PARENT OUTCOMES FOLLOWING PARTICIPATION IN COGNITIVE BEHAVIOUR THERAPY FOR AUTISTIC CHILDREN IN A COMMUNITY SETTING

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Abstract

Parents of autistic children are at higher risk for mental health problems, including anxiety, depression and stress. Cognitive behaviour therapy (CBT) that targets children's emotion regulation problems may have an indirect influence on parent outcomes, especially if they play a supporting role in the intervention. However, the majority of the implemented CBT interventions were carried out in highly controlled research settings and no study has examined the parent outcomes of child-focused CBT in a community setting. The current study examined parent outcomes (i.e., mental health, mindful parenting and parenting practices) following a community-based CBT program with concurrent parent involvement for autistic children, as well as associations between parent and child outcomes (i.e., autism symptoms and emotion dysregulation) using change scores. Participants included 77 parent-child dyads across 7 community organizations in Ontario, Canada. Parents reported improved mindful parenting and positive parenting practices post intervention, and no significant change for their mental health. Multiple mediation analyses revealed that parent positive changes were associated with child positive changes in emotion regulation, with changes in parenting practices mediating the relationship between mindful parenting and child emotion regulation. This research suggests mutual beneficial outcome for all the stakeholders including children, parents, community organizations and public policy.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Parent Outcomes following Participation in Cognitive Behaviour Therapy for Autistic Children in a Community Setting

Caregivers of autistic children and adolescents often report higher rates of mental health difficulties, such as anxiety, depression and stress (Bitsika & Sharpley, 2004; Hayes & Watson, 2013; Lai et al., 2015) or challenges with their approach to parenting (O'Nions et al., 2018; Osborne et al., 2008). The transactional model of development (Sameroff, 2009) emphasises the bidirectionality between parent and child, which extends to the relations between child and parent mental health (Neece et al., 2012). Behaviours that are challenging or disruptive, and emotional dysregulation, in autistic children and adolescents have been associated with parents' mental health issues, especially parents' stress (Allik et al., 2006; Lecavalier et al., 2006; Mills et al., 2022; Neece et al., 2012). These parent and child variables can have fluctuating effects on each other over time. Piro-Gambetti and colleagues (2022) recently followed 188 families of autistic children for four years and found that maternal and paternal depression symptoms at the first timepoint predicted child internalizing issues 12 months later. They also found that children's internalizing problems in the third year predicted maternal depression symptoms in the fourth year. They concluded that child mental health can contribute to parent mental health, and that parent mental health can play an important role in increasing child internalizing mental health issues. Therefore, supporting parent mental health and parenting practices is an important endeavor in supporting autistic children's emotion regulation.

Mindful parenting is a key contributor of parent mental health and parenting practices (Parent et al., 2010; Raulston et al., 2021). Mindful parenting is defined as parents' ability to pay attention to the child and to their parenting in a non-judgmental manner during parent-child interactions (Kabat-Zinn & Kabat-Zinn, 2021). In families of autistic children, mindful parenting

has been related to enhanced parent mental health (Beer et al., 2013; Cheung et al., 2019; Conner & White, 2014; Jones et al., 2014; Oñate & Calvete, 2019). Cachia and colleagues (2016) reviewed the benefits of mindfulness interventions for parents of autistic children and reported associations between mindful parenting and reduced stress, depression and a higher sense of parenting competence. Mindfulness interventions have also shown positive effects on parenting practices in parents of neurotypical children (S. M. Bögels et al., 2014), in children with ADHD (van der Oord et al., 2012) and in autistic youth (De Bruin et al., 2015; Ridderinkhof et al., 2018). In fact, parental emotion and cognitive control capacities, defined as the ability to plan, make decisions, hold pertinent information in short-term memory, pay attention, avoid distractions, set priorities, regulate emotion and control impulses, have been found to be crucial to the development and maintenance of parenting practices (Crandall et al., 2015).

Due to the bidirectional nature of parent and child variables, mindful parenting is thought to be associated with children's mental health by virtue of its impact on parent mental health and parenting practices (Duncan et al., 2009; Kil et al., 2021). During dyadic interactions, mindful parenting may help parents develop a more positive non-reactive attitude towards their child, which could help with co-regulation, resulting in more positive child's mental health. Parent and colleagues (2016) examined the relationship between parent dispositional mindfulness, mindful parenting, parenting practices and youth psychopathology across neurotypical youth at three developmental ages: young childhood, middle childhood and adolescence. Higher levels of mindful parenting and lower levels of negative parenting practices were associated with lower levels of child externalizing and internalizing symptoms. In autistic youth, mindful parenting has been associated with decreased child externalizing behaviors (Bögels et al., 2008) and conduct problems (Raulston et al., 2021), and with improved child-parent dyadic interactions in mental

health and community settings (Singh et al., 2014, 2021). More generally, positive parenting practices and emotional adjustment have been found to contribute to the development and maintenance of positive child mental health (Hastings & Lloyd, 2007; Mazzucchelli, Jenkins, et al., 2018b), while negative parenting characteristics (i.e., coercive parenting and parent conflict) can have a negative impact on child functioning (Day et al., 2021; Osborne et al., 2008). Other kinds of negative parenting behaviours, including high levels of criticism and a negative relationship, appear predictive of high levels of maladaptive behaviour in autistic children (Bader et al., 2015).

Interventions that target autistic children's mental health and emotion regulation may have a secondary benefit of supporting parent mental health. For example, interventions that target children's emotional regulation via cognitive behaviour therapy (CBT) may have an indirect impact on parent outcomes. Studies that have examined CBT interventions for autistic children with anxiety and emotional dysregulation have shown that parents of treatment responsive children report reductions in trait anxiety (i.e., a general inclination to feel anxious across situations) (Conner et al., 2013; Reaven et al., 2015), parent stress (Weiss et al., 2015) and family functioning (Keeton et al., 2013). Further, Maughan and Weiss (2017) reported that, in a randomized waitlist-controlled trial of 10 sessions of parent-involved child CBT, parents of children in the treatment immediate group report a significant decrease in symptoms of depression compared to their counterparts in the waitlist group. There was also a general tendency toward improved scores for parents' anxiety and stress.

Parent involvement in children's interventions has also been associated with changes in parent practices and strategies. Within the context of treatment, accommodation has been suggested to risk stalling the benefits of CBT by maintaining children's symptoms and family

impairment, and may be related to parents' own anxiety around parenting (Storch et al., 2015). Parents who were involved in their autistic children's CBT have reported feeling more competent in supporting their children (Sofronoff et al., 2005) and to have reduced their accommodations (Storch et al., 2015). Maughan and Weiss (2017) examined changes in parenting approaches following a CBT RCT, and reported an increase of parents' positive comments, a trend toward a decrease in negative parenting practices, and improvements in mindful parenting from pre- to post-intervention. It was suggested that parents' learning of CBT and mindful strategies during their child's intervention resulted in benefits in their own level of mindfulness, which contributes to reduction of parent mental health issues and adopting better parenting practices.

