Received: 6 April 2022 | Revised: 2 August 2022 | Accepted: 5 August 2022

DOI: 10.1111/jar.13031

ORIGINAL ARTICLE

JARID Journal of Applied Research in Intellectual Disabilities bild WILEY

Permissive parenting mediates parental stress and child emotions in families of children with Down syndrome

Gayle G. Faught[1] | B. Allyson Phillips[2] | Frances A. Conners[1]

[1]Department of Psychology, The University of Alabama, Tuscaloosa, Alabama, USA

[2]Department of Psychology, Ouachita Baptist University, Arkadelphia, Arkansas, USA

Correspondence
Gayle G. Faught, Department of Psychology, The University of Alabama, Box 870348, Tuscaloosa, AL 35487-0348, USA.
Email: ggfaught@ua.edu

Abstract

Background: Parenting styles mediate parental stress and child emotions in families of typically developing (TD) children. Our main aim was to study these relations in families of children with Down syndrome (DS), who in past research reported increased parental stress and permissive parenting.

Method: Our sample included 100 parents of children with DS and 72 parents of TD children age 4–12 years. Parents completed online surveys of parental adjustment and emotion regulation (ER), parenting styles, and child ER and mood.

Results: Parents of children with DS reported more distress and permissive parenting than parents of TD children. Within parents of children with DS, there was an indirect effect of parental stress on child emotions through permissive parenting. This effect was partly conditional upon parental ER and positive adjustment.

Conclusions: Results have implications for distressed parents of children with DS whose families may benefit from improved coping strategies and increased support.

KEYWORDS
child emotions, Down syndrome, emotion regulation, parental adjustment, parenting styles, stress and coping

1 | INTRODUCTION

Parental stress is related to children's emotions both directly and indirectly through parenting styles (Carapito et al., 2018). Distressed parents tend to rely more on maladaptive parenting styles, including authoritarian and permissive behaviours (Fonseca et al., 2020). Maladaptive parenting styles, in turn, have been implicated in poor emotion regulation (ER) and mood in typically developing (TD) offspring (Haslam et al., 2020; Sahithya et al., 2019). Unfortunately, no studies have modelled these relations in families of children with Down syndrome (DS). This is despite parents of children with DS relying more on permissive styles than parents of TD children, partly due to higher parental stress (Phillips et al., 2017). Thus, the purposes of this study were to (1) Compare parental adjustment and styles between parents of children with DS and those with TD children, (2) Model indirect effects of parental stress on child emotions through parenting styles in families of children with DS, and (3) Determine if parental ER and positive adjustment moderate these indirect effects.

1.1 | Parenting styles and child emotional outcomes

Baumrind (1971, 1996) proposed three parenting styles based from two parenting dimensions: the degrees to which parents are responsive to their child (warmth) and set limits on their child's behaviour (control). These styles are authoritative, authoritarian, and permissive. Each style affects offspring emotions, although this line of research has focused predominantly on outcomes for TD children.

Authoritative parenting is ideal with high warmth and developmentally appropriate control. Authoritative parents are responsive to their children's physical and emotional needs. They maintain control of their children but in ways that are democratic, for example, by taking their children's perspectives into account. In this way, they promote their children's autonomy while providing a sense of security (Baumrind, 1971, 1996). Children of authoritative parents typically have the best outcomes, including increased self-esteem and fewer behavioural problems (see Sahithya et al., 2019, for a review). This

style has been implicated in improved ER and mood in young children aged 2–10 years and in adolescents (Haslam et al., 2020; Jabeen et al., 2013).

Authoritarian parenting is arguably maladaptive with low warmth and high, often developmentally inappropriate control. Authoritarian parents are not responsive to their children's emotional needs. They value maintaining control of their children in ways that are monarchical, overly relying on verbal hostility and punitive strategies. These parents demand a lot of their children's behaviours and expect them to blindly conform and obey, thereby offering little autonomy support (Baumrind, 1971, 1996). Of the three styles presented here, authoritarian parenting has the poorest child outcomes. It is related to increased externalising and internalising behaviours in offspring (Sahithya et al., 2019). This style has been implicated in poor ER and mood in young children (Haslam et al., 2020; but see Jabeen et al., 2013).

Permissive parenting is also believed to be maladaptive, although child outcomes are mixed. Permissive parents exhibit high warmth and low control. They are often extremely responsive to their children's needs. These parents may desire to be democratic in their parenting but lack the demandingness necessary to follow through in disciplinary tactics. Instead, they might ignore misbehaviour and spoil their children (Baumrind, 1971, 1996). Permissive parenting is related to a few positive outcomes, including increased problem-focused coping (Wolfradt et al., 2003). However, it is more often linked to low self-esteem, externalising behaviours, and internalising behaviours (Sahithya et al., 2019). This style has also been implicated in poor ER in adolescent-aged offspring (Jabeen et al., 2013).

1.2 | Parental stress predicting parenting styles

All parents experience parental stress due to the inherent demands of parenthood. According to parental stress theory, parental stress is distress when faced with the imbalance between these demands and available parenting resources (Deater-Deckard, 2008). Parental stress is related to parenting styles in parents of TD children of varied ages. Among parents of preschoolers, those who experienced more stress tended to utilise authoritarian and permissive styles more often than those who experienced less stress (Park & Walton-Moss, 2012). Among parents of children aged 2–12 years, Fonseca et al. (2020) found a negative direct effect of parental stress on authoritative parenting and positive direct effects on authoritarian and permissive parenting behaviours. Among parents of adolescents, Putnick et al. (2008) found parental stress was related to offspring perceptions of less warmth and more control in both mothers and fathers, which most strongly represent an authoritarian style.

Fonseca et al. (2020) found relations between parental stress and styles were partly mediated by parental ER. The role of parental ER in these relations is further supported by findings that authoritarian and permissive parents exhibit poorer ER than authoritative parents of children aged 4–6 years (Bahrami et al., 2018). Thus, in the face of caregiving stress, parents with poor ER might be more likely to rely on insensitive parenting techniques, perhaps as means of quickly extinguishing the source of their distress like child misbehaviour (Fabes et al., 2001).

