Rev J Autism Dev Disord 5, 58–77*. https://doi.org/10.1007/s40489-017-0123-3

Frazier, T. W., Crowley, E., Shih, A., Vasudevan, V., Karpur, A., Uljarevic, M., & Cai, R. Y. (2022). Associations between executive functioning, challenging behavior, and quality of life in children and adolescents with and without neurodevelopmental conditions. *Frontiers in Psychology*, *13*, 1022700. https://doi.org/10.3389/fpsyg.2022.1022700

García-López, C., Sarriá, E., & Pozo, P. (2016). Multilevel approach to gender differences in adaptation in father-mother dyads parenting individuals with Autism Spectrum Disorder. *Research in Autism Spectrum Disorders*, 28, 7-16. https://doi.org/10.1016/j.rasd.2016.04.003

Gharaibeh, M., Ayasrah, M. N., Al-Rousan, A. H., Khasawneh, Y. J. A., & Khasawneh, M. A. S. (2025). Parental Stress and Coping in Autism Spectrum Disorder: A Network Analysis of Internalizing and Externalizing Symptoms in

Children With Autism Spectrum Disorder. *Clinical psychology & psychotherapy*, *32*(3), e70100. https://doi.org/10.1002/cpp.70100

Giovagnoli, G., Postorino, V., Fatta, L. M., Sanges, V., De Peppo, L., Vassena, L., Rose, P. D., Vicari, S., & Mazzone, L. (2015). Behavioral and emotional profile and parental stress in preschool children with autism spectrum disorder. *Research in developmental disabilities, 45-46*, 411–421. https://doi.org/10.1016/j.ridd.2015.08.006

Gong, Y., Du, Y., Li, H., Zhang, X., An, Y., & Wu, B. (2015). Parenting stress and affective symptoms in parents of autistic children. *Science China Life Sciences*, *58*(10), 1036-1043. https://doi.org/10.1007/s11427-012-4293-z

Graziosi, G., & Perry, A. (2023). Age and sex differences in problem behaviours in youth with autism spectrum disorder. *Research in Autism Spectrum Disorders*, 100, 102075. https://doi.org/10.1016/j.rasd.2022.102075

Grebe, S. C., Mire, S. S., Kim, H., & Keller-Margulis, M. A. (2022). Comparing Fathers' and Mothers' Perspectives About Their Child's Autism Spectrum Disorder. *Journal of autism and developmental disorders*, *52*(4), 1841–1854. https://doi.org/10.1007/s10803-021-05077-7

Green, S. A., & Carter, A. S. (2014). Predictors and Course of Daily Living Skills Development in Toddlers with Autism Spectrum Disorders. *Journal Of Autism And Developmental Disorders*, *44*(2), 256-263. https://doi.org/10.1007/s10803-011-1275-0

Greenlee, J. L., Hickey, E., Stelter, C. R., Huynh, T., & Hartley, S. L. (2023). Profiles of the parenting experience in families of autistic children. *Autism*, *27*(7), 1919-1932. https://doi.org/10.1177/13623613221147399

Greenlee, J. L., Mosley, A. S., Shui, A. M., Veenstra-VanderWeele, J., & Gotham, K. O. (2016). Medical and Behavioral Correlates of Depression History in Children and Adolescents With Autism Spectrum Disorder. *Pediatrics*, *137 Suppl 2*(Suppl 2), S105–S114. https://doi.org/10.1542/peds.2015-2851I

Griffith, G. M., Hastings, R. P., Nash, S., & Hill, C. (2010). Using Matched Groups to Explore Child Behavior Problems and Maternal Well-Being in Children with Down Syndrome and Autism. *Journal Of Autism And Developmental Disorders*, *40*(5), 610-619. https://doi.org/10.1007/s10803-009-0906-1

Gruescu, A. C. S., Popoiu, C., Levai, M. C., Burtic, S. R., Sanda, I. I., Neda-Stepan, O., Rosca, O., Fericean, R. M., Dumitru, C., & Stelea, L. (2023). Stress Dynamics in Families with Children with Neuropsychiatric Disorders during the

COVID-19 Pandemic : A Three-Year Longitudinal Assessment. *Journal Of Clinical Medicine*, *12*(22), 7170. https://doi.org/10.3390/jcm12227170

Guralnick M. J. (2011). Why Early Intervention Works: A Systems Perspective. *Infants and young children*, *24*(1), 6–28. https://doi.org/10.1097/IYC.0b013e3182002cfe

Harper, A., Dyches, T., Harper, J., Roper, S., & South, M. (2013). Respite care, marital quality, and stress in parents of children with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 43*(11), 2604–2616. https://doi.org/10.1007/s10803-013-1812-0

Hartley, S. L., Barker, E. T., Baker, J. K., Seltzer, M. M., & Greenberg, J. S. (2012). Marital satisfaction and life circumstances of grown children with autism across 7 years. *Journal of family psychology : JFP : journal of the Division of Family Psychology of the American Psychological Association (Division 43)*, *26*(5), 688–697. https://doi.org/10.1037/a0029354

Hartley, S. L., DaWalt, L. S., & Schultz, H. M. (2017). Daily Couple Experiences and Parent Affect in Families of Children with Versus Without Autism. *Journal of autism and developmental disorders, 47*(6), 1645–1658. https://doi.org/10.1007/s10803-017-3088-2

Hartley, S. L., Papp, L. M., & Bolt, D. (2018). Spillover of Marital Interactions and Parenting Stress in Families of Children With Autism Spectrum Disorder. *Journal of clinical child and adolescent psychology : the official journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53*, *47*(sup1), S88–S99. https://doi.org/10.1080/15374416.2016.1152552

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 : JIDR*, *52*(10), 819–829. https://doi.org/10.1111/j.1365-2788.2008.01065.x

Hastings, R. P. (2002). Parental stress and behaviour problems of children with developmental disability. *Journal of Intellectual and Developmental Disability, 27*(3), 149–160. https://doi.org/10.1080/1366825021000008657

Hastings, R. P., Kovshoff, H., Brown, T., Ward, N. J., degli Espinosa, F., & Remington, B. (2005a). Coping strategies in mothers and fathers of preschool and school-age Children with autism. *Autism: The International Journal of Research and Practice, 9*(4), 377–391. doi:10.1177/1362361305056078.

Hastings, R. P., Kovshoff, H., Ward, N. J., degli Espinosa, F., Brown, T., & Remington, B. (2005b). Systems analysis of stress and positive perceptions in mothers and fathers of pre-school children with autism. *Journal of autism and developmental disorders*, *35*(5), 635–644. https://doi.org/10.1007/s10803-005-0007-8

Herrero, R., Díaz, A., & Zueco, J. (2024). The burden and psychological distress of family caregivers of individuals with autism spectrum disorder: A gender approach. *Journal of Clinical Medicine, 13*(10), 2861. https://doi.org/10.3390/jcm13102861

Hill, A. P., Zuckerman, K. E., Hagen, A. D., Kriz, D. J., Duvall, S. W., van Santen, J., Nigg, J., Fair, D., & Fombonne, E. (2014). Aggressive Behavior Problems in Children with Autism Spectrum Disorders: Prevalence and Correlates in a Large Clinical Sample. *Research in autism spectrum disorders*, *8*(9), 1121–1133. https://doi.org/10.1016/j.rasd.2014.05.006

Hilpert, P., Xu, F., Milek, A., Atkins, D. C., Bodenmann, G., & Bradbury, T. N. (2018). Couples coping with stress: Between-person differences and within-person processes. *Journal of Family Psychology, 32*(3), 366–374. https://doi.org/10.1037/fam0000380

Hoffman, C. D., Sweeney, D. P., Lopez-Wagner, M. C., Hodge, D., Nam, C. Y., & Botts, B. H. (2008). Children with autism. *Focus On Autism And Other Developmental Disabilities*, *23*(3), 155-165. https://doi.org/10.1177/1088357608316271

Hollocks, M. J., Leno, V. C., Chandler, S., White, P., Yorke, I., Charman, T., Pickles, A., Baird, G., & Simonoff, E. (2023). Psychiatric conditions in autistic adolescents: longitudinal stability from childhood and associated risk factors. *European child & adolescent psychiatry*, *32*(11), 2197–2208. https://doi.org/10.1007/s00787-022-02065-9

Holly, L. E., Fenley, A. R., Kritikos, T. K., Merson, R. A., Abidin, R. R., & Langer, D. A. (2019). Evidence-Base Update for Parenting Stress Measures in Clinical Samples. *Journal of clinical child and adolescent psychology : the official journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53*, *48*(5), 685–705. https://doi.org/10.1080/15374416.2019.1639515

Hong, E., & Matson, J. L. (2021). An evaluation of the functions of challenging behavior in toddlers with and without autism spectrum disorder. *Journal of Developmental and Physical Disabilities, 33*, 85-97. https://doi.org/10.1007/s10882-020-09734-0

Hou, Y., Stewart, L., Iao, L., & Wu, C. (2018). Parenting stress and depressive symptoms in Taiwanese mothers of young children with autism spectrum disorder : Association with children's behavioural problems. *Journal Of Applied Research In Intellectual Disabilities*, *31*(6), 1113-1121. https://doi.org/10.1111/jar.12471

Hou, Y., Yan, T., & Zhang, J. (2023). The relationship between parental involvement and psychological adjustment among Chinese children with autism spectrum disorder in the transition from kindergarten to primary school : A chain-mediating model. *Frontiers In Psychology*, *14*. https://doi.org/10.3389/fpsyg.2023.1087729

Huang, C., Yen, H., Tseng, M., Tung, L., Chen, Y., & Chen, K. (2014). Impacts of Autistic Behaviors, Emotional and Behavioral Problems on Parenting Stress in Caregivers of Children with Autism. *Journal Of Autism And Developmental Disorders*, *44*(6), 1383-1390. https://doi.org/10.1007/s10803-013-2000-y

Hudson, C. C., Hall, L., & Harkness, K. L. (2019). Prevalence of Depressive Disorders in Individuals with Autism Spectrum Disorder: a Meta-Analysis. *Journal of abnormal child psychology*, *47*(1), 165–175. https://doi.org/10.1007/s10802-018-0402-1

Iadarola, S., Pérez-Ramos, J., Smith, T., & Dozier, A. (2019). Understanding stress in parents of children with autism spectrum disorder: A focus on under-represented families*. International Journal of Developmental Disabilities, 65*(1), 20–30. https://doi.org/10.1080/20473869.2017.1347228

Iida, N., Wada, Y., Yamashita, T., Aoyama, M., Hirai, K., & Narumoto, J. (2018). Effectiveness of parent training in improving stress-coping capability, anxiety, and depression in mothers raising children with autism spectrum disorder. Neuropsychiatric disease and treatment, 14, 3355–3362. https://doi.org/10.2147/NDT.S188387

Jang, J., Dixon, D. R., Tarbox, J., & Granpeesheh, D. (2011). Symptom severity and challenging behavior in children with ASD. *Research in Autism Spectrum Disorders, 5*(3), 1028-1032. http://dx.doi.org/10.1016/j.rasd.2010.11.008

Jiang, Q., Wang, D., Yang, Z., & Choi, J. K. (2023). Bidirectional relationships between parenting stress and child behavior problems in multi-stressed, single-mother families: A cross-lagged panel model. *Family process, 62*(2), 671–686. https://doi.org/10.1111/famp.12796

Joshi, G., Wozniak, J., Petty, C., Martelon, M. K., Fried, R., Bolfek, A., Kotte, A., Stevens, J., Furtak, S. L., Bourgeois, M., Caruso, J., Caron, A., & Biederman, J. (2013). Psychiatric comorbidity and functioning in a clinically referred population of adults with autism spectrum disorders: a comparative study. *Journal of autism and developmental disorders*, *43*(6), 1314–1325. https://doi.org/10.1007/s10803-012-1679-5

Jung, E., Lee, T., Kim, J., & Kim, H. (2023). Children's and Parents' Factors That Affect Parenting Stress in Preschool Children With Developmental Disabilities or Typical Development. *Psychiatry Investigation*, *20*(12), 1157-1167. https://doi.org/10.30773/pi.2023.0223

Kanne, S. M., & Mazurek, M. O. (2011). Aggression in children and adolescents with ASD: prevalence and risk factors. *Journal of autism and developmental disorders*, *41*(7), 926–937. https://doi.org/10.1007/s10803-010-1118-4

Kayfitz, A. D., Gragg, M. N., & Robert Orr, R. (2010). Positive experiences of mothers and fathers of children with autism. *Journal of Applied Research in Intellectual Disabilities*, *23*(4), 337-343. https://doi.org/10.1111/j.1468-3148.2009.00539.x

Khachadourian, V., Mahjani, B., Sandin, S., Kolevzon, A., Buxbaum, J. D., Reichenberg, A., & Janecka, M. (2023). Comorbidities in autism spectrum disorder and their etiologies. *Translational Psychiatry*, *13*(1), 71. https://doi.org/10.1038/s41398-023-02374-w

Kishimoto, T., Liu, S., Zhang, L., & Li, S. (2023). How do autistic severity and family functioning influence parental stress in caregivers of children with autism spectrum disorder in China? The important role of parental self-efficacy. *Frontiers in psychology, 14*, 956637. https://doi.org/10.3389/fpsyg.2023.956637

Koller, J., David, T., Bar, N., & Lebowitz, E. R. (2022). The Role of Family Accommodation of RRBs in Disruptive Behavior Among Children with Autism. *Journal Of Autism And Developmental Disorders*, *52*(6), 2505-2511. https://doi.org/10.1007/s10803-021-05163-w

Kozlowski, A. M., & Matson, J. L. (2012). Interview and Observation Methods in Functional Assessment. In *Autism and child psychopathology series* (p. 105-124). https://doi.org/10.1007/978-1-4614-3037-7_7

Kuhlthau, K., Orlich, F., Hall, T. A., Sikora, D., Kovacs, E. A., Delahaye, J., & Clemons, T. E. (2010). Health-Related Quality of Life in children with autism spectrum disorders: results from the autism treatment network. *Journal of autism and developmental disorders*, *40*(6), 721–729. https://doi.org/10.1007/s10803-009-0921-2

Kuravackel, G. M., Ruble, L. A., Reese, R. J., Ables, A. P., Rodgers, A. D., & Toland, M. D. (2018). COMPASS for Hope : Evaluating the Effectiveness of a Parent Training and Support Program for Children with ASD. *Journal Of Autism And Developmental Disorders*, *48*(2), 404-416. https://doi.org/10.1007/s10803-017-3333-8

Kurtz, P. F., Strohmeier, C. W., Becraft, J. L., & Chin, M. D. (2021). Collateral Effects of Behavioral Treatment for Problem Behavior on Caregiver Stress. *Journal Of Autism And Developmental Disorders*, *51*(8), 2852-2865. https://doi.org/10.1007/s10803-020-04694-y

Kuusikko, S., Pollock-Wurman, R., Jussila, K., Carter, A. S., Mattila, M. L., Ebeling, H., Pauls, D. L., & Moilanen, I. (2008). Social anxiety in high-functioning children and adolescents with Autism and Asperger syndrome. *Journal of autism and developmental disorders*, 38(9), 1697–1709. https://doi.org/10.1007/s10803-008-0555-9