These intervention studies were carried out in highly controlled research efficacy trials, and to the best of our knowledge, no study has examined the parent outcomes of child focused CBT in a naturalistic community setting. It is widely recognized that evidence-based interventions developed in research settings do not necessarily yield the same results when implemented in community settings due to barriers of intervention delivery at different levels including the patient, the clinicians, the organization, and/or the policy level (Breitenstein et al., 2010; Damschroder et al., 2009). It is important to examine the effect of child-focused, parent-involved CBT on parent outcomes in terms of parent mental health, mindful parenting and parenting practices in a community setting to better support their needs. Understanding the variability in treatment outcomes for autistic youth and their parents is crucial for intervention choice, design and adaptations while implementing in the community.

Current Study

The aim of the current study was to examine parent change when autistic children participate in a group-based CBT program in the community, and how this might be related to child improvements. First, I hypothesized that parents would show significant improvement in parent mental health, in mindful parenting, and in parenting behaviours from pre- to post-intervention. Second, parent changes would be associated with changes in children's improved emotion regulation abilities and social skills (the targets of the intervention). Third, the association between changes in mindful parenting and child emotion regulation and social functioning would be mediated by changes in parent mental health and parent behaviours. The current study can inform our understanding of the ways in which child targeted interventions can best utilize parent involvement, especially when aiming at increasing buy-in from parents. It may also bridge the gap between evidence-based interventions and their implementation in real-world settings and contribute to the advancement of the routine services of public health systems.

Method

Participants

Seven community provider agencies participated in the current study. These community organizations are publicly funded and deliver programming to autistic children and youth. Child/parent dyads were recruited from each agency, resulting in a total of 77 dyads. Agencies had various recruitment strategies; some recruited from their waitlists, others posted the program on their social media account and others through therapist referrals. Most parents were female (94.7 %), and between the ages of 27 and 58 years (M = 42.47 years, SD = 5.71). Children were 8 to 13 years of age (M = 9.90 years, SD = 1.28) and 79.2% were male. Demographics of parent-child dyads are further described in Table 1. Inclusion criteria were: a) children between the age

of 8 and 13 years, who had a diagnosis of autism from a regulated health professional and as determined by the autism service provider agency as per their standard operating procedures, b) parent-reported goal of working on child difficulties with emotion regulation and social functioning and c) having a parent who was able to participate in the weekly parent sessions. Exclusion criteria were: a) the presence of an intellectual disability via parent report or by screening, b) a diagnosis of acute psychosis or conduct disorder, or c) any behaviours that would create a safety concern for group participation.

Table 1

Parent and Child Demographics (*n* = 77)

	M(*SD*) or %
Parent demographics	
Parent age	42.47(5.71)
Parent age range	27-58 (fairly even/normal distribution)
Parent gender [a]	
Female	94.7% (72 females) 72 mothers
Male	5.3% (4 males) 5 fathers
Household Income (CAD) [b]	
<$49,999	13
$50,000 - $99,999	20.8
$100,000 - $149,999	20.8
$150,000 - $200,000+	22.1
Prefer not to disclose	15.6
Undergraduate degree or higher [c]	55.2
Employment status	
Full time	49.4
Part time	10.4
Unemployed	7.8
Other	32.5
Marital status [d]	
Married/Common Law	77.6
Separated/Divorced	14.5
Single	7.9
Visible Minority (% Yes) [e]	14.8
Child demographics	
Child age	9.90 (1.28)
Child age range	8 to 13 (normal distribution)
Child gender [f]	
Female	20.8
Male	79.2
Child ethnicity [g]	
Asian/South Asian	11.5
White	74.4
Other	14.1

[a] 1 missing case, [b] 6 missing cases, [c] 1 missing case, [d] 1 missing case, [e] 16 missing cases, [f] 1 missing case, [g] Additional categories of ethnicity were listed and were not endorsed

Measures

Parent Outcomes

Depression Anxiety Stress Scale (DASS-21). Parent mental health issues were measured using the Depression Anxiety Stress Scale (DASS-21; Lovibond, 1995). It is a self-report measure composed of 21 items that are divided into three subscales: depression, anxiety and stress. Parents are asked to rate how much each statement applies to them over the past week using a 4-point Likert scale that goes from 0 = *never - did not apply to me at all* to 3 = *almost always - applied to me very much, or most of the time*. Greater mental health problem severity is indicated by higher scores, with total scores ranging from 0 to 63. This measure is often used to assess parent psychopathology in families of autistic children (Lai et al., 2015; Maughan & Weiss, 2017; Tajik-Parvinchi et al., 2020) and demonstrated excellent internal consistency with this population (α = 0.91 for total score; Maughan & Weiss, 2017). For the current sample, internal consistency estimate was also excellent for the total score at both pre- and post-intervention (Cronbach's α = 0.90), good for the depression and stress subscales at both timepoints, respectively (Cronbach's α = 0.84, α = 0.87; Cronbach's α = 0.82, α = 0.83) and acceptable for the anxiety subscale at both timepoints (Cronbach's α = 0.75, α = 0.71). Overall, DASS-21 total scores at baseline ranged from 1 to 33 (M = 10.96, SD = 7.59) indicating that the majority of the parents in the current sample did not endorse clinical levels of psychopathology. Subscale scores can be categorized as falling in a normal, mild, moderate, severe and extremely severe range. For depression, scores in the 10-13 range are deemed mild symptoms (10.3 % of current sample at baseline), the 14-20 range as moderate symptoms (11.5%), and higher than 21 are considered severe or extremely severe (1.1%). For anxiety, scores at the 8-9 range are considered mild symptoms (14.1%), 10-14 as moderate (7.1%), and higher than 15 are

considered severe to extremely severe (7.1%). For stress, scores in the 15-18 range are considered mild (17.4%), 19-25 as moderate (12.8%), and 26 or above as severe to extremely severe (2.3%).

Bangor Mindful Parenting Scale (BMPS). The Bangor Mindful Parenting scale (BMPS; Griffith & Hastings, 2022; Jones et al., 2014) was used to assess mindful parenting. Parents rate 15 statements on a 4-point Likert scale that goes from 0 = *never true* to 3 = *always true*. The BMPS has five mindfulness domains: observing, describing, acting with awareness, non-reactivity, and nonjudgement. Examples from the first three domains are: "I am aware of how my moods affect the way I treat my child" (*observing*), "I have trouble thinking of the right words to express how I feel about my child" (*describing*) (reversed scored), "I don't pay attention to what I'm doing with my child because I'm daydreaming, worrying or distracted" (*acting with awareness*), (reversed scored). For the non-reactivity domain, an example item is "In difficult situations with my child I can pause without reacting straight away" and for the nonjudgement domain an example statement is "I tend to make judgements about whether I am being a good or a bad parent" (reversed scored). A total score is calculated by summing all scales, with higher scores indicating higher mindful parenting (a score of 45 indicates the highest mindful parenting score). This measure was created for parents of children with intellectual disabilities (ID) and/or autism and demonstrates good internal reliability in multiple studies (α = .79; Jones et al., 2014, α = .80; Raulston et al., 2021). For the current sample, internal reliability estimate is also good, with Cronbach's $\alpha = 0.80$ and $\alpha = 0.82$, for the total score at pre- and post-intervention, respectively.