1.3 | Mediating role of parenting styles between parental stress and child emotions

It has long been suggested that parenting styles mediate the relation of parental stress to child emotions and behaviours in TD samples, although relatively little research has directly tested this idea (Deater-Deckard, 1998). Deater-Deckard and Scarr (1996) supported this mediation hypothesis in finding a positive relation between parental stress and authoritarian discipline, which in turn was related to behaviour problems in offspring aged 1–5 years. Carapito et al. (2018) considered all three parenting styles within these relations in families of TD preschoolers. They found an indirect effect of parental stress on child externalising behaviours through authoritarian parenting, as well as on internalising behaviours through permissive parenting. Modelling slightly different relations, Shaw and Starr (2019) found an indirect effect of parental ER on child ER through authoritarian parenting, which was strengthened with the addition of chronic family stress as a moderator.

This research in families of TD children raises the question of whether these effects would be found in families of children with intellectual disabilities. Past research has found parenting children with intellectual disabilities to be more stressful than parenting TD children due increased financial burden, caregiving demands, and child behaviour and health problems, among others (Neece & Chan, 2017). Further, stressors unique to parenting children with intellectual disabilities might make it more difficult to utilise authoritative techniques. For example, these children might struggle to understand and remember expectations and explanations for behaviours (Woolfson & Grant, 2006). Thus, parenting children with intellectual disabilities affects parental stress and styles, which combined could have implications for child emotions. Although some past studies included parents of children with DS, fewer have focused specifically on these parents.

1.4 | Parenting children with down syndrome

DS is caused by a triplicate of Chromosome 21. It is the most common genetic disorder and known cause of intellectual disability. Children with DS are at risk for a variety of health problems, including congenital heart defects and obstructive sleep apnea (Bull, 2011). As young children, those with DS exhibit more externalising behaviours than their TD peers, such as stubbornness and impulsivity. Into adolescence, these externalising behaviours tend to decline, but internalising behaviours including withdrawal and social isolation increase (Dykens, 2007). The socio-emotional skills of children with DS are often described as a strength. However, children with DS struggle with ER in the face of frustration, exhibiting more lability/negativity and fewer problem-focused coping skills than TD children (Jahromi et al., 2008).

1.4.1 | Parental stress, coping and support

Parenting children with DS is believed to be less stressful than parenting children with other intellectual disabilities, a phenomenon known as the 'DS advantage' (see Hodapp et al., 2001). More recent studies have found no global stress differences among groups after controlling for demographics like income, but different sources of stress for different etiologies (Ashworth et al., 2019; Stoneman, 2007). It is important to not minimise the experiences of parents of children with DS. Relative to parents of TD children, they report increased caregiving demands, child-related stressors (e.g., distractibility, demandingness), and parent-related stressors (e.g., incompetence, depression) (Roach et al., 1999). More generally, Bourke et al. (2008) found mothers of children with DS reported poor mental health that was most strongly predicted by child behavioural and medical challenges. Jaramillo et al. (2016) found 53% of their sample of 103 couples with children with DS reported emotional exhaustion.

Parents of children with DS report positive adjustment, including positive coping skills and seeking support, as essential to reducing parental stress. For coping skills, positive reappraisal is linked to less stress, while strategies like rumination and avoidance are related to more stress and depressive symptoms (Van der Veek et al., 2009a, 2009b). Family support might be particularly useful in reducing stress in parents of children with DS (Cuzzocrea et al., 2016). In families of children with intellectual disabilities more generally, social support is typically lacking (Douma et al., 2006). Plant and Sanders (2007) found social support moderated relations between parenting stress and child-specific stressors in these families. Similarly, Meppelder et al. (2015) found large support networks tempered the relationship between child-related parenting stress and child behavioural challenges. Thus, it seems these indices of parental positive adjustment could moderate relations from parenting stress to styles in parents of children with DS, although no past research had tested this idea.

1.4.2 | Parenting styles

Very few studies have considered parenting styles or dimensions specifically in parents of children with DS. Blacher et al. (2013) compared parents of children with DS to parents of TD children and those with other intellectual and developmental disabilities: autism, cerebral palsy and undifferentiated developmental delay. Parents of children with DS used more positive parenting techniques than other groups, including positive affect and sensitivity. However, parents of children with DS used more negative parenting techniques (e.g., intrusiveness) than parents of TD children. Sterling and Warren (2014) similarly found parents of children with DS used more directive behaviours relative to parents of TD children.

Most relevant to the aims of the current study, Phillips et al. (2017) compared 35 mothers of children with DS to 47 mothers of TD children age 5–12 years on parental stress and styles. Researchers found mothers of children with DS reported more stress, fewer authoritative behaviours, and more permissive behaviours than mothers of TD children. Importantly, group differences in parenting styles were partly accounted for by higher parental stress in mothers of children with DS. This study raised the possibility that parental stress contributes to parenting styles in parents of children with DS, as seen in parents of TD children. However, no studies to our knowledge have considered the implications of these relations for offspring with DS.

1.5 | The current study

Parental stress contributes to maladaptive parenting strategies, and this relation might be exacerbated by poor parental ER (Fonseca et al., 2020; Park & Walton-Moss, 2012). Permissive and authoritarian styles have been implicated in poor ER and mood in offspring (Haslam et al., 2020; Jabeen et al., 2013; Sahithya et al., 2019). Taken together, parental stress affects child emotions both directly and indirectly through parenting styles in families with TD children (Carapito et al., 2018; Shaw & Starr, 2019). However, no studies have modelled these relations in families of children with DS, despite these parents reporting more permissive behaviours in part due to higher parental stress (Phillips et al., 2017). Further, no studies have considered coping and support in these relations in families of children with DS, though past research has recommended focusing more on the positive adjustment of families with children with intellectual disabilities (e.g., Nelson Goff et al., 2016).

Considering all the above, the current study had three main aims: (1) Compare parental adjustment (stress, support) and styles in parents of children with DS to those with TD children, (2) Model relations among parental stress, parenting styles, and child emotions in families of children with DS, and (3) Additionally determine the roles of parental ER and positive adjustment (coping, support) in these relations. Doing so could have implications for distressed parents of children with DS whose families may benefit from improved coping strategies and increased support (Cuzzocrea et al., 2016). For Main Aim 1, we hypothesized parents of children with DS would report poorer adjustment, decreased authoritative parenting, and increased permissive parenting behaviours relative to parents of TD children (see Phillips et al., 2017). For Main Aim 2, we hypothesized cross-sectional indirect effects of parental distress on child emotions through parenting styles within parents of children with DS (see Carapito et al., 2018). For Main Aim 3, we hypothesized parental ER and positive adjustment would moderate relations from parental stress to styles within these mediation models (see Fonseca et al., 2020; Plant & Sanders, 2007).