Lashewicz, B. M., Shipton, L., & Lien, K. (2019). Meta-synthesis of fathers' experiences raising children on the autism spectrum. *Journal of intellectual disabilities : JOID*, *23*(1), 117–131. https://doi.org/10.1177/1744629517719347

Laugeson, E. A., Frankel, F., Mogil, C., & Dillon, A. R. (2009). Parent-assisted social skills training to improve friendships in teens with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 39*(4), 596–606. https://doi.org/10.1007/s10803-008-0664-5

Lecavalier, L., Leone, S., & Wiltz, J. (2006). The impact of behaviour problems on caregiver stress in young people with autism spectrum disorders. *Journal of intellectual disability research : JIDR*, *50*(Pt 3), 172–183. https://doi.org/10.1111/j.1365-2788.2005.00732.x

Lecavalier, L., Pan, X., Smith, T., Handen, B. L., Arnold, L. E., Silverman, L., Tumuluru, R. V., Hollway, J., & Aman, M. G. (2018). Parent Stress in a Randomized Clinical Trial of Atomoxetine and Parent Training for Children with Autism Spectrum Disorder. *Journal Of Autism And Developmental Disorders*, *48*(4), 980-987. https://doi.org/10.1007/s10803-017-3345-4

Levin, A., & Scher, A. (2016). Sleep Problems in Young Children with Autism Spectrum Disorders : A Study of Parenting Stress, Mothers' Sleep-Related Cognitions, and Bedtime Behaviors. *CNS Neuroscience & Therapeutics*, *22*(11), 921-927. https://doi.org/10.1111/cns.12651

Leyfer, O. T., Folstein, S. E., Bacalman, S., Davis, N. O., Dinh, E., Morgan, J., ... & Lainhart, J. E. (2006). Comorbid psychiatric disorders in children with autism: Interview development and rates of disorders. *Journal of autism and developmental disorders*, 36, 849-861. https://doi.org/10.1007/s10803-006-0123-0

Li, D., & Guo, X. (2023). The effect of the time parents spend with children on children's well-being. *Frontiers in psychology, 14*, 1096128. https://doi.org/10.21203/rs.3.rs-1561259/v1

Lin, Y. N., Iao, L. S., Lee, Y. H., & Wu, C. C. (2021). Parenting Stress and Child Behavior Problems in Young Children with Autism Spectrum Disorder: Transactional Relations Across Time. *Journal of autism and developmental disorders, 51(7)*, 2381–2391. https://doi.org/10.1007/s10803-020-04720-z

Llanes, E., Blacher, J., Stavropoulos, K., & Eisenhower, A. (2020). Parent and teacher reports of comorbid anxiety and ADHD symptoms in children with ASD. *Journal of autism and developmental disorders*, *50*, 1520-1531. https://doi.org/10.1007/s10803-018-3701-z

Lo, C. K., Chen, M., Chen, Q., Chan, K. L., & Ip, P. (2023). Social, community, and cultural factors associated with parental stress in fathers and mothers. *International Journal of Environmental Research and Public Health, 20*(2), 1128. https://doi.org/10.3390/ijerph20021128

Long, E. E., Carpenter, L. A., Klein, J., Bradley, C. C., & Ros-Demarize, R. (2024). Does Parental Mental Health Moderate the Association between Parenting Stress and Child Externalizing Behaviors Among Autistic Children ? *Child Psychiatry & Human Development*. https://doi.org/10.1007/s10578-024-01691-5

Lord, C., Brugha, T. S., Charman, T., Cusack, J., Dumas, G., Frazier, T., Jones, E. J. H., Jones, R. M., Pickles, A., State, M. W., Taylor, J. L., & Veenstra-VanderWeele, J. (2020). Autism spectrum disorder. Nature reviews. Disease primers, 6(1), 5. https://doi.org/10.1038/s41572-019-0138-4

Lovaas, O. I. (1987). Behavioral treatment and normal educational and intellectual functioning in young autistic children. *Journal of Consulting and Clinical Psychology, 55*(1), 3–9. https://doi.org/10.1037/0022-006X.55.1.3

Luecken, L. J., Roubinov, D. S., & Tanaka, R. (2013). Childhood family environment, social competence, and health across the lifespan. *Journal of Social and Personal Relationships*, *30*(2), 171-178. https://doi.org/10.1177/0265407512454272

MacDonald, R., Green, G., Mansfield, R., Geckeler, A., Gardenier, N., Anderson, J., Holcomb, W., & Sanchez, J. (2007). Stereotypy in young children with autism and typically developing children. *Research in developmental disabilities*, *28*(3), 266–277. https://doi.org/10.1016/j.ridd.2006.01.004

Madarevic, M., Van Esch, L., Lambrechts, G., Ceulemans, E., Van Leeuwen, K., & Noens, I. (2022). Parenting behaviours among mothers of pre-schoolers on the autism spectrum : Associations with parenting stress and children's externalising behaviour problems. *Research In Autism Spectrum Disorders*, *90*, 101901. https://doi.org/10.1016/j.rasd.2021.101901

Mahoney, G., & Perales, F. (2003). Using Relationship-Focused Intervention to Enhance the Social—Emotional Functioning of Young Children with Autism Spectrum Disorders. *Topics in Early Childhood Special Education, 23(2)*, 74-86. https://doi.org/10.1177/02711214030230020301

Malucelli, E. R. S., Antoniuk, S. A., & Carvalho, N. O. (2021). The effectiveness of early parental coaching in the autism spectrum disorder. *Jornal de pediatria, 97*(4), 453–458. https://doi.org/10.1016/j.jped.2020.09.004

Manning, M. M., Wainwright, L., & Bennett, J. (2011). The Double ABCX Model of Adaptation in Racially Diverse Families with a School-Age Child with Autism. *Journal Of Autism And Developmental Disorders*, *41*(3), 320-331. https://doi.org/10.1007/s10803-010-1056-1

Martin, C. A., Sciberras, E., Papadopoulos, N., Engel, L., Hiscock, H., Williams, K., Howlin, P., McGillivray, J., & Rinehart, N. J. (2021). Associations Between Child Sleep Problem Severity and Maternal Well-Being in Children with Autism Spectrum Disorder. *Journal Of Autism And Developmental Disorders*, *51*(7), 2500-2510. https://doi.org/10.1007/s10803-020-04726-7

Matson, J. L., Wilkins, J., & Macken, J. (2008). The relationship of challenging behaviors to severity and symptoms of autism spectrum disorders. *Journal of Mental Health Research in Intellectual Disabilities*, *2*(1), 29-44. http://dx.doi.org/10.1080/19315860802611415

Mayes, S. D., Calhoun, S. L., Mayes, R. D., & Molitoris, S. (2012). Autism and ADHD: Overlapping and discriminating symptoms. *Research in Autism Spectrum Disorders, 6(1)*, 277–285. https://doi.org/10.1016/j.rasd.2011.05.009

Mazzoni, N., Bentenuto, A., Filosofi, F., Tardivo, A., Strathearn, L., Zarei, K., De Falco, S., Venuti, P., Iandolo, G., & Giannotti, M. (2023). Parenting a Child with a Neurodevelopmental Disorder during the Early Stage of the COVID-19 Pandemic : Quantitative and Qualitative Cross-Cultural Findings. *International Journal Of Environmental Research And Public Health*, *20*(1), 499. https://doi.org/10.3390/ijerph20010499

McCubbin, H. I., & Patterson, J. M. (1983). The Family Stress Process: The Double ABCX Model of adjustment and adaptation. *Marriage & Family Review*, 6(1-2), 7–37. https://doi.org/10.1300/J002v06n01_02

McDonnell, C., Luke, N., & Short, S. E. (2019). Happy Moms, Happier Dads: Gendered Caregiving and Parents' Affect. *Journal of family issues, 40*(17), 2553–2581. https://doi.org/10.1177/0192513x19860179

McStay, R. L., Dissanayake, C., Scheeren, A. M., Koot, H. M., and Begeer, S. M. (2014). Parenting stress and autism: the role of age, autism severity, quality of life and problem behaviour of children and adolescents with autism. *Autism 18*, 502–510. doi: https://doi.org/10.1177/1362361313485163

McTiernan, A., Leader, G., Healy, O., & Mannion, A. (2011). Analysis of risk factors and early predictors of challenging behavior for children with autism spectrum disorder. *Research in Autism Spectrum Disorders, 5(3)*, 1215-1222. https://doi.org/10.1016/j.rasd.2011.01.009

Mello, C., Rivard, M., Morin, D., Patel, S., & Morin, M. (2022). Symptom severity, internalized and externalized behavioral and emotional problems: Links with parenting stress in mothers of children recently diagnosed with autism. *Journal of Autism and Developmental Disorders*, *52*(6), 2400-2413. https://doi.org/10.1007/s10803-021-05131-4

Meyer, J. A., Mundy, P. C., Van Hecke, A. V., & Durocher, J. S. (2006). Social attribution processes and comorbid psychiatric symptoms in children with Asperger syndrome. *Autism : the international journal of research and practice, 10(4)*, 383–402. https://doi.org/10.1177/1362361306064435

Minuchin, S. (1984). *Family Kaleidoscope*. Harvard University Press.

Miranda, A., Mira, A., Berenguer, C., Rosello, B., & Baixauli, I. (2019). Parenting Stress in Mothers of Children With Autism Without Intellectual Disability. Mediation of Behavioral Problems and Coping Strategies. *Frontiers In Psychology*, *10*. https://doi.org/10.3389/fpsyg.2019.00464

Mitchell, S. J., See, H. M., Tarkow, A. K., Cabrera, N., McFadden, K. E., & Shannon, J. D. (2007). Conducting studies with fathers: Challenges and opportunities. Applied Development Science, 11(4), 239-244. https://doi.org/10.1080/10888690701762159

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & PRISMA Group (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS medicine*, *6*(7), e1000097. https://doi.org/10.1371/journal.pmed.1000097

Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., Shekelle, P., Stewart, L. A., & PRISMA-P Group (2015). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic reviews*, *4*(1), 1. https://doi.org/10.1186/2046-4053-4-1

Mueller, R., & Moskowitz, L. J. (2020). Positive Family Intervention for Children with ASD : Impact on Parents' Cognitions and Stress. *Journal Of Child And Family Studies*, *29*(12), 3536-3551. https://doi.org/10.1007/s10826-020-01830-1

Mutluer, T., Aslan Genç, H., Özcan Morey, A., Yapici Eser, H., Ertinmaz, B., Can, M., & Munir, K. (2022). Population-Based Psychiatric Comorbidity in Children and Adolescents With Autism Spectrum Disorder: A Meta-Analysis. *Frontiers in psychiatry*, *13*, 856208. https://doi.org/10.3389/fpsyt.2022.856208

Negraia, D. V., Yavorsky, J. E., & Dukhovnov, D. (2019). Mothers' and Fathers' Well-Being : Does the Gender Composition of Children Matter ? *Journal Of Marriage And Family*, *83*(3), 820-844. https://doi.org/10.1111/jomf.12739

Newcomb, E. T., & Hagopian, L. P. (2018). Treatment of severe problem behaviour in children with autism spectrum disorder and intellectual disabilities. *International review of psychiatry (Abingdon, England)*, *30*(1), 96–109. https://doi.org/10.1080/09540261.2018.1435513

Ni, L. S., Wai Tong, C., & Kam Ki Stanley, L. (2025). Effects of an acceptance and commitment-based parenting program for parents of children with autism spectrum disorder on parenting stress and other parent and children health

outcomes: A pilot randomized controlled trial. *Autism : the international journal of research and practice*, *29*(6), 1524–1539. https://doi.org/10.1177/13623613241311323

Nomaguchi, K. M., & Brown, S. L. (2011). Parental strains and rewards among mothers: The role of education. *Journal of Marriage and the Family, 73*, 621–636. http://dx.doi.org/10.1111/j.1741-3737.2011 .00835.x

O'Connor, E., Grant, M., Green, C. C., Treyvaud, K., & Hudry, K. (2023). Prospective Association of Parenting Stress with Later Child Behavior Problems in Early Childhood Autism. *Journal Of Autism And Developmental Disorders*. https://doi.org/10.1007/s10803-023-06177-2

O'Halloran, L., Coey, P., & Wilson, C. (2022). Suicidality in autistic youth: A systematic review and meta-analysis. *Clinical psychology review*, *93*, 102144. https://doi.org/10.1016/j.cpr.2022.102144

Olson, L., Chen, B., Ibarra, C., Wang, T., Mash, L., Linke, A., Kinnear, M., & Fishman, I. (2022). Externalizing Behaviors are Associated with Increased Parenting Stress in Caregivers of Young Children with Autism. *Journal of autism and developmental disorders*, *52*(3), 975–986. https://doi.org/10.1007/s10803-021-04995-w

Ooi, Y. P., Weng, S., Magiati, I., Ang, R. P., Goh, T. J., Fung, D. S., & Sung, M. (2016). Factors Influencing Agreement between Parent and Child Reports of Anxiety Symptoms among Children with High-Functioning Autism Spectrum Disorders. *Journal Of Developmental And Physical Disabilities*, *28*(3), 407-424. https://doi.org/10.1007/s10882-016-9481-5

Operto, F. F., Coppola, G., Vivenzio, V., Scuoppo, C., Padovano, C., De Simone, V., Rinaldi, R., Belfiore, G., Sica, G., Morcaldi, L., D'Onofrio, F., Olivieri, M., Donadio, S., Roccella, M., Carotenuto, M., Viggiano, A., & Pastorino, G. M. G. (2022). Impact of COVID-19 Pandemic on Children and Adolescents with Neuropsychiatric Disorders : Emotional/Behavioral Symptoms and Parental Stress. *International Journal Of Environmental Research And Public Health*, *19*(7), 3795. https://doi.org/10.3390/ijerph19073795

Operto, F. F., Pastorino, G. M. G., Scuoppo, C., Padovano, C., Vivenzio, V., Pistola, I., Belfiore, G., Rinaldi, R., De Simone, V., & Coppola, G. (2021a). Adaptive Behavior, Emotional/Behavioral Problems and Parental Stress in Children With Autism Spectrum Disorder. *Frontiers In Neuroscience*, *15*. https://doi.org/10.3389/fnins.2021.751465

Operto, F. F., Smirni, D., Scuoppo, C., Padovano, C., Vivenzio, V., Quatrosi, G., Carotenuto, M., Precenzano, F., & Pastorino, G. M. G. (2021b). Neuropsychological Profile, Emotional/Behavioral Problems, and Parental Stress in

Children with Neurodevelopmental Disorders. *Brain Sciences*, *11*(5), 584. https://doi.org/10.3390/brainsci11050584

Osborne, L., & Reed, P. (2009). The relationship between parenting stress and behavior problems of children with autism spectrum disorders. *Exceptional Children, 76*, 54–73. https://doi.org/10.1177/001440290907600103

Osborne, L. A., McHugh, L., Saunders, J., & Reed, P. (2008). The effect of parenting behaviors on subsequent child behavior problems in autistic spectrum conditions. *Research in Autism Spectrum Disorders, 2*(2), 249–263. https://doi.org/10.1007/s10803-007-0497-7