Parent and Family Adjustment Scales (PAFAS). Parenting approaches and parent and family adjustments were measured using the Parent and Family Adjustment Scales (PAFAS;

Sanders et al., 2014). Parents rate 30 statements on a 4-point scale from 0 = *Not true of me at all* to 3 = *true of me very much.* There are two domains; the parenting domain (18 items) consisting of parental consistency, coercive parenting, positive encouragement, and parent-child relationship and the family adjustment domain (12 items) incorporating parental emotional adjustment, family relationships and parental teamwork. Example from the parenting domain is "If my child doesn't do what they are told to do, I give in and do it myself" and example from the family adjustment domain is "Our family members criticize or put each other down". Items are summed to indicate levels of dysfunction related to parenting and family adjustment. Scores of 54 and 36 are the highest levels of dysfunction on the parenting domain and the family adjustment domain, respectively. This measure has been shown its validity and reliability in parents of children with autism and other developmental disabilities, including in terms of internal consistency (Mazzucchelli et al., 2018a). For the current sample, internal consistency estimates were also very good in the parenting domain with Cronbach's $\alpha = 0.76$ for both pre- and post-intervention, and the family adjustment domain, Cronbach's $\alpha = 0.89$ and $\alpha = 0.86$ at pre- and post-intervention, respectively.

Child outcomes

Social Responsiveness Scale 2nd Edition (SRS-2). To capture children's social functioning and assess autism specific social impairments, the Social Responsiveness Scale (*SRS-2*; Constantino & Gruber, 2012) was used. The SRS-2 is a parent-report measure comprised of 65 items that are summed and converted to *T*-scores to create a total score of symptom severity as well as creating five subscale scores: social awareness, social cognition, social communication, social motivation and restricted interests and repetitive behaviour. The Social Communication Interaction scale was used in the current analysis, by summing the four social subscales. This

measure is one of the most widely used measure of children's actual social performance and can be expected to show moderate to large changes in the context of a successful clinical intervention (Wolstencroft et al., 2018). Pre-intervention, the social communication interaction T-scores ranged from 54 to 90 (M = 70.23, SD = 8.91).

Emotion Dysregulation Inventory (EDI). Children's emotional regulation difficulties were measured using the Emotion Dysregulation Inventory (EDI; Mazefsky et al., 2018a). This is a brief parent report measure that was created specifically to captures emotion regulation impairments in autistic children and adolescents. It consists of two scales: the emotional reactivity scale (7 items) that reflects the inability to regulate intense and rapidly rising negative emotions and the dysphoria scale (6 items) that captures the lack of positive affect, motivation and the presence of sadness and anxiousness. For each domain, the items are summed and converted to *T*-scores. Pre-intervention, the emotional reactivity scale ranged from 30.10 to 66.70 (M = 50.18, SD = 7.25) and the dysphoria scale ranged from 36.40 to 70.30 (M = 48.55, SD = 9.18). This measure has shown its validity and reliability (α ranging from 0.94 to 0.99; Mills et al., 2022) in autistic samples and is sensitive to change (Beck et al., 2020; Mazefsky, Yu, et al., 2018b). For the current sample, internal consistency estimates were also excellent in the reactivity domain with Cronbach's α = 0.92 for both pre- and post-intervention, and the dysphoria domain, Cronbach's α = 0.87 and α = 0.92 at pre- and post-intervention, respectively.

Procedure

Intervention

The Secret Agent Society: Small Group program (SAS:SG) intervention is a manualized child-targeted parent-involved adapted CBT program that aims at improving autistic children's emotion regulation and social skills (Beaumont, 2013). SAS: SG is a multi-component program

consisting of a) child group meetings, b) between session skills practice “missions” and activities, c) concurrent parent group sessions, and d) school support. The SAS:SG intervention can either be provided as a 9-session (90 minutes per session) or an 18-session (45 minutes per session) format (See Appendix A). In the current study, out of 77 children, 65 (84.4%) received the 9-session format and 12 (15.6%) received the 18-session format. In the 9-session format, 92.3% attended at least 8 sessions or more and in the 18-session format, 83% attended 16 sessions or more. The sessions are facilitated by either one or two SAS facilitators with a group of 3-4 or 4-6 children. Sessions consist of a mixture of methods such as didactic, in vivo practice, and positive reinforcement. The intervention starts with sessions aimed at improving emotion detection in others as well as their own by helping build skills to distinguish between different emotions and monitor physical signs for them. For example, children are taught mindfulness and relaxation strategies (e.g., O2 Regulator or “breathing techniques”) and coping techniques (e.g., “Using a thought detector” or cognitive restructuring). Other covered topics are social problem-solving and conversation skills, coping with mistakes and losing, and understanding and managing bullies and bullying. Between meetings, children are assigned weekly tasks through the SAS digital headquarters, such as online gamified learning, skills practice and journal reflections.

The current study was implemented during the COVID-19 pandemic from September 2020 to December 2021, and the intervention was provided virtually by all agencies. Some agencies provided families with the physical materials to use in an online manner (51.9%), while others used fully digital materials (48.1%).

SAS parent sessions can be delivered in three different formats, and agencies had the autonomy to choose the schedule that worked the best for them. The formats included (1) 9-week

sessions of 45 minutes per week, or (2) 18-week sessions of 30 minutes per week, or (3) three 2-hour sessions every 3 weeks (See Appendix A). All agencies offered a 2-hour parent information session prior the beginning of the program. In the current study, 56 (72.7%) parents received the 9 sessions module while 12 (15.6%) parents received the 18 sessions module and only 9 (11.7%) parents received the three 2-hour sessions. In the 9-session format, 96.4% attended at least 8 sessions or more, in the 18-session format, 83% attended at least 16 sessions or more and in the 3-session format, 55.5% attended at least 2 sessions or more. Parent session were run concurrently with the child sessions. The purpose was to advise and support parents on the content of child group meeting and to equip them on how to help their children apply their SAS skills in other settings. It is important to highlight that there is no content that focuses on parent mental health, such as alleviating parent depression, anxiety or stress; and parents are not taught techniques for mindfulness parenting or positive parenting behaviours.

Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 28. Statistical significance was evaluated at the alpha 0.05 level. To test Hypothesis 1, paired samples *t*-tests were calculated to compare scores on the different measures at baseline and at the end of treatment, with Cohen's *d* as a measure of effect size. To test Hypothesis 2, bivariate analyses using Pearson product moment correlations and 95% bias-corrected bootstrapped (N = 1000) confidence intervals examined the associations among parent and child change scores. The third Hypothesis involved testing the possibility of multiple mediators using Hayes' PROCESS macro, embedded in SPSS (Hayes, 2012). Pearson product-moment correlation and Preacher and Hayes's (2008) bootstrapping procedure (5,000 samples) were used to analyze the data (Farmer, 2012; Preacher & Hayes, 2008). Mediations were significant if the intervals between the lower

and upper limit of a 95% confidence interval (CI) did not contain zero (Preacher and Hayes, 2008). Two multiple mediation analyses were calculated examining the relationship between mindful parenting and child emotional dysregulation; the first model focusing on child reactivity while the second model focuses on child dysphoria. R squared was calculated as a measure of effect size for regression models in multiple mediation analyses.