2 | METHOD

2.1 | Participants

2.1.1 | Parents of children with DS

The final sample included 100 parents of children with DS. Ninety-four of these parents were mothers (six adoptive), four were

fathers, and two were other legal guardians. To be eligible, parents confirmed they had a child with a diagnosis of DS (any type) aged 4–12 years who was able to effectively communicate with them. An additional 51 parents consented to the study but were ineligible, most because their child with DS was not in this age range. Of the final sample, 76 parents (76%) completed a background questionnaire. Parents reported an age range of 33–55 years ($M = 44.67$, SD = 5.72); having 1–10 children total ($M = 2.95$, SD = 1.70), including biological, adoptive, and stepchildren; and an annual family income of $15,000–$400,000 ($M = 109417.91$, SD = 67488.75). Parents reported a child age range of 4–12 years ($M = 8.27$, SD = 2.47). See Table 1 for categorical parent and child descriptives.

Parents of children with DS were recruited by disbursing study information and the survey link to (1) the University of Alabama Intellectual Disabilities Participant Registry, (2) organisations listed on the Global DS Foundation and National DS Congress websites, and (3) public DS organisation or support Facebook groups. Response rate could not be calculated because organisations did not report number of members. However, we received confirmation that members of at least 43 organisations across 29 states were presented with study information. All geographic regions of the continental US were represented. As incentive, parents had the option to enter their email address into a drawing for one of eight $25 Amazon e-gift cards.

2.1.2 | Parents of TD children

The final sample included 72 parents of TD children. Fifty-four of these parents reported being mothers, and 18 were fathers. To be eligible, parents confirmed they had at least one TD child aged 4–12 years who was ineligible for special education services and able to effectively communicate. An additional 23 parents consented to completing the study but were ineligible, most because they did not answer all screening questions and instead exited the surveys. Of the final sample, 62 parents (86%) completed a background questionnaire. Parents reported an age range of 28–59 years ($M = 37.83$, SD = 6.23); having 1–6 children total ($M = 2.29$, SD = 1.15); and an annual family income of $10,000–$800,000 ($M = 100640.35$, SD = 108,544.336). Parents reported a total of 108 children aged 4–12 years ($M = 8.10$, SD = 2.58) (see Table 1).

Parents of TD children were recruited through posting study information and the survey link to public Facebook groups and Amazon MTurk. MTurk workers were limited to parents in the US and were required to have >1000 tasks (HITs) approved and a HIT approval rate of ≥99%. Response rate could not be calculated due to an inability to access how many parents saw study information but declined to participate. As incentive, parents had the option to enter their email address into a drawing for one of eight $25 Amazon e-gift cards. MTurk workers were additionally paid $1 upon successful completion of the surveys.

TABLE 1 Categorical parent and child descriptives

Race/ethnicity	Parents of DS ($n = 76$)	Parents of TD ($n = 62$)
White	65 (3 Hispanic)	54 (1 Hispanic)
American Indian or Alaska Native	3	0
Asian	3	3
Black	2	5 (1 Hispanic)
Mixed Black/White	3 (1 Hispanic)	0
Marital status	**Parents of DS**	**Parents of TD**
Married	59	54
Cohabiting	0	5
Single	10 (2 widowed)	3
Separated or divorced	7	0
Highest level of education	**Parents of DS**	**Parents of TD**
Earned high school diploma or GED	12	16
Earned associate or vocational degree	10	8
Earned college degree	22	27
Earned graduate degree	32	11
Employment status	**Parents of DS**	**Parents of TD**
None, disabled or retired	3	0
None, homemaker	15	8
None, unemployed	6	2
Working part-time	13	8
Working fulltime	39	44
Child gender	**Children with DS**	**TD children**
Female	45	33
Male	31	18
Both	–	11
Child diagnoses	**Children with DS**	**TD children**
ADHD	7	3
Anxiety and/or depression	7	2
Autism	3	0
Obstructive sleep apnea	14	0
Other	10	2

2.2 | Measures

2.2.1 | Parental adjustment

The Parental Stress and Coping Inventory (PSCI; Daire et al., 2017) was used to compare groups' parental adjustment (Main Aim 1). This survey measures three constructs: parental distress, social support,

and family-based support. Parental distress includes seven items ($\alpha = .83$), for example, 'As a parent I feel burdened'. Social support includes seven items ($\alpha = .86$), for example, 'I have social supports for my family'. Family-based support includes four items ($\alpha = .73$), for example, 'We respect each other in our family'. Items are endorsed on a 5-point Likert scale from never to almost always.

The Family Adjustment Measure (FAM; Daire et al., 2014) was used to again measure parental adjustment in parents of children with DS, with its subscales incorporated into (moderated) mediation models (main aims 2 & 3). This survey measures four constructs in parents of children with special needs: parental distress, social support, family-based support, and positive coping skills. Parental distress includes nine items ($\alpha = .91$), for example, 'As a parent of a child with a disability I feel burdened'. Social support includes 10 items ($\alpha = .93$), for example, 'Our family has resources for dealing with my child's disability'. Family-based support includes seven items ($\alpha = .72$), for example, 'We care about each other in our family'. Positive coping skills includes six items ($\alpha = .79$), for example, 'I can communicate questions regarding my child's disability'. Items are endorsed on a 5-point Likert scale from never to almost always.

2.2.2 | Parenting styles

The Parenting Styles and Dimensions Questionnaire (PSDQ; Robinson et al., 1995) subscales were used to compare groups' parenting styles (Main Aim 1) and as model mediators (main aims 2 & 3). This survey measures the parenting styles first described by Baumrind (1971). Authoritative includes 27 items ($\alpha = .90$) measuring warmth and involvement, reasoning/induction, democratic participation, and good natured/easy going. Authoritarian includes 20 items ($\alpha = .85$) measuring verbal hostility, corporal punishment, non-reasoning/punitive strategies, and directiveness. Permissive includes 15 items ($\alpha = .78$) measuring lack of follow through, ignoring misbehaviour, and self-confidence. Example items parents endorse on a 5-point Likert scale from never to always include: 'Explains the consequences of the child's behavior (authoritative)', 'Demands that child does things (authoritarian)' and 'Bribes child with rewards to bring about compliance (permissive)'.