Ostberg, M., & Hagekull, B. (2000). A structural modeling approach to the understanding of parenting stress. *Journal of clinical child psychology*, *29*(4), 615–625. https://doi.org/10.1207/S15374424JCCP2904_13

Ozturk, Y., Riccadonna, S., & Venuti, P. (2014). Parenting dimensions in mothers and fathers of children with Autism Spectrum Disorders. *Research in Autism Spectrum Disorders, 8*, 1295-1306. https://psycnet.apa.org/doi/10.1016/j.rasd.2014.07.001

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., McGuinness, L. A., … Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *Systematic reviews*, *10*(1), 89. https://doi.org/10.1186/s13643-021-01626-4

Pallini, S., Chirumbolo, A., Morelli, M., Baiocco, R., Laghi, F., & Eisenberg, N. (2018). The relation of attachment security status to effortful self-regulation: A meta-analysis. *Psychological bulletin, 144*(5), 501–531. https://doi.org/10.1037/bul0000134

Palmer, M., Tarver, J., Leno, V. C., Perez, J. P., Frayne, M., Slonims, V., Pickles, A., Scott, S., Charman, T., & Simonoff, E. (2023). Parent, Teacher and Observational Reports of Emotional and Behavioral Problems in Young Autistic Children. *Journal Of Autism And Developmental Disorders*, *53*(1), 296-309. https://doi.org/10.1007/s10803-021-05421-x

Papadopoulos, N., Emonson, C., Martin, C., Sciberras, E., Hiscock, H., Lewis, S., McGillivray, J., & Rinehart, N. (2021). Autism Spectrum Disorder and Intellectual Disability : A Pilot Study Exploring Associations between Child Sleep

Problems, Child Factors and Parent Factors. *International Journal Of Environmental Research And Public Health*, *18*(21), 11377. https://doi.org/10.3390/ijerph182111377

Pardini, D. A., Fite, P. J., & Burke, J. D. (2008). Bidirectional associations between parenting practices and conduct problems in boys from child hood to adolescence: The moderating effect of age and African American ethnicity. *Journal of Abnormal Child Psychology, 36*, 647 662. http://dx.doi.org/10.1007/s10802-007-9162-z

Park, C. J., Yelland, G. W., Taffe, J. R., & Gray, K. M. (2012). Brief report: The relationship between language skills, adaptive behavior, and emotional and behavior problems in pre-schoolers with autism. *Journal of autism and developmental disorders*, *42*(12), 2761–2766. https://doi.org/10.1007/s10803-012-1534-8

Parkes, A., Sweeting, H., & Wight, D. (2015). Parenting stress and parent support among mothers with high and low education. *Journal of Family Psychology, 29*(6), 907–918. https://doi.org/10.1037/fam0000129

Parladé, M. V., Weinstein, A., Garcia, D., Rowley, A. M., Ginn, N. C., & Jent, J. F. (2020). Parent–Child Interaction Therapy for children with autism spectrum disorder and a matched case-control sample. *Autism*, *24*(1), 160-176. https://doi.org/10.1177/1362361319855851

Paynter, J., Riley, E., Beamish, W., Davies, M., & Milford, T. (2013). The double ABCX model of family adaptation in families of a child with an autism spectrum disorder attending an Australian early intervention service. Research in Autism Spectrum Disorders,7(10), 1183–1195. https://doi.org/10.1016/j.rasd.2013.07.006

Paynter, J., Heng, V., Tucker, M., & Malone, S. (2025). A Longitudinal Analysis of Mothers' Parenting Stress and Internalizing and Externalizing Behavior of Young Children on the Autism Spectrum. *Journal of autism and developmental disorders*, *55*(7), 2294–2306. https://doi.org/10.1007/s10803-024-06362-x

Pezzimenti, F., Han, G. T., Vasa, R. A., & Gotham, K. (2019). Depression in Youth with Autism Spectrum Disorder. *Child and adolescent psychiatric clinics of North America*, *28*(3), 397–409. https://doi.org/10.1016/j.chc.2019.02.009

Phares V. (1992). Where's poppa? The relative lack of attention to the role of fathers in child and adolescent psychopathology. *The American psychologist*, *47*(5), 656–664. https://doi.org/10.1037//0003-066x.47.5.656

Picci, G., & Scherf, K. S. (2015). A Two-Hit Model of Autism: Adolescence as the Second Hit. *Clinical psychological science : a journal of the Association for Psychological Science*, *3*(3), 349–371. https://doi.org/10.1177/2167702614540646

Pisula, E. (2011). Parenting stress in mothers and fathers of children with autism spectrum disorders. *A comprehensive book on autism spectrum disorders*, *5*, 87-106. http://dx.doi.org/10.5772/18507

Porter, N., Loveland, K. A., Saroukhani, S., Posey, Y. S., & Rahbar, M. H. (2025). Comparative analysis of sources of parenting stress between mothers of children with autism spectrum disorder in the US and Japan. *Advances in Neurodevelopmental Disorders*, 1-16. https://doi.org/10.1007/s41252-025-00444-2

Postorino, V., Fatta, L. M., De Peppo, L., Giovagnoli, G., Armando, M., Vicari, S., & Mazzone, L. (2015). Longitudinal comparison between male and female preschool children with autism spectrum disorder. *Journal Of Autism And Developmental Disorders*, *45*(7), 2046-2055. https://doi.org/10.1007/s10803-015-2366-0

Postorino, V., Gillespie, S., Lecavalier, L., Smith, T., Johnson, C., Swiezy, N., Aman, M. G., McDougle, C. J., Bearss, K., Andridge, R. R., Vitiello, B., & Scahill, L. (2019). Clinical Correlates of Parenting Stress in Children with Autism Spectrum Disorder and Serious Behavioral Problems. *Journal Of Child And Family Studies*, *28*(8), 2069-2077. https://doi.org/10.1007/s10826-019-01423-7

Pottie, C. G., & Ingram, K. M. (2008). Daily stress, coping, and well-being in parents of children with autism: a multilevel modeling approach. *Journal of family psychology : JFP : journal of the Division of Family Psychology of the American Psychological Association (Division 43), 22*(6), 855–864. https://doi.org/10.1037/a0013604

Prata, J., Lawson, W., & Coelho, R. (2019). Stress factors in parents of children on the autism spectrum: An integrative model approach. *International Journal of Clinical Neurosciences and Mental Health*, *6*(2), 1-9. https://doi.org/10.21035/ijcnmh.2019.6.2

Reed, P., & Osborne, L. A. (2013). The Role of Parenting Stress in Discrepancies Between Parent and Teacher Ratings of Behavior Problems in Young Children with Autism Spectrum Disorder. *Journal Of Autism And Developmental Disorders*, *43*(2), 471-477. https://doi.org/10.1007/s10803-012-1594-9

Rezendes, D. L., & Scarpa, A. (2011). Associations between Parental Anxiety/Depression and Child Behavior Problems Related to Autism Spectrum Disorders: The Roles of Parenting Stress and Parenting Self-Efficacy. *Autism research and treatment, 2011*, 395190. https://doi.org/10.1155/2011/395190

Riina, E. M., & Feinberg, M. E. (2012). Involvement in childrearing and mothers' and fathers' adjustment. *Family Relations, 61*(5), 836-850. https://doi.org/10.1111/j.1741-3729.2012.00739.x

Rivard, M., Terroux, A., Parent-Boursier, C., & Mercier, C. (2014). Determinants of stress in parents of children with autism spectrum disorders. *Journal of autism and developmental disorders*, *44*(7), 1609–1620. https://doi.org/10.1007/s10803-013-2028-z

Rodriguez, G., Hartley, S. L., & Bolt, D. (2019). Transactional Relations Between Parenting Stress and Child Autism Symptoms and Behavior Problems. *Journal of autism and developmental disorders*, *49*(5), 1887–1898. https://doi.org/10.1007/s10803-018-3845-x

Rødgaard, E. M., Jensen, K., Miskowiak, K. W., & Mottron, L. (2022). Representativeness of autistic samples in studies recruiting through social media. *Autism research : official journal of the International Society for Autism Research*, *15*(8), 1447–1456. https://doi.org/10.1002/aur.2777

Rogers, S. J., Estes, A., Vismara, L., Munson, J., Zierhut, C., Greenson, J., Dawson, G., Rocha, M., Sugar, C., Senturk, D., Whelan, F., & Talbott, M. (2019). Enhancing Low-Intensity Coaching in Parent Implemented Early Start Denver Model Intervention for Early Autism: A Randomized Comparison Treatment Trial. *Journal of autism and developmental disorders, 49(*2), 632–646. https://doi.org/10.1007/s10803-018-3740-5

Romero, M., Marín, E., Guzmán-Parra, J., Navas, P., Aguilar, J. M., Lara, J. P., & Barbancho, M. Á. (2021). Relationship between parental stress and psychological distress and emotional and behavioural problems in pre-school children with autistic spectrum disorder. *Anales de Pediatría (English Edition)*, *94*(2), 99-106. https://doi.org/10.1016/j.anpede.2020.03.014

Ros-DeMarize, R., Boan, A., Bradley, C., Klein, J., & Carpenter, L. (2025). Tele-PCIT: Initial Examination of Internet Delivered PCIT for Young Children with Autism. *Child psychiatry and human development*, *56*(1), 101–110. https://doi.org/10.1007/s10578-023-01539-4

Roselló, B., Mira, Á., Berenguer, C., Baixauli, I., & Miranda, A. (2022). Personal and Family Childhood Predictors of Functional Outcomes of Adolescents With Autism Spectrum Disorder. *PubMed*, *34*(4), 508-517. https://doi.org/10.7334/psicothema2022.81

Rosenthal, M., Wallace, G. L., Lawson, R., Wills, M. C., Dixon, E., Yerys, B. E., & Kenworthy, L. (2013). Impairments in real-world executive function increase from childhood to adolescence in autism spectrum disorders. *Neuropsychology*, *27*(1), 13. https://doi.org/10.1037/a0031299

Roubinov, D., Don, B., Blades, R., & Epel, E. (2023). Is it me or my child ? The association between maternal depression and children's behavior problems in mothers and their children with or without autism. *Family Process*, *62*(2), 737-753. https://doi.org/10.1111/famp.12810

Sacolo, H., Chimbari, M., & Kalinda, C. (2018). Knowledge, attitudes and practices on Schistosomiasis in sub-Saharan Africa: a systematic review. *BMC infectious diseases*, *18*(1), 46. https://doi.org/10.1186/s12879-017-2923-6

Salazar, F., Baird, G., Chandler, S., Tseng, E., O'sullivan, T., Howlin, P., Pickles, A., & Simonoff, E. (2015). Co-occurring Psychiatric Disorders in Preschool and Elementary School-Aged Children with Autism Spectrum Disorder. *Journal of autism and developmental disorders*, *45*(8), 2283–2294. https://doi.org/10.1007/s10803-015-2361-5

Samadi, S. A., & Rashid, H. M. (2024). Impacts of Caregiving for Individuals with Autism in Low-Resource Settings, a Report from the Kurdistan Region of Iraq. *Journal of autism and developmental disorders*, *54*(12), 4697–4708. https://doi.org/10.1007/s10803-023-06165-6

Sameroff, A. J., & Chandler, M. J. (1975). *Reproductive risk and the continuum of caretaking casualty*. In F. D. Horowitz, M. Hetherington, S. Scarr–Salapatek, & G. Siegal (Eds.), Review of child development research (Vol. 4, pp. 187–244). Chicago, IL: University of Chicago Press

Sameroff, A. (Ed.). (2009). *The transactional model of development: How children and contexts shape each other.* American Psychological Association. https://doi.org/10.1037/11877-000

Scibelli, F., Fucà, E., Guerrera, S., Lupi, E., Alfieri, P., Valeri, G., & Vicari, S. (2021). Clinical and individual features associated with maternal stress in young adolescents with autism spectrum disorder. *Autism Research*, *14*(9), 1935-1947. https://doi.org/10.1002/aur.2539

Seltzer, M. M., Shattuck, P., Abbeduto, L., & Greenberg, J. S. (2004). Trajectory of development in adolescents and adults with autism. *Mental retardation and developmental disabilities research reviews*, *10*(4), 234–247. https://doi.org/10.1002/mrdd.20038

Serur, Y., Sher-Censor, E., Sofrin-Frumer, D., Daon, K., Sobol-Havia, D., Weinberger, R., Shulman, C., & Gothelf, D. (2023). Parental Expressed Emotion, Parenting Stress, and Behavioral Problems of Young Children with 22q11.2

Deletion Syndrome and Idiopathic Autism Spectrum Disorder. *Child Psychiatry & Human Development*, *54*(4), 1085-1093. https://doi.org/10.1007/s10578-021-01310-7

Shattuck, P. T., Seltzer, M. M., Greenberg, J. S., Orsmond, G. I., Bolt, D., Kring, S., Lounds, J., & Lord, C. (2007). Change in autism symptoms and maladaptive behaviors in adolescents and adults with an autism spectrum disorder. *Journal of autism and developmental disorders, 37*(9), 1735–1747. https://doi.org/10.1007/s10803-006-0307-7

Shave, K., & Lashewicz, B. (2016). Support Needs of Fathers of Children with ASD: Individual, Family, Community and Ideological Influences. *Journal of Applied Research in Intellectual Disabilities, 29*(6), 495-507. https://doi.org/10.1111/jar.12204

Siegel, M., Smith, K. A., Mazefsky, C., Gabriels, R. L., Erickson, C., Kaplan, D., Morrow, E. M., Wink, L., & Santangelo, S. L. (2015). The autism inpatient collection : methods and preliminary sample description. *Molecular Autism*, *6*(1). https://doi.org/10.1186/s13229-015-0054-8

Sikora, D. M., Vora, P., Coury, D. L., & Rosenberg, D. (2012). Attention-deficit/hyperactivity disorder symptoms, adaptive functioning, and quality of life in children with autism spectrum disorder. *Pediatrics*, *130 Suppl 2*, S91–S97. https://doi.org/10.1542/peds.2012-0900G

Siller, M., Hotez, E., Swanson, M., Delavenne, A., Hutman, T., & Sigman, M. (2018). Parent coaching increases the parents' capacity for reflection and self-evaluation: results from a clinical trial in autism. *Attachment & Human Development, 20*(3), 287–308. https://doi.org/10.1080/14616734.2018.1446737

Sim, A., Vaz, S., Cordier, R., Joosten, A., Parsons, D., Smith, C., & Falkmer, T. (2017). Factors associated with stress in families of children with autism spectrum disorder. *Developmental Neurorehabilitation*, *21*(3), 155–165. https://doi.org/10.1080/17518423.2017.1326185

Simanjuntak, J. B., Sinaga, E. T., & Manurung, K. W. A. (2024). Effects of the Parental Stepping Stone Triple P Program on Parental Mental Health and Disruptive Behavior in Children with Autism Spectrum Disorders: A Systematic Review and Meta-Analysis. *SCRIPTA SCORE Scientific Medical Journal*, *6*(1), 1-10. https://doi.org/10.32734/scripta.v6i1.1572