Results

Parent Outcomes: Parent Mental Health, Mindful Parenting and Parenting Behaviours

All paired sample *t*-tests comparisons are reported in Table 2. Paired sample *t*-tests indicated no significant change from pre- to post-intervention for parent mental health using the DASS total score, t (74) = 0.73, p = .47. Paired sample *t*-tests indicated higher mindful parenting post-intervention in comparison to pre-intervention on the BMPS total score, t (74) = - 3.46, p < .001, d =-.40. The BMPS non-reactivity and non-judgement scales were significantly higher from pre- to post-intervention t (75) = - 3.50, p < .001, d = -.40 and t (75) = - 3.29, p = .002, d = -.38, respectively. However, the BMPS observing, describing, and acting with awareness subscales did not show any significant change.

In terms of parenting practices, paired sample *t*-tests indicated improved parenting on the PAFAS parenting domain, t (76) = 2.56, p = .013, d = .29, but no significant change on the PAFAS family adjustment domain. Within the parenting domain, the coercive parenting and the positive encouragement subscales were significantly better at post-intervention, t (76) = 2.31 p = .024, d =.26 and t (76) = 2.34, p = .022, d = .27. In terms of the family adjustment domain scales, only the parental emotional adjustment significantly changed, t (76) = 2.40, p = .019, d = .27.

Table 2

Parent Outcomes Paired t-tests from Pre- to Post-Intervention (*n* = 77)

Variable	Pre-intervention *M*(*SD)*	Post-intervention *M*(*SD)*	*t(df)*	Effect size
DASS total score	10.96 (7.59)	10.43 (7.71)	0.73 (74)	.09
DASS stress	5.84 (3.32)	5.41 (3.28)	1.17(75)	.13
DASS anxiety	2.36 (2.71)	2.36 (2.76)	0.00 (74)	.00
DASS depression	2.70 (2.76)	2.65 (2.93)	0.19 (76)	.02
BMPS total score	32.39 (5.57)	33.89 (5.41)	-3.46***(74)	-.40
BMPS observing	6.46 (1.54)	6.71 (1.63)	-1.51 (75)	-.17
BMPS describing	7.22 (1.65)	7.32 (1.66)	-0.59 (75)	-.07
BMPS acting with awareness	7.34 (1.14)	7.49 (1.18)	-1.49 (76)	-.17
BMPS non-reactivity	5.09 (1.56)	5.66 (1.53)	-3.50***(75)	-.40
BMPS non-judgement	6.26 (1.76)	6.75 (1.57)	-3.29**(75)	-.38
PAFAS parenting	11.66 (5.19)	10.67 (4.86)	2.56* (76)	.29
Coercive parenting	3.62 (2.15)	3.23 (1.82)	2.31* (76)	.26
Lack of positive encouragement	2.29 (1.49)	1.87 (1.41)	2.34* (76)	.27
Parental inconsistency	4.32 (2.38)	4.34 (2.32)	-0.07 (76)	-.01
Poor parent-child relationship	1.43 (2.04)	1.23 (1.90)	1.32 (76)	.15
PAFAS family adjustment	10.73 (6.52)	10.32 (6.26)	1.04 (59)	.13
Lack of parental emotional adjustment	5.25 (2.76)	4.74 (2.57)	2.40* (76)	.27
Poor family relationships	2.88 (2.24)	2.75 (2.04)	.81 (76)	.09
Poor parental teamwork	2.65 (2.64)	2.90 (2.84)	-1.41(59)	-.18

$^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$

Bivariate Correlations Among Parent and Child Outcomes

Parent Outcomes and Child Social Functioning

Changes in parent mental health, mindful parenting and parenting practices were not associated with changes in children's social functioning as measured by the SRS-2 SCI score. Even at the level of the subscales, only parental consistency (one of the PAFAS subscales) was associated with changes in children's SCI scores, (r (75) = .27, p =.02, 95% CI [.05, .46]).

Parent Outcomes and Child Emotion Dysregulation

As shown in Table 3, Pearson product moment correlations demonstrated that improvements in parent mental health symptoms using DASS change scores were associated

with reductions in child emotional dysregulation using EDI change scores: in child reactivity (95% CI [.02, .45]) and child dysphoria (95% CI [.09,.50]). Greater improvements in overall mindful parenting using BMPS change scores were associated with reductions in child emotional dysregulation using EDI change scores: in child reactivity (95% CI [-.49, -.07]) and child dysphoria (95% CI [-.52, -.11]). At the level of subscales, improvements in caregivers' acting with awareness and non-reactivity were associated with reductions in child reactivity (95% CI [-.53, -.12], 95% CI [-.44, -.01]). Moreover, improvements in caregivers' non-reactivity, observing and describing child emotional states were associated with reductions in child dysphoria (95% CI [-.44, -.01]), (95% CI [-.47, -.04]) and (95% CI [-.44, -.01]), respectively.

Similarly, greater improvements in parenting behaviours on the PAFAS change scores were associated with reductions in child reactivity (95% CI [.16, .55]) and child dysphoria (95% CI [.02, .44]). More specifically, improvements in parental consistency were associated with reductions in child reactivity ($r\,(74) = .40$, $p < .001$, 95% CI [.19, .57]). No other parenting subdomains were associated with changes in child dysregulation. In addition, changes in the family adjustment domain were not associated with changes in child dysregulation. However, improvements in parental emotional adjustment were associated with reductions in child dysphoria (95% CI [.04, .46]).

Table 3

Bivariate Correlations among Child Emotion Dysregulation Change Scores and Parent Outcomes Change Scores

	Child Emotion Dysregulation	
	Child Reactivity	Child Dysphoria
Parent Mental Health	.25*	.31**
Parent Stress	.23	.36**
Parent Anxiety	.21	.15
Parent Depression	.15	.19
Mindful Parenting	-.30*	-.33**
Observing	-.04	-.27*
Describing	-.09	-.24*
Acting with Awareness	-.34**	-.18
Non-reactivity	-.24*	-.23*
Non-judgement	-.21	.05
Parenting	.37**	.24*
Coercive parenting	.21	.11
Lack of positive encouragement	.13	.12
Parental inconsistency	.40***	.18
Poor parent-child relationship	.10	.16
Family adjustment	.09	.18
Lack of parental emotional adjustment	.11	.26*
Poor family relationships	.07	.15
Poor parental teamwork	.05	-.04

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

Mediators of the Mindful Parenting and Child Dysregulation Difference Relationship

As shown in Table 4, correlations among predictor (i.e., mindful parenting change scores), mediators (i.e., parenting behaviours and parent mental health change scores) and outcome variables (i.e., child reactivity and dysphoria change scores) were small to moderate in size. Changes in parenting behaviours were not associated with changes in parent mental health.