2.2.3 | Parental emotion regulation

The Parental ER Inventory (PERI; Lorber, 2012) was included as a potential moderator in mediation models (Main Aim 3). We additionally compared groups PERI scores as an exploratory analysis. This survey measures the frequency with which parents reappraise their children's misbehaviour and suppress their emotions when their children misbehave over 11 items ($\alpha = .87$). Example items parents endorse on a 7-point Likert scale from 'I never do this' to 'I very often do this' include: 'I control how I feel by changing the way I think about my child's behavior' and 'I keep my emotions to myself'.

2.2.4 | Measures of child emotions

Child emotions were surveyed with parent-report measures of child ER and mood. Only parents of children with DS completed these measures. Both measures were incorporated into a child emotions outcome in (moderated) mediation models (main aims 2 & 3).

Child emotion regulation

The ER Checklist (ERC; Shields & Cicchetti, 1997) was used to measure child ER. This survey measures the frequency with which children exhibit ER and lability/negativity over 24 items ($\alpha = .87$). Example items parents endorse on a 4-point Likert scale from never to almost always include: 'Is a cheerful child' and 'Can recover quickly from episodes of upset or distress'.

Child anxiety, depression and mood

The Anxiety, Depression, and Mood Scale (ADAMS; Esbensen et al., 2003) was used to measure child mood. This survey measures five constructs in individuals with intellectual disabilities over 28 items ($\alpha = .91$): manic/hyperactive behaviour, depressed mood, social avoidance, general anxiety and obsessive/compulsive behaviour. Example items parents endorse on a 4-point Likert scale from not a problem to severe problem include: 'Does not relax or settle down (manic/hyperactive)', 'Sad (depressed mood)', 'Withdraws from other people (social avoidance)', 'Nervous (general anxiety)' and 'Repeatedly checks items (obsessive/compulsive behavior)'.

2.3 | Procedure

Parents were presented with study information electronically through email, Facebook or Amazon MTurk. If interested, they clicked the Qualtrics survey link that first directed them to the consent form. Those who issued consent were then directed into the surveys. All parents had the opportunity to complete the PSCI, PSDQ and PERI in random order, as well as a background questionnaire to report on demographics. Parents of children with DS additionally had the opportunity to complete the FAM, ERC and ADAMS in random order. Thus, the entire procedure was approximately 15–30 min for parents of TD children and 30–45 min for parents of children with DS. At the end of surveys, parents were given the option to provide their email address to be entered into a drawing for one of eight $25 Amazon gift cards.

3 | RESULTS

3.1 | Data preparation

Because a Qualtrics feature that notifies participants if they skip items was enabled, very few data points (<1%) were missing. Missing items were assigned a value of 0 for all measures. We inspected subscale

TABLE 2 Main aim 1 group comparisons

Subscale	Parents of DS *N*	Parents of DS mean (*SD*)	Parents of TD *N*	Parents of TD mean (*SD*)	*F* value (*p* value)
Parental distress	82	16.30 (4.64)	72	13.58 (3.97)	15.08 (.001)
Social support	82	23.33 (6.03)	72	21.46 (5.60)	3.94 (.049)
Family support[a]	59	16.78 (2.83)	62	17.63 (2.64)	.48 (.490)
Authoritative parenting	87	109.91 (11.94)	64	109.28 (13.31)	.09 (.762)
Authoritarian parenting	85	36.19 (6.91)	62	36.98 (7.59)	.44 (.509)
Permissive parenting	86	31.64 (6.41)	63	28.73 (5.77)	8.14 (.005)
Lack of follow through	87	13.14 (3.55)	64	12.42 (3.47)	1.53 (.218)
Ignoring misbehaviour	87	8.03 (1.96)	64	6.78 (1.83)	15.99 (.000)
Self confidence	87	10.69 (2.75)	64	9.89 (2.76)	3.11 (.080)
Parental emotion regulation	77	49.25 (11.42)	62	45.92 (10.42)	3.15 (.078)

Note: Parental distress and support here were measured with the PSCI.
[a]Parent age was included as a covariate in the family-based support comparison.

and total scores for outliers that were ± 3 standard deviations from means. For measures of parental adjustment and styles, there were three outliers for PSCI family-based support, one for FAM family-based support, four for PSDQ authoritarian, two for PSDQ permissive, and none for the PERI. For measures of child emotions, there was one outlier for the ERC and none for the ADAMS. Once outliers were removed, we inspected score distributions with histograms and found no serious violations of normality.

3.2 | Main aim 1: Group comparisons

Groups were first compared on demographics that could potentially affect main variables of interest. Groups did not differ in child age or annual family income. However, groups did differ in parent age, $F(1,136) = 45.08$, $p < .001$, and total number of children, $F(1,136) = 6.72$, $p = .01$, with parents of children with DS reporting older ages and more children. Parent age was related to one outcome of interest, PSCI family-based support ($r = -.20$, $p = .03$), so was included as a covariate only in this group comparison to otherwise maximise power. Total number of children was unrelated to all outcomes of interest so was not included as a covariate.

Groups were then compared on PSCI subscales: parental distress, social support, and family-based support (with parent age as a covariate); PSDQ subscales: authoritative, authoritarian and permissive; and PERI scores. For PSCI subscales, parents of children with DS reported more parental distress, $F(1,152) = 15.08$, $p < .001$, and more social support, $F(1,152) = 3.94$, $p = .049$, than parents of TD children. For PSDQ subscales, parents of children with DS reported more permissive parenting than parents of TD children, $F(1,147) = 8.14$, $p < .01$. To follow-up to this main effect of permissive parenting, we compared groups on permissive factors measured by the PSDQ: lack of follow through, ignoring misbehaviour, and self-confidence. Parents of children with DS were more likely to ignore misbehaviour than parents of TD children, $F(1,149) = 15.985$, $p < .001$. No other significant group differences were found. See Table 2 for group means, *SD*s, and *F*-test statistics.

3.3 | Main aims 2 and 3: Mediation models in parents of children with DS

To prepare for running our proposed mediation models in parents of children with DS, we created regression-weighted composite scores for child emotions (ER, mood) and parental positive adjustment (positive coping skills, family-based support and social support). The child emotions factor explained 79% of variance in ERC and ADAMS scores, with respective loadings of .89 and −.89. Higher scores indicated better parent-reported child ER and mood. The parental positive adjustment factor explained 54% of variance in FAM positive coping skills, family-based support, and social support subscales, with respective loadings of .72, .76 and .72. Higher scores indicated more positive parental adjustment. We next ran bivariate correlations to determine if child age, parent age, annual family income or total number of children were related to model variables (including composites) and found no significant relations, all *p*'s > .05. Finally, we ran correlations among model variables of interest (see Table 3).