Simonoff, E., Kent, R., Stringer, D., Lord, C., Briskman, J., Lukito, S., Pickles, A., Charman, T., & Baird, G. (2020). Trajectories in Symptoms of Autism and Cognitive Ability in Autism From Childhood to Adult Life: Findings From

a Longitudinal Epidemiological Cohort. *Journal of the American Academy of Child and Adolescent Psychiatry*, *59*(12), 1342–1352. https://doi.org/10.1016/j.jaac.2019.11.020

Singh, N. N., Lancioni, G. E., Medvedev, O. N., Hwang, Y., & Myers, R. E. (2021). A Component Analysis of the Mindfulness-Based Positive Behavior Support (MBPBS) Program for Mindful Parenting by Mothers of Children with Autism Spectrum Disorder. *Mindfulness*, *12*(2), 463-475. https://doi.org/10.1007/s12671-020-01376-9

Siracusano, M., Riccioni, A., Gialloreti, L. E., Segatori, E., Arturi, L., Vasta, M., Porfirio, M. C., Terribili, M., Galasso, C., & Mazzone, L. (2021). Parental Stress and Disability in Offspring : A Snapshot during the COVID-19 Pandemic. *Brain Sciences*, *11*(8), 1040. https://doi.org/10.3390/brainsci11081040

Siu, Q. K. Y., Yi, H., Chan, R. C. H., Chio, F. H. N., Chan, D. F. Y., & Mak, W. W. S. (2019). The Role of Child Problem Behaviors in Autism Spectrum Symptoms and Parenting Stress: A Primary School-Based Study. *Journal of autism and developmental disorders*, *49*(3), 857–870. https://doi.org/10.1007/s10803-018-3791-7

Skreden, M., Skari, H., Malt, U. F., Pripp, A. H., Björk, M. D., Faugli, A., & Emblem, R. (2012). Parenting stress and emotional wellbeing in mothers and fathers of preschool children. *Scandinavian journal of public health*, *40*(7), 596–604. https://doi.org/10.1177/1403494812460347

Soke, G. N., Maenner, M. J., Christensen, D., Kurzius-Spencer, M., & Schieve, L. (2018). Prevalence of co-occurring medical and behavioral conditions/symptoms among 4-and 8-year-old children with autism spectrum disorder in selected areas of the United States in 2010. *Journal of autism and developmental disorders, 48,* 2663-2676. https://doi.org/10.1007/s10803-018-3521-1

Soltanifar, A., Akbarzadeh, F., Moharreri, F., Soltanifar, A., Ebrahimi, A., Mokhber, N., Minoocherhr, A., & Ali Naqvi, S. S. (2015). Comparison of parental stress among mothers and fathers of children with autistic spectrum disorder in Iran. *Iranian journal of nursing and midwifery research*, *20*(1), 93–98.

Stack, D. M., Serbin, L. A., Enns, L. N., Ruttle, P. L., & Barrieau, L. (2010). Parental effects on children's emotional development over time and across generations. *Infants & Young Children*, *23*(1), 52-69. https://psycnet.apa.org/doi/10.1097/IYC.0b013e3181c97606

Stephenson, K. G., Fenning, R. M., Macklin, E. A., Lu, F., Norris, M., Steinberg-Epstein, R., & Butter, E. M. (2023). Child Behavior Problems and Parenting Stress in Underserved Families of Children with ASD : Investigation of Family

Resources and Parenting Self-efficacy. *Journal Of Autism And Developmental Disorders*, *53*(10), 3787-3798. https://doi.org/10.1007/s10803-022-05681-1

Stewart, M. E., Barnard, L., Pearson, J., Hasan, R., & O'Brien, G. (2006). Presentation of depression in autism and Asperger syndrome: a review. *Autism : the international journal of research and practice*, *10*(1), 103–116. https://doi.org/10.1177/1362361306062013

Storch, E. A., Arnold, E. B., Lewin, A. B., Nadeau, J. M., Jones, A. M., De Nadai, A. S., Jane Mutch, P., Selles, R. R., Ung, D., & Murphy, T. K. (2013). The effect of cognitive-behavioral therapy versus treatment as usual for anxiety in children with autism spectrum disorders: a randomized, controlled trial. *Journal of the American Academy of Child and Adolescent Psychiatry*, *52*(2), 132–142.e2. https://doi.org/10.1016/j.jaac.2012.11.007

Stormshak, E. A., Bierman, K. L., McMahon, R. J., & Lengua, L. J. (2000). Parenting practices and child disruptive behavior problems in early elementary school. Conduct Problems Prevention Research Group. *Journal of clinical child psychology*, *29*(1), 17–29. https://doi.org/10.1207/S15374424jccp2901_3

Strauss, K., Servadio, M., Valeri, G., Casula, L., Vicari, S., & Fava, L. (2024). Association between child behavioural problems and parenting stress in autism spectrum disorders : the role of parenting self-efficacy. *International Journal Of Developmental Disabilities*, *70*(1), 49-58. https://doi.org/10.1080/20473869.2022.2052417

Suvarna, V., Farrell, L., Adams, D., Emerson, L. M., & Paynter, J. (2025a). Differing relationships between parenting stress, parenting practices and externalising behaviours in autistic children. *Autism : the international journal of research and practice*, *29*(3), 711–725. https://doi.org/10.1177/13623613241287569

Suvarna, V., Farrell, L., Adams, D., Emerson, L. M., & Paynter, J. (2025b). The Two Hearts Mindful Parenting programme for parents of autistic children: a proof-of-concept study. *Clinical Psychologist*, *29*(2), 145-161. https://doi.org/10.1080/13284207.2025.2498396

Tang, M., Li, M., Huang, M., Liu, L., Zhu, L., & Chen, Y. (2025). The Association and Mediators Between Sleep Problems in Autistic Children and Parenting Stress. *Psychology research and behavior management*, *18*, 917–927. https://doi.org/10.2147/PRBM.S495629

Tarver, J., Palmer, M., Webb, S., Scott, S., Slonims, V., Simonoff, E., & Charman, T. (2019). Child and parent outcomes following parent interventions for child emotional and behavioral problems in autism spectrum disorders: A

systematic review and meta-analysis. *Autism : the international journal of research and practice*, *23*(7), 1630–1644. https://doi.org/10.1177/1362361319830042

Tehee, E., Honan, R., & Hevey, D. (2009). Factors contributing to stress in parents of individuals with autistic spectrum disorders. *Journal of Applied Research in Intellectual Disabilities, 22*(1), 34–42. https://doi.org/10.1111/j.1468-3148.2008.00437.x

Tellegen, C. L., & Sanders, M. R. (2014). A randomized controlled trial evaluating a brief parenting program with children with autism spectrum disorders. *Journal of consulting and clinical psychology*, *82*(6), 1193–1200. https://doi.org/10.1037/a0037246

Ten Hoopen, L. W. T., De Nijs, P. F. A., Duvekot, J., Greaves-Lord, K., Hillegers, M. H. J., Brouwer, W. B. F., & Roijen, L. H. (2022). Caring for Children with an Autism Spectrum Disorder : Factors Associating with Health- and Care-Related Quality of Life of the Caregivers. *Journal Of Autism And Developmental Disorders*, *52*(11), 4665-4678. https://doi.org/10.1007/s10803-021-05336-7

Tomanik, S., Harris, G. E., & Hawkins, J. (2004). The relationship between behaviours exhibited by children with autism and maternal stress. *Journal of Intellectual and Developmental Disability, 29*(1), 16–26. https://doi.org/10.1080/13668250410001662892

Ueda, M. M., Ding, Y., Blumberg, F., Zhang, C., Yu, Q., & Lantier, K. (2020). Maternal Parenting Style in Relation to Parenting Stress and Behavioral Outcomes in Japanese Children with and without Autism. *Journal Of Developmental And Physical Disabilities*, *32*(6), 983-1006. https://doi.org/10.1007/s10882-020-09727-z

Valeri, G., Casula, L., Menghini, D., Amendola, F. A., Napoli, E., Pasqualetti, P., & Vicari, S. (2020). Cooperative parent-mediated therapy for Italian preschool children with autism spectrum disorder : a randomized controlled trial. *European Child & Adolescent Psychiatry*, *29*(7), 935-946. https://doi.org/10.1007/s00787-019-01395-5

Van Den Bergh, S. F., Scheeren, A. M., Begeer, S., Koot, H. M., & Geurts, H. M. (2014). Age related differences of executive functioning problems in everyday life of children and adolescents in the autism spectrum. *Journal of autism and developmental disorders*, *44*(8), 1959-1971. https://doi.org/10.1007/s10803-014-2071-4

Van Steensel, F. J., Bögels, S. M., & Perrin, S. (2011). Anxiety disorders in children and adolescents with autistic spectrum disorders: a meta-analysis. *Clinical child and family psychology review, 14*, 302-317. https://doi.org/10.1007/s10567-011-0097-0

Vasilopoulou, E., & Nisbet, J. (2016). The quality of life of parents of children with autism spectrum disorder: A systematic review. *Research in Autism Spectrum Disorders, 23*, 36-49. https://doi.org/10.1016/J.RASD.2015.11.008

Vaughan, E. L., Feinn, R., Bernard, S., Brereton, M., & Kaufman, J. S. (2013). Relationships between child emotional and behavioral symptoms and caregiver strain and parenting stress. *Journal of Family Issues*, *34*(4), 534-556. https://doi.org/10.1177/0192513X12440949

Verheij, C., Louwerse, A., van der Ende, J., Eussen, M. L., Van Gool, A. R., Verheij, F., Verhulst, F. C., & Greaves-Lord, K. (2015). The Stability of Comorbid Psychiatric Disorders: A 7 Year Follow Up of Children with Pervasive Developmental Disorder-Not Otherwise Specified. *Journal of autism and developmental disorders*, *45*(12), 3939–3948. https://doi.org/10.1007/s10803-015-2592-5

Vogan VM, Leung RC, Safar K, Martinussen R, Smith ML and Taylor MJ (2018) Longitudinal Examination of Everyday Executive Functioning in Children With ASD: Relations With Social, Emotional, and Behavioral Functioning Over Time. *Front. Psychol. 9*:1774. https://doi.org/10.3389/fpsyg.2018.01774

Wang, J., Hu, Y., Wang, Y., Qin, X., Xia, W., Sun, C., Wu, L., & Wang, J. (2013). Parenting stress in Chinese mothers of children with autism spectrum disorders. *Social Psychiatry And Psychiatric Epidemiology*, *48*(4), 575-582. https://doi.org/10.1007/s00127-012-0569-7

Weiss, J. A., Cappadocia, M. C., MacMullin, J. A., Viecili, M., & Lunsky, Y. (2012). The impact of child problem behaviors of children with ASD on parent mental health: The mediating role of acceptance and empowerment. *Autism, 16*(3), 261–274. https://doi.org/10.1177/1362361311422708

Weiss, J. A., Cappadocia, M. C., Tint, A., & Pepler, D. (2015). Bullying Victimization, Parenting Stress, and Anxiety among Adolescents and Young Adults with Autism Spectrum Disorder. *Autism Research*, *8*(6), 727-737. https://doi.org/10.1002/aur.1488

White, S. W., & Roberson-Nay, R. (2009). Anxiety, social deficits, and loneliness in youth with autism spectrum disorders. *Journal of autism and developmental disorders, 39*(7), 1006–1013. https://doi.org/10.1007/s10803-009-0713-8

Whitehouse, A.J., Durkin, K., Jaquet, E., & Ziatas, K. (2009). Friendship, loneliness and depression in adolescents with Asperger's Syndrome. *Journal of Adolescence, 32(2)*, 309–322. https://doi.org/10.1016/j.adolescence.2008.03.004

Woodman, A. C., Mawdsley, H. P., & Hauser-Cram, P. (2015). Parenting stress and child behavior problems within families of children with developmental disabilities: Transactional relations across 15 years. *Research in developmental disabilities*, *36C*, 264–276. https://doi.org/10.1016/j.ridd.2014.10.011

Wu, C. Y., & Lee, T. S. H. (2020). Impact of parent–child relationship and sex on trajectories of children internalizing symptoms. *Journal of affective disorders*, *260*, 167-173. https://doi.org/10.1016/j.jad.2019.09.016

Yeung, M. K., Bai, J., & Mak, K. L. (2024). Longitudinal changes in executive function in autism spectrum disorder: A systematic review and meta-analyses. *Autism research : official journal of the International Society for Autism Research*, *17*(10), 2045–2063. https://doi.org/10.1002/aur.3196

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

Young, B., Dixon-Woods, M., & Heney, D. (2002). Identity and role in parenting a child with cancer. *Pediatric rehabilitation*, *5*(4), 209–214. https://doi.org/10.1080/1363849021000046184

Zaidman-Zait, A., Mirenda, P., Duku, E., Szatmari, P., Georgiades, S., Volden, J., Zwaigenbaum, L., Vaillancourt, T., Bryson, S., Smith, I., Fombonne, E., Roberts, W., Waddell, C., Thompson, A., & Pathways in ASD Study Team (2014). Examination of bidirectional relationships between parent stress and two types of problem behavior in children with autism spectrum disorder. *Journal of autism and developmental disorders*, *44*(8), 1908–1917. https://doi.org/10.1007/s10803-014-2064-3

Zaidman-Zait, A., Mirenda, P., Duku, E., Vaillancourt, T., Smith, I. M., Szatmari, P., Bryson, S., Fombonne, E., Volden, J., Waddell, C., Zwaigenbaum, L., Georgiades, S., Bennett, T., Elsabaggh, M., & Thompson, A. (2017). Impact of

personal and social resources on parenting stress in mothers of children with autism spectrum disorder. *Autism : the international journal of research and practice*, *21*(2), 155–166. https://doi.org/10.1177/1362361316633033

Zaidman-Zait, A., Mirenda, P., Zumbo, B. D., Georgiades, S., Szatmari, P., Bryson, S., Fombonne, E., Roberts, W., Smith, I., Vaillancourt, T., Volden, J., Waddell, C., Zwaigenbaum, L., Duku, E., & Thompson, A. (2011). Factor analysis of the Parenting Stress Index-Short Form with parents of young children with autism spectrum disorders. *Autism Research*, *4*(5), 336-346. https://doi.org/10.1002/aur.213

Zeidan, J., Fombonne, E., Scorah, J., Ibrahim, A., Durkin, M. S., Saxena, S., Yusuf, A., Shih, A., & Elsabbagh, M. (2022). Global prevalence of autism: A systematic review update. *Autism research : official journal of the International Society for Autism Research*, *15*(5), 778–790. https://doi.org/10.1002/aur.2696

Zlomke, K. R., Bauman, S., & Edwards, G. S. (2019). An Exploratory Study of the Utility of the Dyadic Parent-Child Interaction Coding System for Children with Autism Spectrum Disorder. *Journal Of Developmental And Physical Disabilities*, *31*(4), 501-518. https://doi.org/10.1007/s10882-018-9648-3