Table 4

Bivariate Correlations among Predictor, Mediators and Outcome Variables

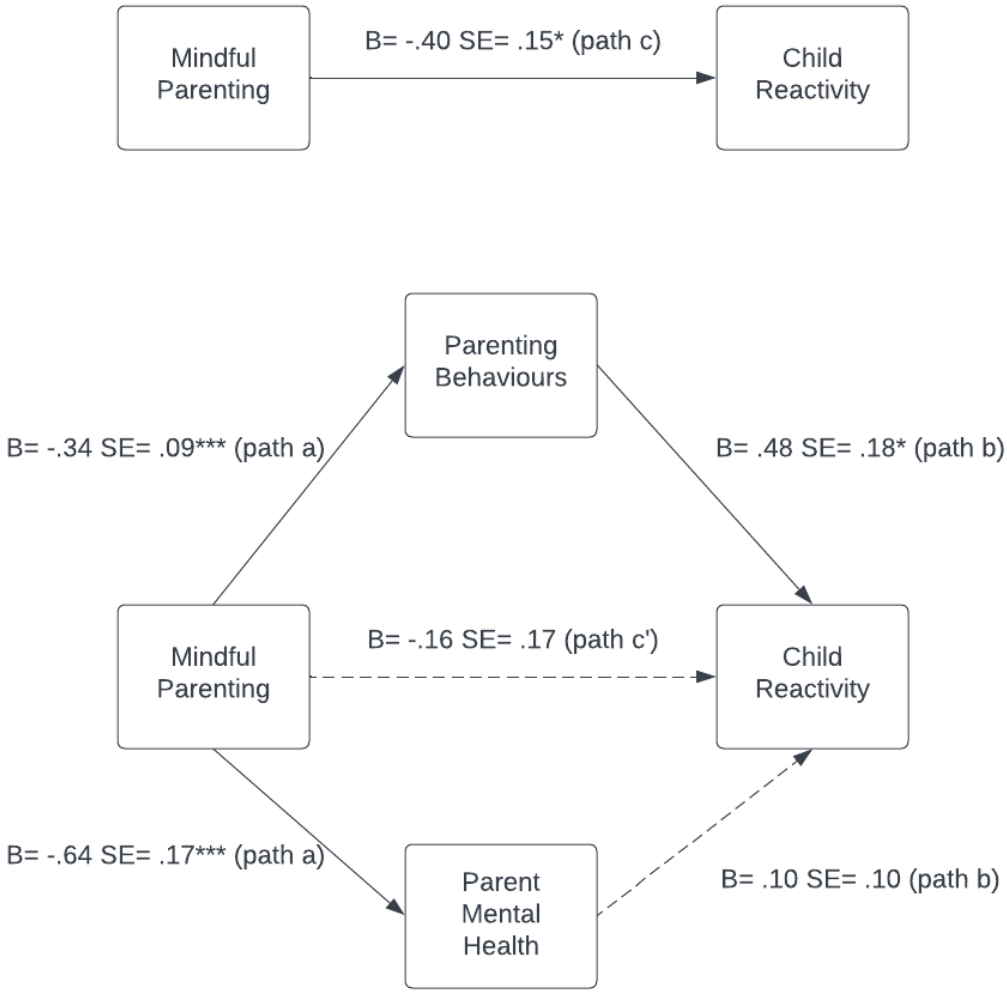
	Mindful parenting	Parental Mental Health	Parenting Behaviours	Child reactivity
Mindful parenting	-			
Parental Mental Health	-.39**	-		
Parenting Behaviours	-.39**	.19	-	
Child reactivity	-.30*	.25*	.37**	-
Child dysphoria	-.33**	.31**	.24*	.39**
Social communication interaction	-.18	.14	.16	.31**

As shown in Figure 1 (path c), the total direct effect of changes in mindful parenting was a significant predictor of child reactivity change, prior to entering the mediator variables, t = -2.58, p = .01, CI = -.71 to -.09, account for 8% variance. With the inclusion of the potential mediators, the overall model accounted for 18% of the variance in child reactivity change, F (3, 68) = 5.11, p = .003. As illustrated in Figure 2 (path b), change in parenting behaviours (t = 2.59, p = .01, η_{p2} = .27) was an independent predictor of child reactivity change, while differences in parent mental health (t = 1.08, p = .28) were not. The multiple mediator results indicated a

significant total indirect effect (point estimate = -.24 CI = -.45 to -.04), accounted for by the indirect effect of parenting behaviours (point estimate = -.16, CI = -.38 to -.02) and not parent mental health (point estimate = -.07, CI = -.20 to .05). Increases in mindful parenting were associated with better parenting behaviours (path a), which in turn was associated with decrease in child reactivity (path b). The direct association of mindful parenting difference and child reactivity difference was no longer significant, suggesting a full mediation.

Figure 1

Parallel Mediation Analysis of Parenting Behaviours, Parent Mental Health on the Mindful Parenting-Child Reactivity Relationship