3.3.1 | Main aim 2 analysis

To address Main Aim 2, we ran a parallel multiple mediation model ($n = 75$) with Hayes's (2018) SPSS macro PROCESS model 4, which utilises a percentile bootstrapping method with 5000 resamples. In doing so, we assessed whether there were cross-sectional indirect effects of parental stress on child emotions through parenting styles. Unstandardized regression coefficients are reported in text. For path *a*, parental distress predicted authoritative, $B = -.39$, $SE = .19$, $p = .04$, authoritarian, $B = .40$, $SE = .10$, $p < .001$, and permissive parenting, $B = .26$, $SE = .11$, $p = .02$. For path *b*, only permissive parenting predicted child emotions, $B = -.05$, $SE = .02$, $p = .009$. Although no direct effect, there was an indirect effect of parental distress on child emotions through permissive parenting, $B = -.01$, $SE = .008$, 95% CI [−.0299, −.0003]. The total effect was also statistically significant, $B = -.05$, $SE = .02$, $p = .01$ (see Figure 1).

TABLE 3 Correlations among model variables

	1.	2.	3.	4.	5.	6.	7.
1. Parental distress	1						
2. Authoritative parenting	−.29**	1					
3. Authoritarian parenting	.39**	−.38**	1				
4. Permissive parenting	.26*	−.23*	.23*	1			
5. Child emotions	−.31**	.34**	−.28*	−.43**	1		
6. Parental emotion regulation	−.18	.38**	−.29*	.10	−.03	1	
7. Parental positive adjustment	−.42**	.47**	−.12	−.26*	.38**	.15	1

Note: Parental distress here was measured with the FAM. Parental positive adjustment is a composite of FAM positive coping skills, social support, and family-based support subscales. Child emotions are a composite of ERC and ADAMS scores.
*$p < .05$; **$p < .01$.

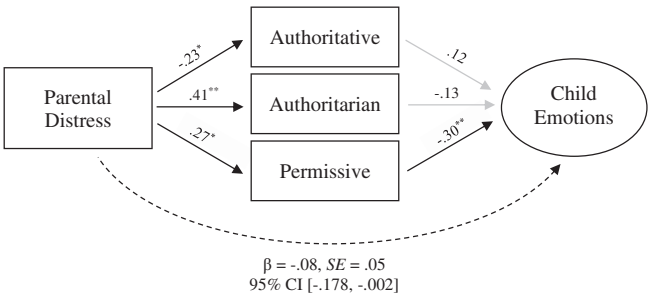

FIGURE 1 Main aim 2 mediation model. *$p < .05$, **$p < .01$. Standardised coefficients are reported in this figure. The indirect effect through permissive parenting is shown as a dotted line.

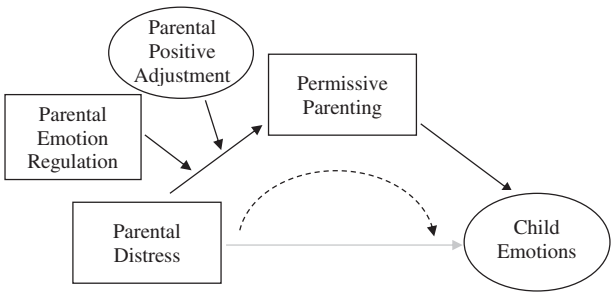

FIGURE 2 Main aim 3 moderated mediation model. This is a model summary. PROCESS does not produce standardised coefficients for models with moderators. The conditional indirect effect is shown as a dotted line.

3.3.2 | Main aim 3 analysis

To address Main Aim 3, we added parental ER and positive adjustment as moderators in relations from parental distress to parenting styles using Hayes's (2018) PROCESS model 9. Because our sample size was limited (*n*'s = 73–74), we tested moderated mediations for parenting styles separately to maximise power. Neither parental distress × ER nor distress × positive adjustment contributed to authoritative or authoritarian parenting. However, both parental distress × ER and distress × positive adjustment uniquely and together contributed to permissive parenting, $\Delta R^2 = .13$, $F(2,68) = 6.23$, $p < .01$. Indices of partial moderated mediation were significant for both parental positive adjustment, $B = .02$, SE = .009, 95% CI [.0013, .0352], and parental ER, $B = .001$, SE = .0007, 95% CI [.0001, .0029]. Specifically, the indirect effect of parental distress on child emotions through permissive parenting was stronger with poorer parental ER and adjustment, $B = -.04$, SE = .02, 95% CI [−.08, −.01], than better parental ER and adjustment $B = .02$, SE = .01, 95% CI [−.0006, .0537] (see Figure 2).

4 | DISCUSSION

The three major aims of this study were to (1) compare parental adjustment and styles between parents of children with DS and those with TD children, (2) model cross-sectional indirect effects of parental stress on child emotions through parenting styles in families of children with DS, and (3) determine if parental ER and positive adjustment moderate these indirect effects. For Main Aim 1, we hypothesized parents of children with DS would report poorer adjustment (i.e., more stress and less support), decreased authoritative parenting, and increased permissive parenting behaviours relative to parents of TD children. This hypothesis was partly supported by findings that parents of children with DS reported more parental distress and increased permissive parenting than parents of TD children. Contrary to our hypothesis, we found parents of children with DS reported more social support and similar family-based support. We also did not find group differences in authoritative (or authoritarian) parenting.

In group differences, we partly replicated Phillips et al. (2017) but with a larger sample. Thus, we can more confidently state parents of children with DS are more stressed and permissive than parents of TD children. It seems likely parents of children with DS are more stressed when considering increased caregiving demands, child-related stressors, and parent-related stressors (Roach et al., 1999). Our sample was majority mothers of children with DS who are at particularly high risk of poor mental health and emotional exhaustion (Bourke et al., 2008; Jaramillo et al., 2016). It was surprising that parents of children with DS reported more social support (although not more

family-based support), considering results from Douma et al. (2006) and others in parents of children with intellectual disabilities. Of note, our measure of social support included local resources like support groups. There are more DS support groups than those for most other intellectual disabilities, with DS the most common known cause of intellectual disability. Perhaps participation in these DS support groups contributed to this difference in our sample.