Fig. 1 PRISMA 2020 Flow Diagram for New Systematic Reviews

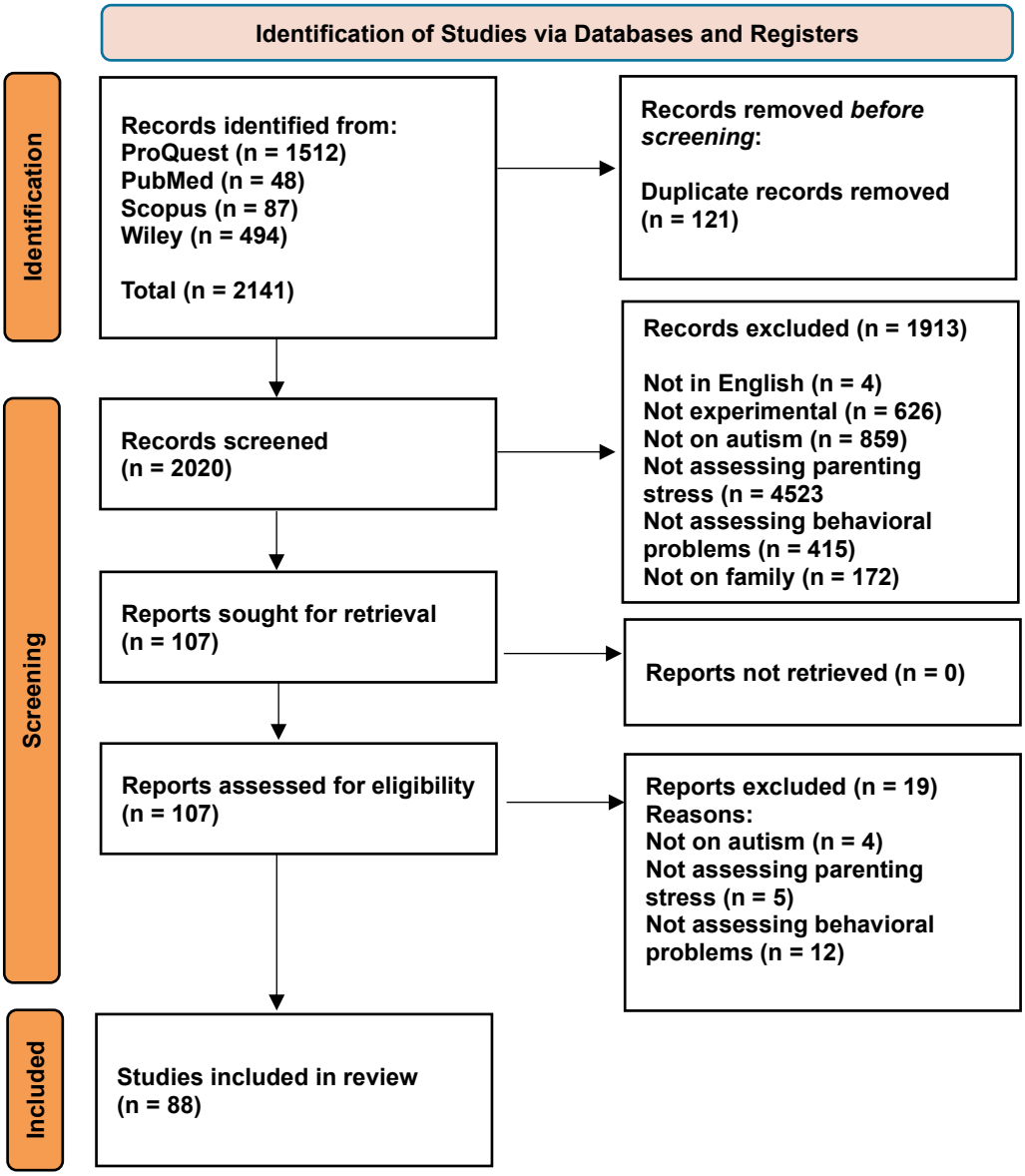


Table 1 Appraisal Tool for Cross-Sectional Studies (AXIS), Short Version for Study Assessment

Author (Years)	Scores for Each Item										Total Score	Quality Rating
	1	2	3	4	5	6	7	8	9	10		
Adams et al. (2021)	1	1	0	1	1	1	1	1	1	1	9	High
Allen et al. (2023)	1	1	0	1	1	1	1	1	1	1	9	High
Bauminger et al. (2010)	1	1	0	1	1	1	1	1	1	1	9	High
Blacher et al. (2019)	1	1	0	1	1	1	1	1	1	1	9	High
Brian et al. (2021)	1	1	1	1	1	1	1	1	1	1	10	High
Brobst et al. (2009)	1	1	0	1	1	1	1	1	0	1	8	High
Buchwald et al. (2025)	1	1	0	1	1	1	1	1	1	1	9	High
Chen et al. (2020)	1	1	0	1	1	1	1	1	1	1	9	High
Chen et al. (2021)	1	1	0	1	1	1	1	1	1	1	9	High
Chen et al. (2023)	1	1	0	1	1	1	1	1	1	1	9	High
Cheung et al. (2019)	1	1	0	1	1	1	1	1	1	1	9	High
Choi et al. (2023)	1	1	0	1	1	1	1	1	1	1	9	High
Clauser et al. (2021)	1	1	0	1	1	1	1	1	1	1	9	High
Cochrane et al. (2023)	1	1	0	1	1	1	1	1	1	1	9	High
Craig et al. (2016)	1	1	0	1	1	1	1	1	1	1	9	High
D'Elia et al. (2014)	1	1	0	1	1	1	1	1	1	1	9	High
Davis and Carter (2008)	1	1	0	1	1	1	1	1	1	1	9	High
Davis et al. (2017)	1	1	0	1	1	1	1	1	1	1	9	High
Demirpençe Seçinti et al. (2024)	1	1	0	1	1	1	1	1	1	1	9	High
Dilbaz-Gürsoy et al. (2025)	1	1	0	1	1	1	1	1	1	1	9	High
Doo et al. (2006)	1	1	0	1	1	0	1	1	1	1	8	High
Efstratopoulou et al. (2022)	1	1	0	1	1	1	1	1	1	1	9	High
Esposito et al. (2024)	1	1	0	1	1	1	1	1	1	1	9	High
Gharaibeh et al. (2025)	1	1	0	1	1	1	1	1	1	1	9	High
Gong et al. (2015)	1	1	0	1	1	1	1	1	1	1	9	High
Green and Carter (2014)	1	1	0	1	1	1	1	1	0	0	7	Moderate
Greenlee et al. (2023)	1	1	0	1	1	1	1	1	1	1	9	High
Griffith et al. (2010)	1	1	0	1	1	1	1	1	1	1	9	High
Gruescu et al. (2023)	1	1	0	1	1	0	1	1	1	1	8	High
Hoffman et al. (2008)	1	1	0	1	1	1	1	1	1	1	9	High
Hou et al. (2018)	1	1	0	1	1	1	1	1	1	1	9	High
Hou et al. (2023)	1	1	0	1	1	1	1	1	1	1	9	High

Huang et al. (2014)	1	1	0	1	1	1	1	1	1	1	8	High
Jung et al. (2023)	1	1	0	1	1	1	1	1	1	1	9	High
Koller et al. (2022)	1	1	0	1	1	1	1	1	1	1	9	High
Kuravackel et al. (2018)	1	1	0	1	1	1	1	1	1	1	9	High
Kurtz et al. (2021)	1	1	0	1	0	1	1	1	1	1	8	High
Lecavalier et al. (2018)	1	1	0	1	1	1	1	1	1	1	9	High
Levin et al. (2016)	1	1	0	1	1	0	1	1	1	1	8	High
Lin et al. (2021)	1	1	0	1	1	1	1	1	1	1	9	High
Long et al. (2024)	1	1	0	1	1	1	1	1	1	1	9	High
Madarevic et al. (2022)	1	1	0	1	1	1	1	1	1	1	9	High
Manning et al. (2011)	1	1	0	1	1	1	1	1	1	0	8	High
Martin et al. (2021)	1	1	0	1	1	1	1	1	1	1	9	High
Mazzoni et al. (2023)	1	1	0	0	1	1	1	1	1	1	8	High
Miranda et al. (2019)	1	1	0	1	1	1	1	1	1	1	9	High
Mueller and Moskowitz (2020)	1	1	0	1	1	1	1	1	1	1	9	High
Ni et al. (2025)	1	1	1	1	1	1	1	1	1	1	10	High
O'Connor et al. (2023)	1	1	0	1	1	1	1	1	1	1	9	High
Olson et al. (2022)	1	1	0	1	1	1	1	1	1	1	9	High
Ooi et al. (2016)	1	1	0	1	1	1	1	1	1	1	9	High
Operto et al. (2021a)	1	1	0	1	1	1	1	1	1	1	9	High
Operto et al. (2021b)	1	1	0	1	1	1	1	1	1	1	9	High
Operto et al. (2022)	1	1	0	1	1	1	1	1	1	1	9	High
Osborne and Reed (2009)	1	1	0	1	1	1	1	1	1	1	9	High
Palmer et al. (2023)	1	1	0	1	1	1	1	1	1	1	9	High
Papadopoulos et al. (2021)	1	1	0	1	1	1	1	1	1	1	9	High
Parladé et al. (2020)	1	1	0	1	1	1	1	1	1	1	9	High
Paynter et al. (2025)	1	1	0	1	1	1	1	1	1	1	9	High
Porter et al. (2025)	1	1	0	1	1	1	1	1	1	1	9	High
Postorino et al. (2015)	1	1	0	1	1	1	1	1	1	1	9	High
Postorino et al. (2019)	1	1	0	1	1	1	1	1	1	1	9	High
Reed and Osborne (2013)	1	1	0	1	1	0	1	1	1	1	8	High
Rodriguez et al. (2019)	1	1	0	1	1	1	1	1	1	1	9	High
Ros-DeMarize et al. (2025)	1	1	0	1	1	1	1	1	1	1	9	High
Roselló et al. (2022)	1	1	0	1	1	1	1	1	1	1	9	High
Roubinov et al. (2023)	1	1	0	1	1	1	1	1	1	1	9	High

Samadi & Rashid (2024)	1	1	0	1	1	1	1	1	1	1	9	High
Scibelli et al. (2021)	1	1	0	1	1	1	1	1	1	1	9	High
Serur et al. (2023)	1	1	0	1	1	1	1	1	1	1	9	High
Siegel et al. (2015)	1	1	0	1	1	1	1	1	1	1	9	High
Singh et al. (2021)	1	1	0	1	0	1	1	1	1	1	8	High
Siracusano et al. (2021)	1	1	0	1	1	1	1	1	1	1	9	High
Siu et al. (2019)	1	1	0	1	1	1	1	1	1	1	9	High
Stephenson et al. (2023)	1	1	0	1	1	1	1	1	1	1	9	High
Strauss et al. (2024)	1	1	0	1	1	1	1	1	1	1	9	High
Suvarna et al. (2025a)	1	1	1	1	1	1	1	1	1	1	10	High
Suvarna et al. (2025b)	1	1	0	1	1	1	1	1	1	1	9	High
Tang et al. (2025)	1	1	1	1	1	1	1	1	1	1	10	High
Ten Hoopen et al. (2022)	1	1	0	1	1	1	1	1	1	1	9	High
Ueda et al. (2020)	1	1	0	1	1	1	1	1	1	1	9	High
Valeri et al. (2020)	1	1	0	1	1	1	1	1	1	1	9	High
Wang et al. (2013)	1	1	0	1	1	1	1	1	1	1	9	High
Weiss et al. (2015)	1	1	0	1	1	0	1	1	1	1	8	High
Zaidman-Zait et al. (2011)	1	1	0	1	1	1	1	1	1	1	9	High
Zaidman-Zait et al. (2014)	1	1	0	1	1	1	1	1	0	1	8	High
Zaidman-Zait et al. (2017)	1	1	0	1	1	1	1	1	1	1	9	High
Zlomke et al. (2019)	1	1	0	1	1	1	1	1	1	1	9	High

Note.
0=No, 1=Yes
Questions related to each item (the main or complementary factors assessed are in italics)
Introduction
(1) Were the aims/objectives of the study clear?
Method
(2) Was the study design appropriate for the stated aim(s)?
(3) Was the sample size justified?
(4) Was the target/reference population clearly defined? (Is it clear who the research was about?)
(5) Were the risk factor and outcome variables measured correctly using instruments/measurements that had been trialed, piloted or published previously?
(6) Were the methods (including statistical methods) sufficiently described to enable them to be repeated?
Results
(7) Were the results presented for all the analyses described in the methods?
Discussion
(8) Were the authors' discussions and conclusions justified by the results?
(9) Were the limitations of the study discussed?
Other
(10) Was ethical approval or consent of participants attained?

Table 2 Study Characteristics

First Author (year), Country	Study Design	Child: Sample Sizes	Child: Mean Age (SD), Range	Parent: Proportion of Mothers and Fathers	Child Measure	Parent Measure	Statistical Analyses	Main Findings
Adams et al. (2021), Australia	Cross-sectional	ASD *n* = 40 (no control group)	NR	Mothers only	DBC-P	PSI-SF	Paired t-tests	There is no significant difference between mothers with autism and those without autism regarding the achievement of family outcomes and levels of PS.
Allen et al. (2023), US	Longitudinal	ASD *n* = 55 (no control group)	M = 7.15 years (1.72), 4-10	Mothers only	ECBI	PSI-SF	Repeated MANOVAs Univariate tests	In PCIT families, a significant decrease in child disruptive behaviors and PS was found, as well as an increase in positive parent–child communication.
Bauminger et al. (2010), US and Israel	Cross-sectional	ASD *n* = 43 (TD *n* = 34)	ASD: M = 9.55 y (14.61) TD: M = 10.2 y (16.44), 8-12	Mothers only	CBCL	PSI	Hierarchical linear regressions	PS is the most significant predictor of children's IBs and EBs.
Blacher et al. (2019), US	Cross-sectional	ASD *n* = 48 (ID *n* = 28 ; TD *n* = 84)	ASD: M = 13.0 y (NR) ID: M = 13.0 y (NR) TD: M = 13.0 y (NR), NR	Mothers only	CBCL	FIQ	One-way ANOVAs Multiple regressions	Mothers of ASD children are more stressed and report more psychological symptoms and a higher negative impact of the child on the family. Dispositional optimism contributes to the reduction of stress and psychological symptoms in relation to youth behavior challenges.
Brian et al. (2021), US	Longitudinal	ASD *n* = 131 (no control group)	NR (NR), 2-12	Mothers: .61 Fathers: .37 (Paired couples)	SDQ	PSI-SF	Paired t-tests	STTP intervention showed significant improvements in parent self-efficacy, parenting over-reactivity, laxness, PS, children's behavioral (conduct) challenges, hyperactivity/inattention, and prosocial behaviors.
Brobst et al. (2009), US	Cross-sectional	ASD *n* = 25 (TD *n* = 20)	ASD: M = 6.64 y (2.66) TD: M = 6.80 y (3.19) 2-12	Equal proportion of mothers and fathers (Paired couples)	ECBI	PSI-SF	ANOVAs Multiple regressions	Parents of children with ASD experience more intense child behavior problems, greater PS, and lower relationship satisfaction. PS is positively related to the intensity of the children's behavioral problems.
Buchwald et al. (2025), Australia	Cross-sectional	ASD *n* = 490 (no control group)	NR Two subgroups (aged <13 and aged 13+)	Mothers: .88 Fathers: .12 (Individuals)	SDQ	PSS	Structural Equation Modelling	Age at diagnosis strongly influenced child behavior, communication, and PS, with Lack of Control as a key outcome. Older diagnosis age predicted more conduct problems and lower communication, while child emotional problems, parental rewards and satisfaction affected PS.
Chen et al. (2020), China	Cross-sectional	ASD *n* = 454 (ID *n* = 703 ; Hearing or visual impairment *n* = 293)	ASD: M = 11.38 y (3.34) ID: M = 12.51 y (3.17) Hearing or visual impairment: 12.47 y (3.45), NR	Mothers: .73 Fathers: .27 (Individuals)	Self-designed questionnaire to measure child behavior problems during the Covid-19 pandemic	PSI-SF	ANOVAs Pearson's correlations Hierarchical linear regressions	Behavioral problems and psychological demands of parents predict the mental health of parents. Parent–child dysfunctional interactions and parenting distress are associated with ASD conditions.
Chen et al. (2021), China	Cross-sectional	ASD *n* = 439 (no control group)	M = 11.13 y (3.11), Children under 18 years	Mothers: .73 Fathers: .27 (Individuals)	CRS-R	PSI-SF	Pearson's correlations Mediation analyses Sobel test Multiple regressions	Parental self-efficacy is negatively correlated with behavioral problems in ASD children, which is mediated by PS. PS moderated the indirect