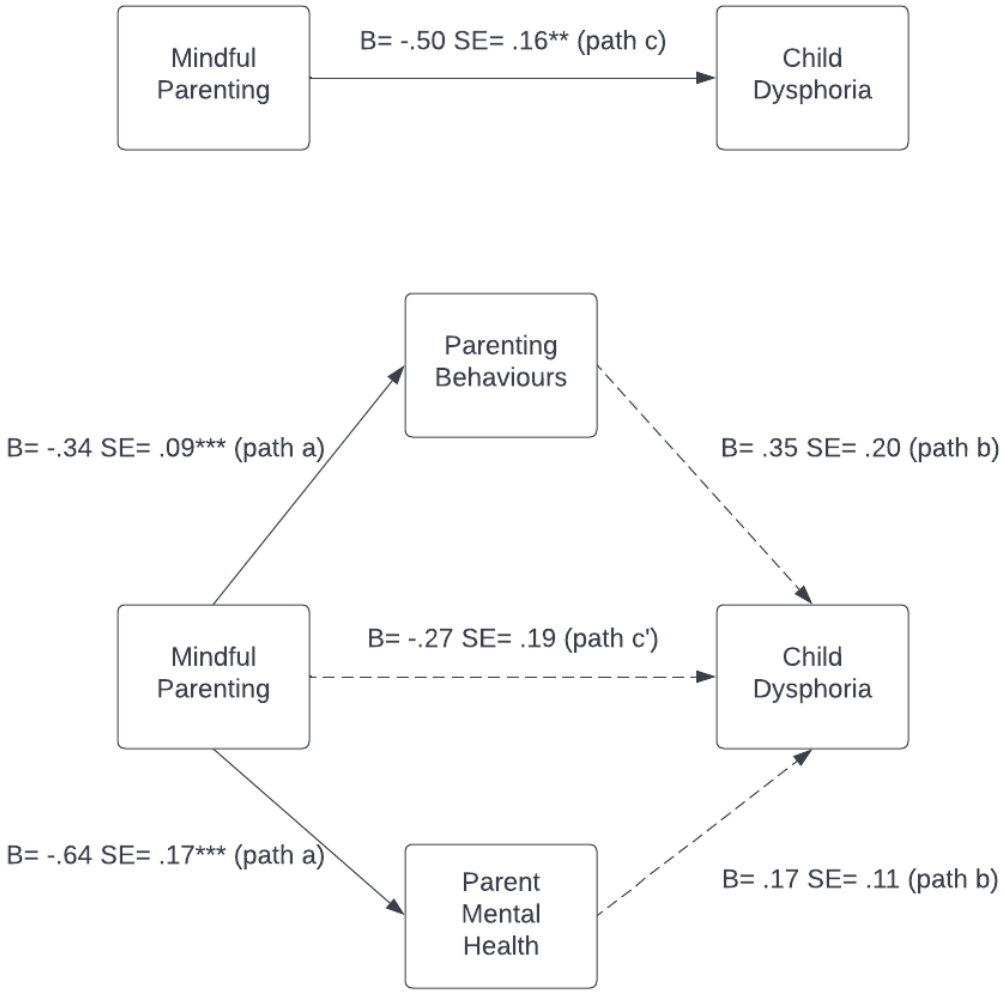


$^{**}p < .05$, $^{**}p < .01$, $^{***}p < .001$

As illustrated in Figure 2 (path c), the total direct effect of changes in mindful parenting was a predictor of child dysphoria changes, before entering the mediator variables, t = -3.02, p = .004, CI = -.84 to -.17, accounting for 11% of the variance. With the inclusion of the potential mediators, the overall model accounted for 18% of the variance in child dysphoria change, F (3, 68) = 5.18, p = .003. As shown in path b, neither changes in parenting behaviours nor in parent mental health were significantly associated with changes in child dysphoria, though parenting behaviors were trending (t = 1.75, p =.08). The multiple mediator results indicated a significant total indirect effect (point estimate = -.24, CI = -.42 to -.08), accounted for by the indirect effect of parenting behaviours changes (point estimate = -.12, CI = -.32 to -.01), but not parent mental health changes (point estimate = -.12, CI = -.27 to .02).

Figure 2

Parallel Mediation Analysis of Parenting Behaviours, Parent Mental Health on the Mindful Parenting-Child Dysphoria Relationship



$^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$

Discussion

To our knowledge, this study is one of the few to examine parent outcomes following the participation of autistic children in a community-based cognitive behavioural intervention. Despite previous studies in controlled settings reporting improvements in parent stress (Weiss et al., 2015), depression (Maughan & Weiss, 2017) and anxiety (Reaven et al., 2015) following child-focussed CBT programs, the current study, which was implemented in community settings, did not. It is important to highlight that most participants in the current study were not experiencing high levels of mental health issues, with only 1-12% of parents at baseline falling into the 'moderate', 'severe' and 'extremely severe' ranges of depression, anxiety or stress. It is possible that with less severe levels of mental health problems, there comes less opportunity to experience change. In fact, at baseline, the mean levels of mental health symptoms were in the average range (not even considered mild level of symptom severity) across the three DASS subscales. The intervention was also implemented during the COVID-19 pandemic, which had greatly impacted the wellbeing of children and their families across the globe (Liu & Doan, 2020) and more specifically children and youth with neurodevelopmental disabilities and their families (Nonweiler et al., 2020). It is possible that parents gained hopefulness (Weis & Ash, 2009) and self-efficacy (Tarver et al., 2019), which contributed to resilience against these additional environmental stressors, and that maintaining their current levels is itself a positive outcome. Regardless, given the lack of meaningful change in DASS scores, we suggest any interpretation of the correlation between parent mental health symptom change and child emotion regulation improvements should be tempered.

As expected, parents became more mindful in their parenting from pre- to post-intervention. These results are similar to Maughan and Weiss's (2017) findings, who suggested

that alongside the cognitive behavioural strategies, mindfulness exercises (e.g., breathing exercises, body scans) that are completed by the child during the session and at home might contribute to parents' increased observation of their child and reflections of their own parenting. In the current program, parents were presented with the same child mindfulness activities so that they could support their children while applying them at home. The BMPS measure allowed us to examine the five domains (i.e., observing, describing, acting with awareness, non-reactivity and non-judgement) that underly mindful parenting. The specific improvements in parents' non-reactivity and non-judgement with medium sized effects further supports Maughan and Weiss's suggestion. We may also see changes in mindful parenting by the sheer nature of asking parents at multiple time points about their parenting experience, which can lead them to reflect more on their parenting practices. It is also important to note that observing, describing and acting with awareness might be best addressed during parent targeted mindfulness interventions (Bazzano et al., 2015), and it would be of interest to examine whether larger effects could be achieved if parents were actively informed about mindful parenting practice.

The current study also revealed improvements in overall parenting and increased positive encouragement, and decreases in coercive parenting. In this child-targeted intervention, it is encouraging to observe changes in parenting practices, similar to the ones observed in other parenting interventions, specifically when measured by the same scale (Sumargi et al., 2015). Changes in family adjustment, including in family relationships and parental teamwork, were not observed from this intervention, which is reasonable given that there was only participation of one parent and no relevant content about family relationships or coparenting.

As hypothesised, improvements in mindful parenting and parenting practices were associated with reductions in both aspects of child's emotion dysregulation. Improvements in

parents' acting with awareness and non-reactivity, and parenting consistency, were associated with greater reductions of child reactivity. This may be a function of predictable non-reactivity responses to children's emotionality that breaks the cycle of escalating negative emotionality during parent-child interaction (Coatsworth et al., 2018; Duncan et al., 2009). Improvements in child dysphoria were associated with improvements in parents' non-reactivity, observing and describing of child emotional states, which is in line with previous studies reporting improvements in parent emotion regulation and in parenting being associated with reductions in child internalizing problems (Maughan & Weiss, 2017).

This study did not find significant associations between changes in parenting variables and changes in children's social functioning. Given that all measures were parent-reported, the fact that there were significant associations among parent outcomes and child emotion regulation, and not social functioning, highlights the reciprocal relationship between parent and child emotion regulation and parents' role in supporting the development of their children's emotion regulation skills (Gulsrud et al., 2010; Ting & Weiss, 2017), and supports the possibility that the observed changes were not merely a function of shared method variance.

Many studies have examined the associations between mindful parenting and child functioning/problem behaviours (Aydin, 2022; Beer et al., 2013; Weiss et al., 2012; Zhang et al., 2019) and reported a significant negative association between mindful parenting and child problem behaviors, in which increase in mindful parenting was associated with a decrease in child challenging behaviours/emotion dysregulation or, vice versa. The current study is one of the few that focuses on trying to explain the relationship between mindful parenting and child functioning. The findings support the notion that changes in parenting practices could mediate the relationship between changes in mindful parenting and child emotion regulation. Similar

results were found by Ren and colleagues (2021), who revealed that, in neurotypical children, increases in maternal mindfulness were associated with an increase in child emotion regulation, and that positive parenting practices mediated this relationship. Moreover, in another neurotypical sample, Zhang and colleagues (2019) found that an increase in parental mindfulness was associated with higher levels of child emotion regulation and that mindful parenting mediated this relationship. Taken together, an increase in mindfulness outside of the parenting context is associated with an increase in mindful parenting which, in turn, is associated with positive parenting behaviours that are associated with decreases of emotion dysregulation. Given the cross-sectional nature of the current analysis, it will be important to examine these changes using time series and cross-lagged approaches, to determine directionality.