Further, Phillips et al. (2017) also found that, among permissive parenting factors, parents of children with DS were more likely to ignore misbehaviour than parents of TD children. They suggested these parents might ignore misbehaviour as a behavioural management strategy, that is, in attempt to extinguish the misbehaviour. However, they also found parental stress mediated their group difference in ignoring misbehaviour. Thus, it seems distressed parents of children with DS might ignore misbehaviour rather than actively discipline their child as a coping strategy. It is also possible these parents find it difficult to use authoritative techniques because of their children's intellectual challenges (Woolfson & Grant, 2006). If expectations for behaviour are low, this would be consistent with a more permissive approach to parenting.

For Main Aim 2, we hypothesized a cross-sectional indirect effect of parental distress on child emotions through parenting styles in families of children with DS. This hypothesis was only supported with permissive parenting as the mediator. Parents who reported more distress tended to report fewer authoritative but more authoritarian and permissive parenting behaviours. Only increased permissive parenting, in turn, contributed to poorer child emotions. Similar results have been found in parents of TD children. For example, Carapito et al. (2018) found an indirect effect of parental stress on internalising behaviours through permissive parenting in TD preschoolers. However, it is surprising authoritarian parenting did not also serve as a mediator between parental distress and child emotions, considering results of Shaw and Starr (2019) and others. Parental distress was most strongly related to authoritarian parenting in the mediation model. Perhaps after controlling for distress in the model, little variance in child emotions could be attributed uniquely to authoritarian parenting. This result is partly supported by Jabeen et al. (2013) who found authoritarian parenting did not affect the ER of adolescent-aged TD offspring.

For Main Aim 3, we found an indirect effect of parental stress on child emotions through permissive parenting that was partly conditional upon parental ER and positive adjustment. The relationship between parental distress and permissive parenting was strongest with poorer parental ER and adjustment. Thus, it seems distressed parents who exhibit poor ER and coping skills paired with little support are particularly likely to rely on permissive parenting techniques. The parental ER portion is supported by Fonseca et al. (2020) who found relations between parental stress and parenting styles were partly accounted for by parental ER in parents of TD children. The positive adjustment portion is supported by Plant and Sanders (2007) who found social support moderated relations between child behaviour problems and caregiving stress in parents of children with intellectual disabilities (see also Meppelder et al., 2015). van der Veek et al. (2009a, 2009b) additionally found parents of children with DS report positive coping skills like positive reappraisal as essential to reducing parental stress.

A few additional trends with parental ER and positive adjustment are worth noting in parents of children with DS. As evidenced by correlations, parents with better ER and/or adjustment tended to rely on more authoritative techniques. Parental ER was negatively related to authoritarian but not related to permissive parenting. Those with poorer ER tended to rely on more authoritarian techniques, perhaps as means of quickly extinguishing child misbehaviour for sake of their own distress (Fabes et al., 2001). Indeed, Bahrami et al. (2018) found authoritarian parents exhibited the poorest ER of the parenting style groups. Parental positive adjustment was negatively related to permissive but not related to authoritarian parenting. Considering all results, it seems coping and support had little influence on authoritarian parenting in this sample.

4.1 | Implications

This study's results have unique implications for parents of children with DS who have now repeatedly been found to rely more on permissive parenting techniques than parents of TD children (see also Phillips et al., 2017). Parental stress is contributing to permissive parenting, with poor emotional outcomes for children with DS who have been found to struggle with ER as children and internalising behaviours as adolescents (Dykens, 2007; Jahromi et al., 2008). Furthermore, a combination of poor parental ER and coping paired with decreased support is exacerbating these relations. This seems to be a different pattern of relations than found in families of TD children, in which authoritarian parenting might be instrumental to the relationship between parental stress and child outcomes (Shaw & Starr, 2019).

Findings have implications for interventions in families of children with DS. To our knowledge, little to no research has developed evidence-based practices for family therapists to address parental stress specific to families of children with DS. Past research has suggested doing so in families of children with intellectual disabilities, with stress-reduction interventions critical to both parent and child outcomes (Neece & Chan, 2017). Cuzzocrea et al. (2016) found parents of children with DS used coping strategies like adopting a positive attitude that inadvertently *increased* their stress. On the other hand, family support was highly functional in reducing stress for these parents. Thus, the current study and others suggest addressing stress by working to improve coping skills and build higher-quality support networks. Furthermore, as recommended in families with TD children, our study suggests addressing parental ER in parents of children with DS. This is because parents model ER and other emotion socialisation behaviours to their children, with implications for child emotional development (Hajal & Paley, 2020).

4.2 | Limitations and directions for future research

This study's sample was limited. For Main Aim 1, our groups were not matched aside from children's chronological age. Parents of children with DS were likely parenting children who functioned at lower developmental levels than parents of TD children, which could affect parenting styles and adjustment. Although the current study's design was useful in determining parenting differences for same-age children with vs. without DS, future research should also use a developmental-level match design to compare groups. For main aims 2 and 3, with a larger sample future research could test more sophisticated models and perhaps disentangle parental positive coping skills, family-based support, and social support. Further, our sample was disproportionately White mothers who reported higher-than-average annual family income. Future research should include more fathers of children with DS, whose parenting experiences might be different (e.g., Jaramillo et al., 2016). There is also a substantial need in our field to research these processes in a variety of races/ethnicities, family structures, and socioeconomic statuses, considering how different family life can be across cultural experiences.

This study's cross-sectional design was also limited. Future research should explore these processes longitudinally, as the relation between parental stress and child emotions is likely bidirectional (Stone et al., 2016). Important to note, too, is that adjustment might change over the developmental period in parents of children with DS (Nelson Goff et al., 2016). Further, future research should consider offspring externalising behaviours in addition to internalising challenges measured in this study. Carapito et al. (2018) found an indirect effect of parental distress on child externalising (but not internalising) behaviours through authoritarian parenting in families of TD children. Thus, these outcomes might be differentially affected by parenting styles.

5 | CONCLUSION

In this study, parents of children with DS aged 4–12 years were more stressed and more often relied on permissive parenting strategies than parents of TD children. This increased stress – particularly when paired with poor parental ER and lack of positive coping skills and support – was related to increased permissive parenting within parents of children with DS. Permissive parenting, in turn, was related to poorer ER and mood in offspring with DS. Thus, parents of children with DS might benefit from interventions aimed at decreasing caregiving stress, perhaps by improving upon parental ER and coping skills and building higher-quality support networks. In this way, parents could better promote the emotional health of their children with DS who are at increased risk for emotional challenges.