								relationship between parental self-efficacy and behavioral problems via perceived social support.
Chen et al. (2023), Taiwan	Cross-sectional	ASD *n* = 128 (no control group)	M = 32.32 (10.43) 1.5 – 5	Mothers only	CBCL	PSI	Components factor analyses Pearson's correlations Mediation analyses	Problem-focused coping correlates with decreased PS and depressive symptoms, and avoidance coping is correlated with increased PS and depressive symptoms. Coping strategies mediate the relationship between children's EBs and PS
Cheung et al. (2019), China	Cross-sectional	ASD *n* = 136 (no control group)	M = 9.39 y (5.24), Children under 18 years	Mothers: .81 Fathers: .19 (Individuals)	SDQ	PSS	Pearson's correlation Mediation analyses	PS mediated the relationship between parents' characteristics and behavioral difficulties in children with ASD. PS undermined mental well-being, and parents' mental well-being is related to children's prosocial behaviors.
Choi et al. (2023), Korea	Cross-sectional	ASD *n* = 496 (no control group)	M = 6.39 y (2.24), Children under 19 years	NR (Individuals)	CBCL	PSI-SF	Paired t-tests Chi-square tests Logistic regressions Support vector machine	ASD patients' aggressive behavior and anxiety/depression, caregivers' depression, social introversion, and psychasthenia are the main predictors of PS.
Clauser et al. (2021), US	Cross-sectional	ASD *n* = 70 (no control group)	M = 10.1 y (3.91), 3-18	Mothers: .94 Fathers: .06 (Individuals)	CBCL	PSI-SF	Pearson's correlations Hierarchical linear regressions	ASD severity and parenting style contribute to children's EBs. PS is the primary predictor of both children's IBs and EBs.
Cochrane et al. (2023), US	Cross-sectional	ASD *n* = 84 (no control group)	M = 8.40 y (1.62), 6-11	Mothers only	SNAP-IV	PSI-SF	Pearson's correlations Hierarchical linear regressions	Symptoms of ODD predict PS. Symptoms of ADHD and ASD do not predict PS beyond that explained by ODD symptoms.
Craig et al. (2016), Italy	Cross-sectional	ASD *n* = 45 (SpLD *n* = 60 ; LD *n* = 34 ; ADHD *n* = 47 ; TD *n* = 53)	ASD: M = 8.3 y (3.6) SpLD: M = 10.3 y (2.1) LD: 4.8 y (1.2) ADHD: M = 9.3 y (3.6) TD: M = 8.3 y (2.5), 3-12	Mothers: .93 Fathers: .87 (Paired couples)	CBCL	PSI-SF	Kruskal-Wallis tests Wilcoxon Signed Rank tests Spearman's correlations	Children's IQ level and emotional and behavioral problems are positively associated with PS.
D'Elia et al. (2014), Italy	Longitudinal	ASD *n* = 15 (PDD-NOS *n* = 15)	Experimental group: M = 4.1 y (1.2) Control group: M = 4.1 y (1.3), 2-6	Mothers only	CBCL	PSI-SF	Mann–Whitney U tests Two-way repeated measures ANOVAs Chi-square tests	The TEACCH program showed improvements in autistic symptoms, children's maladaptive behaviors, and PS.
Davis and Carter (2008), US	Cros-sectional	ASD *n* = 54 (no control group)	M = 2.24 y (.35), NR	Equal proportion of mothers and fathers (Paired couples)	ITSEA	PSI-SF	Separate regression equation	Regulatory problems correlates with maternal stress, whereas EBs were associated with paternal stress.
Davis et al. (2017), US	Cross-sectional	ASD *n* = 76.8% (PDD-NOS *n* = 23.2%)	M = 3.86 y (.98), 2.5-5	Mothers: .84 Fathers: .26 (Individuals)	CBCL	PSI-SF	Spearman's correlations Hierarchical linear regressions	Children's attention problems, language problems, and EBs problems are associated with PS. The specific behavior problems "Doesn't answer when people talk to him/her," "Speech problem," and "Temper tantrums or hot temper," uniquely predict PS.
Dilbaz-Gürsoy et al. (2025), Turkey	Cross-sectional	ASD *n* = 35 (rDLD *n* = 35 ; TDL *n* = 25)	ASD: M = 2.80 y (.68), rDLD: M = 3.15 y (.57), TDL: M = 3.06 y (.72), 2-4	Equal proportion of mothers and fathers (Paired couples)	ABC	PSI	ANOVA Pearson's correlations	No significant group differences were found for the PSI parent domain. The ASD group showed higher scores than rDLD and TDL in the PSI child domain, while both ASD and rDLD scored higher than TDL on total PS. Behavioral problems in children were the main predictor of PS, with parental self-efficacy influencing stress in ASD and rDLD.

Demirpençe Seçinti et al. (2024), Helsinki	Cross-sectional	ASD *n* = 93 (no control group)	M = 8.22 y (3.63), 6-11	Mothers only	SDQ ABC	PSI	Mediation analysis	Autistic symptoms significantly predict child difficulties but not internalized stigma. For PS, the child's difficulties alone and combined with internalized stigma significantly mediate the effect of autistic symptoms on PS, making the direct effect non-significant.
Doo and Wing (2006), Hong Kong	Cross-sectional	ASD *n* = 193 (no control group)	M = 3.6 y (1.4), 2-7	Mothers: .75 Fathers: .25 (Individuals)	CSHQ	PSI-SF	Chi-square tests Fisher's tests Mann-Whitney U tests Independent t-tests Multivariate logistic or linear regressions	Parents of children with sleep problems report higher levels of stress. PS is also positively associated with a lower cognitive level in children.
Efstratopoulou et al. (2022), Greece	Cross-sectional	ASD *n* = 75 (no control group)	M = 78.59 y (1.38), 7-11	Mothers: .83 Fathers: .27 (Individuals)	MBC	PSI-SF	Pearson's correlations One-way ANOVAs	PS positively correlates with children's self-regulation and negatively correlates with the level of social functional support reported. Qualitative data reveal additional stressors for families and parents.
Esposito et al. (2024), Italy	Cross-sectional	ASD *n* = 46 (no control group)	M = 4.42 y (11.57), 2-5	Equal proportion of mothers and fathers (Paired couples)	SDSC CBCL CPRS	APSI	Fisher tests T-tests Mann–Whitney U-tests Spearman's correlations Linear regressions	PS is significantly associated with ADHD symptoms, sleep disorders, and GI symptoms.
Gharaibeh et al. (2025), Jordan	Cross-sectional	ASD n = 186 (no control group)	M = 8.84 y (1.86), 6-12	NR (Individuals)	CBCL	APSI	Pearson's correlations Bootstrapping	The network analysis shows that PS is associated with both IBs and EBs, particularly with affective problems and conduct/oppositional problems on the CBCL.
Gong et al. (2015), China	Cross-sectional	ASD *n* = 188 (TD *n* = 144)	ASD: M = 6.47 y (NR), 1.91-12 TD: M = 6.48 y (NR), 1.9-11.9	Equal proportion of mothers and fathers (Paired couples)	ABC	PSI-SF	T-tests Pearson's correlations Regressions	Mothers of autistic children are more vulnerable to depression than fathers. Age, behavior problems of autistic children, and mothers' anxiety are significantly associated with PS.
Green & Carter (2014), US	Longitudinal	ASD *n* = 162 (no control group)	M = 2.35 y (.35), 1.5-2.75	Equal proportion of mothers and fathers (Paired couples)	BITSEA	PSI-SF	Hierarchical linear regressions	Children's Daily Living Skills (DLS) are associated with change in parenting stress beyond Developmental Level (DQ), autism symptom severity, and behavioral problems.
Greenlee et al. (2023), US	Cross-sectional	ASD *n* = 183 (no control group)	M = 7.92 y (2.25), 5-12	Equal proportion of mothers and fathers (Paired couples)	CBCL	Burden Interview	Pearson-centered analyses Bootstrap Likelihood Ratio Test (BLRT) Bolck-Croon-Hagenaars (BCH) method	Children of mothers and fathers in the Adaptive group have fewer IBs and EBs and lower severity of social communication challenges and RRBs.
Griffith et al. (2010), UK	Cross-sectional	ASD *n* = 19 (Down Syndrome *n* = 19 ; Mixed etiology *n* = 19)	ASD: M = 10.16 y (3.86), 4-17 Down Syndrome: M = 9.98 y (4.04), 5-17 Mixed etiology: M = 9.84 y (4.18), 4-18	Mothers only	BPI	QRS-SF	ANOVAs ANCOVAs	Mothers of children with autism report lower positive perceptions of their child, and higher stress levels. After selecting closely matched groups, several group differences in child behavior but little evidence of group differences in maternal outcomes.

Gruescu et al. (2023) Romania	Longitudinal	ASD *n* = 62 (Mixed etiology *n* = 106)	M = 3.4 y (1.2), 1.5-5	Equal proportion of mothers and fathers (Paired couples)	CBCL	PSI	T-tests ANOVAs Chi-square tests	During the pandemic, parents reported increased feelings of being overwhelmed, but also a positive trend in family mental well-being, PS, and Behavioral Challenges in children. Anxiety reflected a moderate reduction across the years, although depression did not change.
Hoffman et al. (2008), Southern California	Cross-sectional	ASD *n* = 72 (no control group)	M = 8.3 y (2.97), 4-16	Mothers only	CSHQ	PSI-SF	Pearson's correlations Hierarchical regressions	Severity of autism is a predictor of maternal stress. After controlling child age and gender, mother's sleep and autistic symptoms, children's sleep was a predictor of maternal stress.
Hou et al. (2018), Taiwan	Cross-sectional	ASD *n* = 51 (DD *n* = 51)	ASD: M = 2.65 y (.61) DD: M = 2.51 (.72), NR	Mothers only	CBCL	PSI	Independent t-tests Pearson's correlations Linear regressions	Children's behavioral problems predict PS and depressive symptoms in mothers of young children with ASD.
Hou et al. (2023), China	Cross-sectional	ASD *n* = 237 (no control group)	M = 7.6 y (1.07), NR	Mothers: .77 Fathers: .23 (Individuals)	SDQ	PSS	Pearson's correlations Hierarchical regressions Mediation analyses	Parental involvement enhances children's prosocial behavior but does not reduce their emotional or behavioral problems. PSE and psychological support (PS) mediate the link between parental involvement and children's psychological adjustment.
Huang et al. (2014), Taiwan	Cross-sectional	ASD *n* = 52 (no control group)	M = 6.33 y (2.3), 3-12	Mothers: .86 Fathers: .14 (Individuals)	SDQ	PSI-SF	ANOVAs Pearson's correlations Multiple regressions	Children's prosocial behaviors and conduct problems predict stress in the parent–child relationship and child-related stress.
Jung et al. (2023), South Korea	Cross-sectional	ASD *n* = 79 (TD *n* = 177)	ASD: M = 4.86 y (.74) TD: M = 4.37 y (.71), 2.8-6.4	Equal proportion of mothers and fathers (Paired couples)	CBCL ABC	K-PSI	Chi-square test Independent t-test Pearson's correlations Multiple linear regressions Variance inflation factors (VIFs)	PS is positively correlated with children's social communication, attention problems, and aggressive behaviors.
Koller et al. (2022), Israel	Cross-sectional	ASD *n* = 90 (no control group)	M = 5.7 y (1.6), 2-9	Equal proportion of mothers and fathers (Paired couples)	ABC ABC-HY	PSI-SF	Pearson's correlations Multiple regressions	ABC scores are positively correlated with FAS-RRB, RBSR, SRS, and significantly negatively correlated with ABAS Communication, ABAS Socialization and PSI. Such accommodation in parents contributes significantly to predicting disruptive behavior.
Kuravackel et al. (2018), US	Longitudinal	ASD *n* = 33 (no control group)	M = 8.2 Y (NR), 3-12	Equal proportion of mothers and fathers (Paired couples)	ECBI	PSI-SF	Multilevel modeling approach for handling partial nesting (MLM-PN) Multiple imputations	C-HOPE intervention showed a reduction in PS, and in child behavior problems, as well as an increase in parental competence.
Kurtz et al. (2021), US	Longitudinal	ASD *n* = 111 (ADHD *n* = 36 ; Seizure disorder *n* = 31 ; Genetic disorder *n* = 29 ; Mood disorder *n* = 19 ; OCD *n* = 7 ; Anxiety disorder *n* = 6 ; Other mental or medical disorder *n = 9)*	M = 11.32 y (6.10), 1-38	Mothers: .85 Fathers: .12 (Individuals)	Individualized operational definition for targeted behavior problems were used	PSI-SF	Wilcoxon Signed Ranks Mann–Whitney-U tests Repeated ANONVAs	Children's behavioral problems decreased from admission to discharge, with a more pronounced improvement observed in function based-treatment group. PS levels decreased following treatment but remained high at discharge. The presence or absence of an autism diagnosis, as well as the behavioral function (attention-seeking, automatic, or mands), moderated the effect of treatment on PS.