The current study has several limitations that should be acknowledged. First, the non-experimental methods do not allow causal inferences. Despite the parent-child relationship being bi-directional and likely influencing each other, future studies require more sophisticated methods to inform the direction and causality of these relations. Future studies can examine the observed results by conducting a randomized controlled trial in the community. Second, parents in this study had low levels of mental health difficulties. Future studies may include parents with higher level of mental health issues to examine whether the same benefits for parents would be replicated and whether parent mental health would play a role in mediating the relationship between mindful parenting and child emotion dysregulation. Third, all measures were based on a single informant (i.e., the parent, usually mother), emotion regulation findings are known to vary based on the informant (Weiss et al., 2014), and multi-modal assessment approach could enhance the validity of the results (Beck et al., 2020). Moreover, the current study focused on examining mindful parenting specifically and did not measure mindfulness outside the parenting context.

Future studies could include mindfulness outside of the parenting context since it influences mindful parenting. Finally, we did not control for parent participation in their own therapy or in mindful activities, it is possible that some parents have shown increased mindful parenting or changes in their behaviours due to other independent interventions.

Conclusion

Our findings suggest that parents can experience positive changes in their mindful parenting and parenting practices following participation in child-targeted intervention implemented in the community. These positive parent changes were associated with child positive changes in terms of their emotion regulation, with changes in parenting practices mediating the relationship between mindful parenting and child emotion regulation. This study fills a gap in the literature on the benefits of child-targeted interventions implemented in the community on parent outcomes. These results provide mutually beneficial outcomes for all the stakeholders including children, parents, community organizations, and public policy. Offering a child-targeted intervention that can help both the children and the parent, might address some of the intervention implementation barriers (e.g., high caseload, cost) faced in the community. It might also lend support to advocacy efforts to include evidence-based interventions in routine care of health services.

References

Allik, H., Larsson, J. O., & Smedje, H. (2006). Health-related quality of life in parents of school-age children with Asperger syndrome or high-functioning autism. *Health and Quality of Life Outcomes*, *4*, 1–8. https://doi.org/10.1186/1477-7525-4-1

Aydin, A. (2022). Examining the mediating role of mindful parenting: A study on the relationship between parental emotion regulation difficulties and problem behaviors of children with ASD. *Journal of Autism and Developmental Disorders*, *53*(5), 1873-1883. https://doi.org/10.1007/s10803-022-05455-9

Bader, S. H., Barry, T. D., & Hann, J. A. H. (2015). The relation between parental expressed emotion and externalizing behaviors in children and adolescents with an autism spectrum disorder. *Focus on Autism and Other Developmental Disabilities*, *30*(1), 23–34. https://doi.org/10.1177/1088357614523065

Bazzano, A., Wolfe, C., Zylowska, L., Wang, S., Schuster, E., Barrett, C., & Lehrer, D. (2015). Mindfulness Based Stress Reduction (MBSR) for parents and aregivers of individuals with developmental disabilities: A community-based approach. *Journal of Child and Family Studies*, *24*(2), 298–308. https://doi.org/10.1007/s10826-013-9836-9

Beaumont, R. (2013). *Secret Agent Society–Operation Regulation* (*SAS-OR*) *Manual*. Social Skills Training Pty Ltd.

Beck, K. B., Conner, C. M., Breitenfeldt, K. E., Northrup, J. B., White, S. W., & Mazefsky, C. A. (2020). Assessment and treatment of emotion regulation impairment in autism spectrum disorder across the life span current state of the science and future directions. *The Psychiatric Clinics of North America, 44* (1), 950119. https://doi.org/10.1016/j.psc.2020.11.008

Beer, M., Ward, L., & Moar, K. (2013). The relationship between mindful parenting and distress

in parents of children with an autism spectrum disorder. *Mindfulness*, *4*(2), 102–112. https://doi.org/10.1007/s12671-012-0192-4

Bitsika, V., & Sharpley, C. F. (2004). Stress, anxiety and depression among parents of children with autism spectrum disorder. *Australian Journal of Guidance and Counselling*, *14*(2), 151–161. https://doi.org/10.1017/S1037291100002466

Bögels, S., Hoogstad, B., Van Dun, L., De Schutter, S., & Restifo, K. (2008). Mindfulness training for adolescents with externalizing disorders and their parents. *Behavioural and Cognitive Psychotherapy*, *36*(2), 193–209. https://doi.org/10.1017/S1352465808004190

Bögels, S. M., Hellemans, J., van Deursen, S., Römer, M., & van der Meulen, R. (2014). Mindful parenting in mental health care: Effects on parental and child psychopathology, parental stress, parenting, coparenting, and marital functioning. *Mindfulness*, *5*(5), 536–551. https://doi.org/10.1007/s12671-013-0209-7

Breitenstein, S. M., Gross, D., Garvey, C. A., Hill, C., Fogg, L., & Resnick, B. (2010). Implementation fidelity in community-based interventions. *Research in Nursing and Health*, *33*(2), 164–173. https://doi.org/10.1002/nur.20373

Cachia, R. L., Anderson, A., & Moore, D. W. (2016). Mindfulness, stress and well-Being in parents of children with autism spectrum disorder: A systematic review. *Journal of Child and Family Studies*, *25*(1), 1–14. https://doi.org/10.1007/s10826-015-0193-8

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

Coatsworth, J. D., Timpe, Z., Nix, R. L., Duncan, L. G., & Greenberg, M. T. (2018). Changes in

mindful parenting: Associations with changes in parenting, parent–Youth relationship quality, and youth behavior. *Journal of the Society for Social Work and Research*, *9*(4), 511–529. https://doi.org/10.1086/701148

Conner, C. M., Maddox, B. B., & White, S. W. (2013). Parents' state and trait anxiety: Relationships with anxiety severity and treatment response in adolescents with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, *43*(8), 1811–1818. https://doi.org/10.1007/s10803-012-1728-0

Conner, C. M., & White, S. W. (2014). Stress in mothers of children with autism: Trait mindfulness as a protective factor. *Research in Autism Spectrum Disorders*, *8*(6), 617–624. https://doi.org/10.1016/j.rasd.2014.02.001

Constantino, J. N., & Gruber, C. P. (2012). *Social responsiveness scale: SRS-2*. Western Psychological Services.