ACKNOWLEDGEMENTS

We thank the parents who spent time completing surveys, as well as the University of Alabama Intellectual Disabilities Participant Registry coordinator Chelsea Chen. We would also like to acknowledge NICHD Grant R01HD098179, which supported the first author in completing this project.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

This project was given institutional review board approval by The University of Alabama.

REFERENCES

Ashworth, M., Palikara, O., & Van Herwegen, J. (2019). Comparing parental stress of children with neurodevelopmental disorders: The case of Williams syndrome, down syndrome and autism spectrum disorders. *Journal of Applied Research in Intellectual Disabilities*, *32*(5), 1047–1057. https://doi.org/10.1111/jar.12594

Bahrami, B., Dolatshahi, B., Pourshahbaz, A., & Mohammadkhani, P. (2018). Parenting style and emotion regulation in mothers of preschool children. *Journal of Practice in Clinical Psychology*, *6*(1), 3–8. https://doi.org/10.29252/NIRP.JPCP.6.1.3

Baumrind, D. (1971). Current patterns of parental authority. *Developmental Psychology Monograph*, *4*, 101–103. https://doi.org/10.1037/h0030372

Baumrind, D. (1996). The discipline controversy revisited. *Family Relations: An Interdisciplinary Journal of Applied Family Studies*, *45*(4), 405–414. https://doi.org/10.2307/585170

Blacher, J., Baker, B. L., & Kaladjian, A. (2013). Syndrome specificity and mother–child interactions: Examining positive and negative parenting across contexts and time. *Journal of Autism and Developmental Disorders*, *43*(4), 761–774. https://doi.org/10.1007/s10803-012-1605-x

Bourke, J., Ricciardo, B., Bebbington, A., Aiberti, K., Jacoby, P., Dyke, P., Msall, M., Bower, C., & Leonard, H. (2008). Physical and mental health in mothers of children with down syndrome. *The Journal of Pediatrics*, *153*(3), 320–326. https://doi.org/10.1016/j.jpeds.2008.02.047

Bull, M. J. (2011). Clinical report—Health supervision for children with down syndrome. *Pediatrics*, *128*(2), 393–405. https://doi.org/10.1542/peds.2011-1605

Carapito, E., Ribeiro, M. T., Pereira, A. I., & Roberto, M. S. (2018). Parenting stress and preschoolers' socio-emotional adjustment: The mediating role of parenting styles in parent-child dyads. *Journal of Family Studies*, *26*(4), 594–610. https://doi.org/10.1080/13229400.2018.1442737

Cuzzocrea, F., Murdaca, A. M., Costa, S., Filippello, P., & Larcan, R. (2016). Parental stress, coping strategies and social support in families of children with a disability. *Child Care in Practice*, *22*(1), 3–19. https://doi.org/10.1080/13575279.2015.1064357

Daire, A. P., Dominguez, V. N., Carlson, R. G., & Case-Pease, J. (2014). Family adjustment measure: Scale construction and validation. *Measurement and Evaluation in Counseling and Development*, *47*(2), 91–101. https://doi.org/10.1177/0748175614522270

Daire, A. P., Gonzalez, J. E., & O'Hare, V. N. (2017). Parental stress and coping inventory. *Measurement and Evaluation in Counseling and Development*, *50*(1–2), 18–26. https://doi.org/10.1080/07481756.2017.1321913

Deater-Deckard, K. (1998). Parenting stress and child adjustment: Some old hypotheses and new questions. *Clinical Psychology: Science and Practice*, *5*(3), 314–332. https://doi.org/10.1111/j.1468-2850.1998.tb00152.x

Deater-Deckard, K. (2008). *Parenting stress*. Yale University Press. doi:10.12987/9780300133936

Deater-Deckard, K., & Scarr, S. (1996). Parenting stress among dual-earner mothers and fathers: Are there gender differences? *Journal of Family Psychology*, *10*(1), 45–59. https://doi.org/10.1037/0893-3200.10.1.45

Douma, J. C. H., Dekker, M. C., & Koot, H. M. (2006). Supporting parents of youths with intellectual disabilities and psychopathology. *Journal of Intellectual Disability Research*, *50*(8), 570–581. https://doi.org/10.1111/j.1365-2788.2006.00825.x

Dykens, E. M. (2007). Psychiatric and behavioral disorders in persons with down syndrome. *Mental Retardation and Developmental Disabilities Research Reviews*, *13*(3), 272–278. https://doi.org/10.1002/mrdd.20159

Esbensen, A. J., Rojahn, J., Aman, M. G., & Ruedrich, S. (2003). Reliability and validity of an assessment instrument for anxiety, depression, and mood among individuals with mental retardation. *Journal of Autism and Developmental Disorders*, *33*(6), 617–629. https://doi.org/10.1023/B:JADD.0000005999.27178.55

Fabes, R. A., Leonard, S. A., Kupanoff, K., & Martin, C. L. (2001). Parental coping with children's negative emotions: Relations with children's emotional and social responding. *Child Development*, *72*(3), 907–920. https://doi.org/10.1111/1467-8624.00323

Fonseca, A., Moreira, H., & Canavarro, M. C. (2020). Uncovering the links between parenting stress and parenting styles: The role of psychological flexibility within parenting and global psychological flexibility. *Journal of Contextual Behavioral Science*, *18*, 59–67. https://doi.org/10.1016/j.jcbs.2020.08.004

Hajal, N. J., & Paley, B. (2020). Parental emotion and emotion regulation: A critical target of study for research and intervention to promote child emotion socialization. *Developmental Psychology*, *56*(3), 403–417. https://doi.org/10.1037/dev0000864

Haslam, D., Poniman, C., Filus, A., Sumargi, A., & Boediman, L. (2020). Parenting style, child emotion regulation and behavioral problems: The moderating role of cultural values in Australia and Indonesia. *Marriage & Family Review*, *56*(4), 320–342. https://doi.org/10.1080/01494929.2020.1712573

Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). Guilford Press.

Hodapp, R. M., Ly, T. M., Fidler, D. J., & Ricci, L. A. (2001). Less stress, more rewarding: Parenting children with down syndrome. *Parenting: Science and Practice*, *1*(4), 317–337. https://doi.org/10.1207/S15327922PAR0104_3

Jabeen, F., Anis-ul-Haque, M., & Riaz, M. N. (2013). Parenting styles as predictors of emotion regulation among adolescents. *Pakistan Journal of Psychological Research*, *28*(1), 85–105.