Lecavalier et al. (2018), US	Longitudinal	ASD *n* = 128 (no control group)	ATX + PT: M = 8.0 y (1.9) ATX: M = 8.6 y (2.3) Placebo + PT: M = 7.7 y (1.5) Placebo: M = 8.2 y (2.4), 5-14	Mothers: .90 Fathers: NR (Paired couples)	SNAP-IV HSQ-PDD ABC	PSI-SF	Multiple regressions Spearman's correlations	All four treatments shown a decrease in PS from baseline to week 10, but there are no significant differences between treatment groups.
Levin et al. (2016), Israel	Cross-sectional	ASD *n* = 34 (TD *n* = 31)	ASD: M = 3.27 y (0.43) TD: M = 3.0 (.48), 2-4	Mothers only	CSHQ	PSI-SF	Pearson's correlations Hierarchical regressions	Sleep problems contributed to higher maternal stress levels, over and above symptom severity. Maternal cognitions and bedtime interactions were significantly associated with children's sleep problems.
Lin et al. (2016), Taiwan	Longitudinal	ASD *n* = 75 (no control group)	M = 2.14 y (NR) 1.5-3.5	Mothers: .95 Fathers: .05 (Individuals)	CBCL	PSI	Pearson's correlations Cross-lagged structural equation modeling	PS is related to parent's perceptions on child characteristics and was found to predict EBs, but EBs did not predict PS.
Long et al. (2024), US	Cross-sectional	ASD *n* = 501 (no control group)	M = 5.16 y (1.0), 2-6	Mothers: .90 Fathers: .10 (Individuals)	ECBI	PSI-SF	Linear regressions	PS, parental internalizing diagnosis, and parental externalizing diagnosis predict children's EBs, but PS did not interact with any category of parental mental health diagnoses to predict children's EBs.
Madarevic et al. (2022), Belgium	Cross-sectional	ASD *n* = 21 (TD *n* = 21)	ASD: M = 4.14 y (.65), 2-5 TD: M = 3.29 y (.55), 2-3	Mothers only	CBCL	NOSIK	Mann-Whitney-U-tests Spearman's correlations Linear regressions	PS is related to EBs, but not to the level of autism characteristics. More EBs are associated with more observed negative parenting, and more PS is associated with less autonomy support.
Manning et al. (2011), US	Cross-sectional	ASD *n* = 195 (no control group)	M = 8.8 (2.1), 6-12	Mothers: .96 Fathers: .04 (Individuals)	CBCL	PSI-SF	Pearson's correlations Linear regressions	Children's behavior severity and coping by relying on family and friends are related to more positive family functioning and subjective social status. PS is predicted by child behavior severity, coping by relying on family and friends, coping by seeking spiritual support, reframing and subjective social status.
Martin et al. (2021), US	Cross-sectional	ASD *n* = 234 (no control group)	M = 8.79 (2.11), 5-13	Mothers only	CSHQ	PSI	Bivariate linear regressions Multiple regressions	Sleep initiation and duration problems are positively associated with parents' mental health difficulties. Specific child sleep problems are not associated with parenting stress or HRQoL.
Mazzoni et al. (2023), US, Italy, Spain	Cross-sectional	ASD *n* = 68 (ADHD *n* = 21 ; LD *n* = 17 ; SLD *n* = 15 ; ID *n* = 9 ; Other diagnoses *n* = 13)	Italy group: M = 5.69 y (3.79) Spain group: M = 6.37 y (3.49) USA group: M =7.65 y (3.65), 3-17	Equal proportion of mothers and fathers (Paired couples)	SDQ	PSS	MANOVAs Chi-square tests Hierarchical linear regressions	PS contributes to increased parental psychological distress, regardless of culture. Children's EBs have an indirect impact on parental psychological distress through PS. In the COVID-19 study, the absence or discontinuity of therapeutic activities may have contributed to parental burden, with a lesser effect for families with a strong sense of parental efficacy and the ability to adapt to changing family dynamics.
Miranda et al. (2019), Spain	Cross-sectional	ASD *n* = 52 (no control group)	M = 8.59 y (1.38), 7-11	Mothers only	SDQ-Cas	PSI-SF	ANCOVAs Paired t-tests	PS is positively correlated with the children's ASD symptoms and behavioral problems, and negatively correlated with the engagement coping and social functional support reported by the mothers. Engagement coping and behavioral difficulties were significant mediators in the relationship between ASD symptoms and parenting stress.

Mueller & Moskowitz (2020), US	Longitudinal	ASD *n* = 3 (no control group)	NR, 3-6	Mothers only	Child's behavioral observation	PSI-SF	Pearson's correlations Multiple regressions Mediation analyses	PFI intervention showed a significant decrease in children's behavior problems for all three families, though visual analysis showed only modest change for one of those three mothers. Two mothers reported significant decreases in dysfunctional child- and parent-causal attributions, irrational beliefs, and pessimistic thoughts. One mother reported improvements in PS and self-efficacy.
Ni et al. (2025), Hong Kong	Longitudinal	ASD *n* = 40 (20 ASD children in experimental condition and 20 in control group)	M = 5.93 y (1.70), 3-9	NR (Individuals)	SDQ	PSI	Independent T-tests Mann–Whitney U-tests Chi-square tests Fisher's tests Wilcoxon signed-rank tests	The ACT-based parenting program demonstrated positive effects on PS, parental depression and anxiety, psychological flexibility and parenting self-efficacy. However, no within-group changes in children's EBs were found. At T1, between-group comparisons revealed improvements in all parent outcomes and children's EBs in experimental groups, with large effect sizes.
O'Connor et al. (2023), Australia	Longitudinal	ASD *n* = 47 (no control group)	M = 4.08 y (.80), 2-5	Mothers: .93 Fathers: .07 (Individuals)	BASC-2	PSI-SF	Hierarchical linear regressions	Across Time 1 to Time 2, early PS predicts later child EBs. In contrast, across Time 2 to Time 3, no significant prospective associations were found between variables.
Olson et al. (2022), US	Cross-sectional	ASD *n* = 42 (TD *n* = 19)	ASD: M = 2.65 y (1.01), 1.4-5.6 TD: M = 2.3 y (1.15), 1.2-5.3	Mothers only	CBCL	PSI-SF	Wilcoxon-signed-ranks tests Spearman's correlations	Children's EBs, communication, and socialization skills accounted for variance in PS, controlling for ASD diagnosis.
Ooi et al. (2016), Singapore	Longitudinal	ASD *n* = 70 (no control group)	M = 11.21 y (1.79), 9-16	Mothers: .81 Fathers: .13 (Individuals)	SCAS-C SCAS-P	PSI	Paired t-tests Pearson's correlations	Increased PS is associated with more discrepant caregiver-child reports of social anxiety symptoms.
Operto et al. (2021a), Italy	Cross-sectional	ASD *n* = 88 (no control group)	M = 6.0 y (2.70), NR	Equal proportion of mothers and fathers (Paired couples)	CBCL	PSI-SF	Interclass Correlations Coefficient (ICC; two-way mixed) T-tests Pearson's correlations	PS levels are related to a higher severity of ASD symptoms, fewer adaptive skills, and a greater presence of IBs and EBs.
Operto et al. (2021b), Italy	Cross-sectional	ASD-HF *n* = 19 (ADHD *n* = 21 ; SLD mixed type *n* = 22, TD *n* = 20)	ASD-HF: M = 8.84 y (2.36) ADHD: M = 9.09 y (1.99) SLD mixed type: M = 9.77 y (1.63) TD: M = 10.88 y (1.67), NR	Equal proportion of mothers and fathers (Paired couples)	CBCL	PSI-SF	Independent t-tests Peason's correlations Multiple regressions	The Parental Distress (PD) score was higher in ASD-HF and ADHD group compared to controls, and the SLD children have less problems in socialization, mood, and somatic disorders than the ASD-HFs and the ADHDs.
Operto et al. (2022), Italy	Cross-sectional	ASD *n* = 114 (Epilepsy *n* = 93 ; SLD *n* = 41 ; ID *n* = 34 ; LD *n* = 32 ; ADHD *n* = 21 ; Behavioral disorders *n* = 16 ; Anxiety disorder *n* = 16 ; Mood disorder *n* = 16)	M = 9.89 y (4.42), 2-18	Equal proportion of mothers and fathers (Paired couples)	CBCL	PSI-SF	Kruskal–Wallis tests Mann-Witney-U-tests	PS is positively correlated to IBs. The COVID-19 pandemic and the corresponding measures adopted led to an increase in IBs and EBs in children and adolescents with neuropsychiatric disorders.
Osborne and Reed (2009), UK	Longitudinal	ASD *n* = 137 (no control group)	Study 1: M = 3.4 y (.75), 2.6-4 Study 2: M = 8.8 y (3.5), 5-16	NR (Individuals)	CRS-R SDQ DBC	PSI	Kruskal-Wallis tests Mann-Whitney U-tests Linear regressions	PS is strongly associated with child behavior problems when controlling ASD severity and IQ, and higher PS at Time 1 predicts higher children behavior problems at Time 2. ASD severity is more strongly related to PS in young children.

Palmer et al. (2023), UK	Cross-sectional	ASD *n* = 83 (no control group)	M = 6.70 y (1.21), 4-8	Mothers: .92 Fathers: .06 (Individuals)	ABC ACB (teacher version)	APSI	Spearman's correlations Multiple linear regressions Univariate linear regressions	Greater PS and verbal competences are associated with more parent-reported emotional and behavioral problems (EBPs). More PS could be associated with the presence of more EBPs.
Papadopoulos et al. (2021), Australia	Cross-sectional	ASD + ID *n* = 34 ; ASD *n* = 22 (no control group)	M = 9.18 y (2.23) 6-13	Mothers only	CSHQ DBC-P	PSI-SF	Independent t-tests Linear regressions	Emotional and behavioral problems and parent mental health are associated with children's sleep problems. Parenting stress was not significantly associated with sleep problems.
Parladé et al. (2020), US	Longitudinal	ASD *n* = 20 (Children with elevated disruptive behavior *n* = 16)	ASD: M = 5.3 y (1.41) Children with elevated disruptive behaviors: M = 5.31 y (1.49), 3-7	Mothers: .75 Fathers: .25 (Individuals)	BASC-2 PRS ECBI	PSI	T-tests ANOVAs	PCIT showed significant improvements in child disruptive and EBs and executive functioning, parenting skills, and PS. A subset of children with autism also showed improvements in social responsiveness, adaptive skills, and restricted/repetitive behaviors.
Paynter et al. (2025), Australia	Longitudinal	ASD *n* = 93 (no control group)	M = 3.78 y (0.76), 2-6	Mothers only	DBC	PSI-SF	Correlations Cross-lagged autoregressive models	Significant stability effects for parental distress between T1 and T2 were found, as well as for child behaviors (IBs and EBs). However, cross-lagged effects were non-significant.
Porter et al. (2025), US and Japan	Cross-sectional	ASD *n* = 103 (52 US and 51 Japanese) (no control group)	NR, 2-12	Mothers only	CBCL	PSI-SF	MANOVA MANCOVA Linear regressions	No significant differences between the two countries were found in PSI Total scores and subscales. Stress associated with the Child Domain was more pronounced than stress in the Parent Domain. Positive relationship between IBs, EBs, and PS (Parent Domain, and Total scores) were found in the two samples.
Postorino et al. (2015), Italy	Longitudinal	ASD *n* = 60 (no control group)	M = 3.55 y (.9), 2-5.4	Mothers only	CBCL	PSI-SF	Paired T-tests ANOVAs	No significant interaction was found between time and gender for predicting autism symptoms, developmental quotient, PS, children's adaptive skills and behavior problems.
Postorino et al. (2019), US	Cross-sectional	ASD *n* = 298 (no control group)	M = 5.8 y (2.2), 4-14	Equal proportion of mothers and fathers (Paired couples)	ABC	PSI-SF	Bivariate Regressions Multivariate regressions	Children's Irritability and social withdrawal are positively associated with PS. Greater adaptive functioning deficits predicted parental membership in the upper quartile on the PSI.
Reed and Osborne (2013), UK	Cross-sectional	ASD *n* = 52 (no control group)	M = 3.7 y (.65), 3-6.4	NR (Individuals)	CRS-R	QRS-SF	T-tests Pearson's correlations	The most stressed parents rated their children's behavioral problems as greater, but none of these differences were statistically reliable.
Rodriguez et al. (2019), US	Longitudinal	ASD *n* = 188 (no control group)	M = 7.9 y (2.3), 5-12	Equal proportion of mothers and fathers (Paired couples)	CBCL	Burden Interview	Paired t-tests structural equation modeling (SEM) Chi-square test	PS predicts child IBs, while child EBs and ASD symptoms evidenced both parent-driven and child-driven effects, in different ways for mothers versus fathers.
Ros-DeMarize et al. (2025), US	Longitudinal	ASD n = 20 (no control group)	M = 4.85 (1.14), 2-6	Equal proportion of mothers and fathers (Paired couples)	ECBI	PSI	ANOVA	PCIT led to significant reductions in PS from pre- to post-treatment, along with significant improvements in child behavior, including fewer EBs and greater compliance.

Roselló et al. (2022), Spain	Cross-sectional	ASD *n* = 45 (no control group)	M = 8.56 y (1.38), 7-11	Mothers: .84 Fathers: .06 Both: .08 (Paired couples)	SDQ	PSI-SF	T-tests Pearson's correlations Regressions	Theory of mind mainly predicted adaptive and behavior/emotional outcomes. ASD symptoms, social interaction and repetitive and restrictive behavior predict behavioral problems. Parental educational level, social support and parenting distress predicted socialization, while the engagement coping strategy had a significant role in daily living skills.
Roubinov et al. (2023), Spain	Longitudinal	ASD *n* = 41 (TD n = 45)	M = 7.7 y (3.1), 2-15	Mothers only	Child's Challenging Behavior Scale	PSS	Multiple linear regressions	Child behavior problems are positively correlated with subsequent maternal depression at the between-person level, but not at the within-person level. The converse relation was not significant. PS and child ASD diagnosis do not moderate bidirectional associations between maternal depressive symptoms and children's behavior problems.
Samadi et al. (2024), UK	Cross-sectional	ASD n = 118 (no control group)	M = 7.3 y (2.6), 3-19	Mothers: .69 Fathers: .31 (Individuals)	ABC	PSI	Bivariate T-tests	Both mothers and fathers are similarly impacted by caring for a child with ASD, with most reporting high PS, health difficulties, and family challenges. More behavioral problems in children were associated with poorer parental health and lower caregiving satisfaction.
Scibelli et al. (2021), Italy	Cross-sectional	ASD *n* = 101 (no control group)	M = 12.73 y (1.73), 9-17	Mothers only	CBCL	PSI-SF	Independent t-tests Mann-Whitney-U-tests Chi-square tests	Cognitive disorders and EBPs are associated with maternal stress. Mother's education and occupation are associated with maternal stress in the cognitively impaired group, while mother's age is associated with stress in the non-cognitively impaired adolescent group.
Serur et al. (2023), Israel	Cross-sectional	ASD *n* = 33 (22q11.2 DS n = 24 ; TD n = 23)	22q11DS: M = 5.97 y (1.59) ASD: M = 5.34 y (1.22) TD: M = 5.48 y (1.71), 3-8	Mothers only	CBCL	PSI	ANCOVAs Multiple linear regressions	PS, criticism and over-involvement are positively correlated with children's IBs and EBs. PS still predicts children's IBs, EBs and total behavioral problems after controlling other variables.
Siegel et al. (2015), US	Cross-sectional	ASD *n* = 147 (no control group)	M = 12.58 y (3.42), 4-20	Equal proportion of mothers and fathers (Paired couples)	ABC-C EDI RBS-R	PSI-SF	ANOVAs T-tests Pearson's correlations Regressions	Female subjects show more self-injurious behavior than men, as well as poorer intellectual (non-verbal) performance.
Singh et al. (2021), NR	Longitudinal	ASD *n* = 65 (no control group)	MBPBS group: M = 12.17 y (1.62) MB group: M = 11.80 y (1.65) PBS group: 11.95 y (1.68), 9-14	Mothers only	Experimental observation of aggressive and disruptive behaviors	PSS	ANCOVAs Linear regressions	Mothers in the MBPBS group reported a greater reduction in stress and in their children's aggressive and disruptive behaviors, as well as an increase in their children's compliance. These effects were maintained for up to 3 years after the intervention.
Siracusano et al. (2021), Italy	Cross-sectional	ASD *n* = 74 (ADHD n = 51 ; SS n = 34 ; RTT *n* = 21 ; TD n = 40)	ASD: M = 7.9 y (3.6) ADHD: M = 11.6 y (2.2) SS: M = 9.9 y (4.6) RTT: M = 13.0 y (4.8) TD: M = 7.1 y (3.9), 2-19	NR (Individuals)	CBCL	PSI-SF	Chi-square tests ANOVAs Multiple linear regressions	Parents of children affected by a disability show higher levels of PS, which is mainly linked to child behavior characteristics.