Jahromi, L. B., Gulsrud, A., & Kasari, C. (2008). Emotional competence in children with down syndrome: Negativity and regulation. *American Journal on Mental Retardation*, *113*(1), 32–43. https://doi.org/10.1352/0895-8017(2008)113[32:ECICWD]2.0.CO;2

Jaramillo, S., Moreno, S., & Rodríguez, V. (2016). Emotional burden in parents of children with trisomy 21: Descriptive study in a Colombian population. *Universitas Psychologica*, *15*(1), 29–37. https://doi.org/10.11144/Javeriana.upsy15-1.ebpc

Lorber, M. F. (2012). Parental emotion regulation inventory. Retrieved from PsycTESTS. https://doi.org/10.1037/t15830-000.

Meppelder, M., Hodes, M., Kef, S., & Schuengel, C. (2015). Parenting stress and child behaviour problems among parents with intellectual disabilities: The buffering role of resources. *Journal of Intellectual Disability Research*, *59*(7), 664–677. https://doi.org/10.1111/jir.12170

Neece, C. L., & Chan, N. (2017). The stress of parenting children with developmental disabilities. In K. Deater-Deckard & R. Panneton (Eds.), *Parental stress and early child development: Adaptive and maladaptive outcomes* (pp. 107–124). Springer International Publishing. https://doi.org/10.1007/978-3-319-55376-4_5

Nelson Goff, B. S., Monk, J. K., Malone, J., Staats, N., Tanner, A., & Springer, N. P. (2016). Comparing parents of children with down syndrome at different life span stages. *Journal of Marriage and Family*, *78*(4), 1131–1148. https://doi.org/10.1111/jomf.12312

Park, H., & Walton-Moss, B. (2012). Parenting style, parenting stress, and children's health-related behaviors. *Journal of Developmental and Behavioral Pediatrics*, *33*(6), 495–503. https://doi.org/10.1097/DBP.0b013e318258bdb8

Phillips, B. A., Conners, F., & Curtner-Smith, M. E. (2017). Parenting children with down syndrome: An analysis of parenting styles, parenting dimensions, and parental stress. *Research in Developmental Disabilities*, *68*, 9–19. https://doi.org/10.1016/j.ridd.2017.06.010

Plant, K. M., & Sanders, M. R. (2007). Predictors of care-giver stress in families of preschool-aged children with developmental disabilities. *Journal of Intellectual Disability Research*, *51*(2), 109–124. https://doi.org/10.1111/j.1365-2788.2006.00829.x

Putnick, D. L., Bornstein, M. H., Hendricks, C., Painter, K. M., Suwalsky, J. T. D., & Collins, W. A. (2008). Parenting stress, perceived parenting behaviors, and adolescent self-concept in European American families. *Journal of Family Psychology*, *22*(5), 752–762. https://doi.org/10.1037/a0013177

Roach, M. A., Orsmond, G. I., & Barratt, M. S. (1999). Mothers and fathers of children with down syndrome: Parental stress and involvement in childcare. *American Journal on Mental Retardation*, *104*(5), 422–436. https://doi.org/10.1352/0895-8017(1999)104<0422:MAFOCW>2.0.CO;2

Robinson, C. C., Mandleco, B., Olsen, S. F., & Hart, C. H. (1995). Authoritative, authoritarian, and permissive parenting practices: Development of a new measure. *Psychological Reports*, *77*(3, Pt 1), 819–830. https://doi.org/10.2466/pr0.1995.77.3.819

Sahithya, B. R., Manohari, S. M., & Vijaya, R. (2019). Parenting styles and its impact on children—A cross cultural review with a focus on India. *Mental Health, Religion & Culture*, *22*(4), 357–383. https://doi.org/10.1080/13674676.2019.1594178

Shaw, Z. A., & Starr, L. R. (2019). Intergenerational transmission of emotion dysregulation: The role of authoritarian parenting style and family chronic stress. *Journal of Child and Family Studies*, *28*(12), 3508–3518. https://doi.org/10.1007/s10826-019-01534-1

Shields, A., & Cicchetti, D. (1997). Emotion regulation among school-age children: The development and validation of a new criterion Q-sort scale. *Developmental Psychology*, *33*(6), 906–916. https://doi.org/10.1037/0012-1649.33.6.906

Sterling, A., & Warren, S. F. (2014). Maternal responsivity in mothers of young children with down syndrome. *Developmental Neurorehabilitation*, *17*(5), 306–317. https://doi.org/10.3109/17518423.2013.772671

Stone, L. L., Mares, S. H. W., Otten, R., Engels, R. C. M. E., & Janssens, J. M. A. M. (2016). The co-development of parenting stress and childhood internalizing and externalizing problems. *Journal of Psychopathology and Behavioral Assessment*, *38*(1), 76–86. https://doi.org/10.1007/s10862-015-9500-3

Stoneman, Z. (2007). Examining the down syndrome advantage: Mothers and fathers of young children with disabilities. *Journal of Intellectual Disability Research*, *51*(12), 1006–1017. https://doi.org/10.1111/j.1365-2788.2007.01012.x

van der Veek, S. M. C., Kraaij, V., & Garnefski, N. (2009a). Cognitive coping strategies and stress in parents of children with down syndrome: A prospective study. *Intellectual and Developmental Disabilities*, *47*(4), 295–306. https://doi.org/10.1352/1934-9556-47.4.295

van Der Veek, S. M. C., Kraaij, V., & Garnefski, N. (2009b). Down or up? Explaining positive and negative emotions in parents of children with Down's syndrome: Goals, cognitive coping, and resources. *Journal of Intellectual and Developmental Disability*, *34*(3), 216–229. https://doi.org/10.1080/13668250903093133

Wolfradt, U., Hempel, S., & Miles, J. N. V. (2003). Perceived parenting styles, depersonalisation, anxiety and coping behavior in adolescents. *Personality and Individual Differences*, *34*(3), 521–532. https://doi.org/10.1016/S0191-8869(02)00092-2

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

How to cite this article: Faught, G. G., Phillips, B. A., & Conners, F. A. (2022). Permissive parenting mediates parental stress and child emotions in families of children with Down syndrome. *Journal of Applied Research in Intellectual Disabilities*, 1–11. https://doi.org/10.1111/jar.13031