Siu et al. (2019), Hong Kong	Cross-sectional	ASD *n* = 177 (TD n = 554)	ASD: M = 8.4 y (1.6) TD: M = 8.6 y (1.6), 6-11	Mothers: .77 Fathers: NR (Individuals)	SDQ	PSI-SF	Chi-square tests Hierarchical linear regressions	Children's behavior problems mediate the relationship between autism spectrum symptoms and PS. Both EBs and IBs predict PS.
Stephenson et al. (2023), US	Cross-sectional	ASD *n* = 132 (no control group	M = 7.44 y (2.64), 3-13	NR (Individuals)	CBCL	FIQ	Structural equation model Mediation analyses	Children's EBs are negatively associated with parenting self-efficacy, which is negatively associated with PS.
Strauss et al. (2024), Italy	Cross-sectional	ASD *n* = 32 (no control group)	M = 5.89 y (2.35), 3-11	Mothers: 1.00 Fathers: .94 (Paired couples)	CAPES-DD	PSI-SF	ANOVAs Pearson's correlations Multiple linear regressions Sobel tests	In both mothers and fathers, children's behavioral problems and parenting self-efficacy predict PS. A mediation effect of parenting self-efficacy on the relation between PS and children's EBPs was found only for fathers.
Suvarna et al. (2025a), Australia	Cross-sectional	ASD *n* = 138 (no control group)	M = 9.59 y (3.04), 6-12	Mothers: .70 Fathers: .12 Other: .18 (Individuals)	DBC	PSI-SF	Pearson's correlations Mediation analysis	PS is significantly associated with child EBs. Neither permissive parenting nor mindful parenting significantly mediates this link. The direct effect of PS on EBs therefore remains predominant.
Suvarna et al. (2025b), Australia	Longitudinal	ASD *n* = 6 (no control group)	NR, 5-12	Mothers only	DBC	PSI	Reliable Change Index scores (RCI) ANOVA Wilcoxon test	The Two Hearts Mindful Parenting program resulted in large effect size improvements in PS, mindful parenting, and child EBs post-program. At 3-month follow-up, large effect size gains were maintained for mindful parenting and child EBs, while PS showed a medium effect size reduction.
Tang et al. (2025), Australia	Cross-sectional	ASD *n* = 292 (no control group)	M = 6.47 y (2.77), 3-12	Mothers: .70 Fathers: .30 (Individuals)	SDSC	PSI	T-tests Chi-square tests Maximum Likelihood Estimation (MLE)	Child sleep problems increased the risk of higher PS Children with clinical insomnia or sleep disturbances were several times more likely to place parents at moderate or high stress risk.
Ten Hoopen et al. (2022), Netherlands	Cross-sectional	ASD *n* = 81 (no control group)	M = 6.06 y (2.26), 2-10	Mothers: .90 Fathers: NR (Individuals)	CBCL RBS-R	OBVL	T-tests Univariate regressions	When both caregiver and caregiving variables were considered, no association was found between child-related variables and caregiver health- and care-related quality of life. On the other hand, PS and coping were associated with the caregiver's care-related quality of life.
Ueda et al. (2020), Japan	Cross-sectional	ASD *n* = 42 (TD n = 36)	ASD: M = 4.10 y (1.74) TD : NR, 6-12	Mothers only	CBCL	PSI-SF	Mann-Witney-U-tests Independent t-tests Spearman's correlations Pearson's correlations Multiple regressions	PS is related to authoritarian and permissive parenting, and predicts children's EBs in children with autism.
Valeri et al. (2020), Italy	Longitudinal	ASD *n* = 34 (no control group)	CPMT group: M = 4.4 y (1.3), 2-4.5) ACG group: M = 4.2 y (.9), 4.6-6.11	Mothers only	CBCL	PSI	Repeated ANOVAs ANCOVAs	CPMT showed significant improvements in socio-communicative skills, ASD symptom severity, emotional problems and parental stress related to dysfunctional parent-child interaction.
Wang et al. (2013), China	Cross-sectional	ASD *n* = 145 (PPD-NOS *n* = 1)	M = 5 .15 y (1.72), NR	Mothers only	ABC	PSI-SF	Multiple linear regressions ANOVAs	Child's behavioral symptoms, maternal depression, anxiety and governmental financial support are associated with PS. Mothers who reported their children with severe behavioral problems also reported higher PS, but children's behaviors are not associated with parental distress.

Weiss et al. (2015), US	Cross-sectional	ASD *n* = 101 (no control group)	M = 14.5 y (2.1), 12-21	Mothers only	NCBRF	PSS	Spearman's correlations Hierarchical linear regressions	PS moderates the relation between bullying victimization and anxiety, and the severity of anxiety is most strongly associated with bullying victimization when mothers reported high levels of stress.
Zaidman-Zait et al. (2011), US	Cross-sectional	ASD *n* = 411 (no control group)	M = 3.46 y (.85), 1.7-6	Mothers: .91 Fathers: NR (Individuals)	CBCL	PSI-SF	Spearman's correlations	Significant positive correlations were found between the PSI-SF factors and the severity of autism, IBs and EBs in the child, the child's and parental mental health.
Zaidman-Zait et al. (2014), US	Longitudinal	ASD *n* = 184 (no control group)	M = 3.03 y (.55), 2-3.9	Mothers only	CBCL	PSI-SF	Pearson's correlations Structural equation modeling (SEM)	Parent general distress predict both children's IBs and EBs, but not vice versa. Bidirectional relationships were found between IBs, EBs and parental distress, from 12 months after diagnosis to 6 years of age
Zaidman-Zait et al. (2017), US	Longitudinal	ASD *n* = 283 (no control group)	M = 2.95 y (.45), 2-4.11	Mothers only	CBCL	PSI-SF	Pearson's correlations Multiple regressions	PS is negatively associated with social support and active coping, and positively with children's EBs, family dysfunction, and disengaged coping. After two years, PS predicts higher future stress, while increased social support predicts lower stress. Higher family dysfunction and disengaged coping, alongside reduced active coping, predict increased PS over time.
Zlomke et al. (2019), US	Cross-sectional	ASD *n* = 46 (TD n = 42)	ASD: M = 4.57 y (1.28) TD: M = 5.17 y (1.59), NR	Mothers: .89 Fathers: NR (Individuals)	ECBI	PSI-SF	One-way ANOVA Pearson's correlations	Significant differences in the Dyadic Parent-Child Interaction Coding System (DPICS) were found between parents of children with and without ASD. However, no significant relationships between the ECBI, the PSI and the DPICS were found.

Note.

NR = not reported

Child conditions: *ADHD* Attention Deficit Hyperactivity Disorder; *DD* Developmental Delay; *ID* = Intellectual Disability; *LD* Language Disorders; *OCD* Obsessive compulsive disorder; *PDD-NOS* Pervasive Developmental Disorders-Not Otherwise Specified; *rDLD* at risk of Developmental Language Disorder; *RTT* Rett syndrome; *SS* Sotos syndrome; *SpLD* Specific Learning Disorders; *TD* Typical development; *TDL* Typically Developing Language; *22q11DS* 22q11.2 Deletion Syndrome

Child measures: *ABC-HY* Aberrant Behavior Checklist Hyperactivity subscale; *ACB* Assessment of Concerning Behaviour; *BASC-2* Behavior Assessment System for Children, Second Edition; *BASC-2 PRS* Behavior Assessment System for Children, Second Edition, Parent Rating Scale; *BITSEA* Brief Infant Toddler Social Emotional Assessment; *BPI* Behavior Problems Inventory; *CAPES-DD* Child Adjustment and Parent Efficacy Scale Developmental Disability; *CBCL* Child Behavior Checklist; *CPRS* Conners Parental Comprehensive Behaviour Rating Scale; *CSHQ* Children's sleep habits questionnaire; *CRS-R* Conners' Rating Scale-Revised; *DB-P* Developmental Behaviour Checklist-Parent; *ECBI* Eyberg Child Behavior Inventory; *EDI* Emotion Dysregulation Index; *MBC* Motor Behavior Checklist; *NCBRF* Nisonger Child Behavior Rating Form; *SCAS-C* Spence Children's Anxiety Scale–Children's; *SCAS-P* Spense Children's Anxiety Scale – Parents; *SDSC* Sleep Disturbance Scale for Children; *SDQ* Strengths and Difficulties Questionnaire; *HSQ-PDD* Home Situation Questionnaire – Pervasive Developmental Disorder

Parenting stress measures: *APSI* Autism Parenting Stress Index; *FIQ* Family Impact Questionnaire; K-PSI Korean version of the Parenting Stress Index; *NOSIK* Nijmegen Parental Stress Index – Short; *OBVL* Opvoedingsbelasting vragenlijst; *PSI-SF* Parenting Stress Index – Short Form ; *PSS* Parental Stress Scale; *QRS-SF* Questionnaire on Resources and Stress – Short -Form

Table 3 Summary of Studies by Research Objective and Main Findings

Research Objective	Type of Analysis / Study Design	Studies	Main Findings
(1) Developmental Trajectories of Behavioral Problems in Children With ASD	Cross-sectional studies (*n*=7)	Clauser et al., 2021; Doo & Wing, 2006; Esposito et al., 2024; Gong et al., 2015; Operto et al., 2021a; Serur et al., 2023; Stephenson et al., 2023	Findings are mixed: Some studies report more behavioral problems in older children, whereas others indicate no association or even less IBs in older children.
	Longitudinal studies (*n*=4)	Gruescu et al., 2023; Osborne & Reed, 2009; Postorino et al., 2015; Rodriguez et al., 2019	A decrease in some IBs and EBs was found, particularly ADHD symptoms, oppositional behaviors, and emotional problems. Some other behavioral problems (i.e. social withdrawal, attention problems, and pervasive disorders) remain stable over time.
(2) Behavioral Problems in Children Linked to Parenting Stress: Cross-Sectional Evidence	Correlational analysis (*n*=30)	Doo & Wing, 2006; Efstratopoulou et al., 2022; Esposito et al., 2024; Gharaibeh et al., 2025; Greenlee et al., 2023; Huang et al., 2014; Jung et al., 2023; Koller et al., 2022; Levin et al., 2016; Madarevic et al., 2022; Miranda et al., 2019; Olson et al., 2022; Operto et al., 2021a; Operto et al., 2021b; Operto et al., 2022; Palmer et al., 2023; Papadopoulos et al., 2021; Porter et al., 2025; Reed & Osborne, 2013; Roselló et al., 2022; Samadi & Rashid, 2024; SCI belli et al., 2021; Siracusano et al., 2021; Stephenson et al., 2023; Strauss et al., 2024; Ten Hoopen et al., 2022; Weiss et al., 2015; Wang et al., 2013; Zaidman-Zait et al., 2011	Positive associations between behavioral problems in children and PS were found. EBs were most associated with Difficult-Child Behavior on the PSI, whereas IBs were most associated with Parent-Child Dysfunctional Interaction.
	Regression analysis (*n*=30)	Bauminger et al., 2010; Blacher et al., 2019; Brobst et al., 2009; Buchwald et al., 2025; Chen et al., 2020; Chen et al., 2021; Chen et al., 2023; Choi et al., 2023; Clauser et al., 2021; Cochrane et al., 2023; Craig et al., 2016; Davis & Carter, 2008; Davis et al., 2017; Demirpençe Seçinti et al., 2024; Dilbaz-Gürsoy et al., 2025; Gong et al., 2015; Hoffman et al., 2008; Hou et al., 2018; Hou et al., 2023; Long et al., 2024; Manning et al., 2011; Martin et al., 2021; Mazzoni et al., 2023; Postorino et al., 2019; Serur et al., 2023; Siu et al., 2019; Suvarna et al., 2025a; Tang et al., 2025; Ueda et al., 2020	Most studies found that emotional, behavioral, and sleep-related problems in children contribute to higher PS, while a smaller number of studies suggested that elevated PS can exacerbate both IBs and EBs in children.

(3) Longitudinal Dynamics and Transactional Effects	Cross-lagged effects (*n*=6)	Green & Carter, 2014; Lin et al., 2021; O'Connor et al., 2023; Osborne & Reed, 2009; Rodriguez et al., 2019; Zaidman-Zait et al., 2014	Studies indicated transactional effects between behavioral problems in children and PS, with evidence that PS can predict later IBs and EBs, and conversely, that behavioral problems in children can influence subsequent stress in parents.
	No cross-lagged effects (*n*=4)	Paynter et al., 2025; Postorino et al., 2015; Roubinov et al., 2023; Zaidman-Zait et al., 2017	No cross-lagged effects emerged, although PS and behavioral problems in children remained consistently elevated over time.
(4) Gender Differences in PS Levels	Paired couples (*n*=7)	Brian et al., 2021; Craig et al., 2016; Davis & Carter, 2008; Greenlee et al., 2023; Operto et al., 2021b; Rodriguez et al., 2019; Strauss et al., 2024	Findings were mixed: Some indicate higher PS levels in mothers, one suggests greater PS in fathers, while others report no gender differences.
	Independent samples (*n*=3)	Doo & Wing, 2006; Efstratopoulou et al., 2022; Samadi & Rashid, 2024	No significant gender differences were found.
(5) Reducing Behavioral Problems in Children and PS Through Interventions	Parent-child interaction focus (*n*=5)	Allen et al., 2023; Brian et al., 2021; Kuravackel et al., 2018; Parladé et al., 2020; Ros-DeMarize et al., 2025	Significant reductions in children's EBs and PS were found, with large to very large effects.
	Parent focus (*n*=5)	Ni et al., 2025; Mueller et al., 2020; Suvarna et al., 2025b; Valeri et al., 2020; D'Elia et al., 2014	Improvements in behavioral problems in children and PS were found, with some large effects.
	Child focus (*n*=3)	Kurtz et al., 2021; Lecavalier et al., 2018; Singh et al., 2020	Reductions in behavioral problems in children and modest decreases in PS were found.