Crandall, A. A., Deater-Deckard, K., & Riley, A. W. (2015). Maternal emotion and cognitive control capacities and parenting: A conceptual framework. *Developmental Review*, *36*, 105–126. https://doi.org/10.1016/j.dr.2015.01.004

Damschroder, L. J., Aron, D. C., Keith, R. E., Kirsh, S. R., Alexander, J. A., & Lowery, J. C. (2009). Fostering implementation of health services research findings into practice: A consolidated framework for advancing implementation science. *Implementation Science*, *4*(1). https://doi.org/10.1186/1748-5908-4-50

Day, J. J., Hodges, J., Mazzucchelli, T. G., Sofronoff, K., Sanders, M. R., Einfeld, S., Tonge, B., & Gray, K. M. (2021). Coercive parenting: modifiable and nonmodifiable risk factors in parents of children with developmental disabilities. *Journal of Intellectual Disability Research*, *65*(4), 306–319. https://doi.org/10.1111/jir.12813

De Bruin, E. I., Blom, R., Smit, F. M. A., Van Steensel, F. J. A., & Bögels, S. M. (2015). MYmind: Mindfulness training for Youngsters with autism spectrum disorders and their parents. *Autism*, *19*(8), 906–914. https://doi.org/10.1177/1362361314553279

Duncan, L. G., Coatsworth, J. D., & Greenberg, M. T. (2009). A Model of Mindful Parenting: Implications for Parent-Child Relationships and Prevention Research. *Clinical Child and Family Psychology Review*, *12*(3), 255–270. https://doi.org/10.1007/s10567-009-0046-3

Farmer, C. (2012). Demystifying moderators and mediators in intellectual and developmental disabilities research: A primer and review of the literature. *Journal of Intellectual Disability Research*, *56*(12), 1148–1160. https://doi.org/10.1111/j.1365-2788.2011.01508.x

Griffith, G. M., & Hastings, R. P. (2022). Bangor Mindful Parenting Scale (BMPS). In *Handbook of Assessment in Mindfulness Research* (pp. 1–9). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-77644-2_31-1

Gulsrud, A. C., Jahromi, L. B., & Kasari, C. (2010). The Co-regulation of emotions between mothers and their children with autism. *Journal of Autism and Developmental Disorders*, *40*(2), 227–237. https://doi.org/10.1007/s10803-009-0861-x

Hastings, R. P., & Lloyd, T. (2007). Expressed emotion in families of children and adults with intellectual disabilities. *Mental Retardation and Developmental Disabilities Research Reviews*, *13*(4), 339–345. https://doi.org/10.1002/mrdd.20173

Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling [White paper]. Retrieved from http://www.afhayes.com/public/process2012.pdf

Hayes, S. A., & Watson, S. L. (2013). The impact of parenting stress: A meta-analysis of studies

comparing the experience of parenting stress in parents of children with and without autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *43*(3), 629–642. https://doi.org/10.1007/s10803-012-1604-y

Jones, L., Hastings, R. P., Totsika, V., Keane, L., & Rhule, N. (2014). Child behavior problems and parental well-being in families of children with autism: The mediating role of mindfulness and acceptance. *American Journal on Intellectual and Developmental Disabilities*, *119*(2), 171–185. https://doi.org/10.1352/1944-7558-119.2.171

Kabat-Zinn, J., & Kabat-Zinn, M. (2021). Mindful parenting: perspectives on the heart of the matter. *Mindfulness*, *12*(2), 266–268. https://doi.org/10.1007/s12671-020-01564-7

Keeton, C. P., Ginsburg, G. S., Drake, K. L., Sakolsky, D., Kendall, P. C., Birmaher, B., Albano, A. M., March, J. S., Rynn, M., Piacentini, J., & Walkup, J. T. (2013). Benefits of child-focused anxiety treatments for parents and family functioning. *Depression and Anxiety*, *30*(9), 865–872. https://doi.org/10.1002/da.22055

Kil, H., Antonacci, R., Shukla, S., & De Luca, A. (2021). Mindfulness and parenting: A meta-analysis and an exploratory meta-mediation. *Mindfulness*, *12*(11), 2593–2612. https://doi.org/10.1007/s12671-021-01720-7

Lai, W. W., Goh, T. J., Oei, T. P. S., & Sung, M. (2015). Coping and well-being in parents of children with Autism Spectrum Disorders (ASD). *Journal of Autism and Developmental Disorders*, *45*(8), 2582–2593. https://doi.org/10.1007/s10803-015-2430-9

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*, *50*(3), 172–183. https://doi.org/10.1111/j.1365-2788.2005.00732.x

Liu, C. H., & Doan, S. N. (2020). Psychosocial stress contagion in children and families during

the COVID-19 pandemic. *Clinical Pediatrics*, *59*(9–10), 853–855. https://doi.org/10.1177/0009922820927044

Lovibond, S. H. (1995). Manual for the depression anxiety stress scales. *Sydney Psychology Foundation*.

Maughan, A. L., & Weiss, J. A. (2017). Parental outcomes following participation in cognitive behavior therapy for children with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *47*(10), 3166–3179. https://doi.org/10.1007/s10803-017-3224-z

Mazefsky, C. A., Day, T. N., Siegel, M., White, S. W., Yu, L., & Pilkonis, P. A. (2018a). Development of the emotion dysregulation inventory: A PROMIS®ing method for creating sensitive and unbiased questionnaires for autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *48*(11), 3736–3746. https://doi.org/10.1007/s10803-016-2907-1

Mazefsky, C. A., Yu, L., White, S. W., Siegel, M., & Pilkonis, P. A. (2018b). The emotion dysregulation inventory: Psychometric properties and item response theory calibration in an autism spectrum disorder sample. *Autism Research*, *11*(6), 928–941. https://doi.org/10.1002/aur.1947

Mazzucchelli, T. G., Hodges, J., Kane, R. T., Sofronoff, K., Sanders, M. R., Einfeld, S., Tonge, B., & Gray, K. M. (2018a). Parenting and family adjustment scales (PAFAS): validation of a brief parent-report measure for use with families who have a child with a developmental disability. *Research in Developmental Disabilities*, *72*, 140–151. https://doi.org/10.1016/j.ridd.2017.10.011

Mazzucchelli, T. G., Jenkins, M., & Sofronoff, K. (2018b). Building Bridges Triple P: Pilot

study of a behavioural family intervention for adolescents with autism spectrum disorder. *Research in Developmental Disabilities*, *76*, 46–55. https://doi.org/10.1016/j.ridd.2018.02.018

Mills, A. S., Tablon-Modica, P., Mazefksy, C. A., & Weiss, J. A. (2022). Emotion dysregulation in children with autism: A multimethod investigation of the role of child and parent factors. *Research in Autism Spectrum Disorders*, *91*. https://doi.org/10.1016/j.rasd.2021.101911

Neece, C. L., Green, S. A., & Baker, B. L. (2012). Parenting stress and child behavior problems: A transactional relationship across time. *American Journal on Intellectual and Developmental Disabilities*, *117*(1), 48–66. https://doi.org/10.1352/1944-7558-117.1.48

Nonweiler, J., Rattray, F., Baulcomb, J., Happé, F., & Absoud, M. (2020). Prevalence and associated factors of emotional and behavioural difficulties during COVID-19 pandemic in children with neurodevelopmental disorders. *Children*, *7*(9), 7–10. https://doi.org/10.3390/children7090128

O'Nions, E., Happé, F., Evers, K., Boonen, H., & Noens, I. (2018). How do parents manage irritability, challenging behaviour, non-compliance and anxiety in children with autism spectrum disorders? A meta-synthesis. *Journal of Autism and Developmental Disorders*, *48*(4), 1272–1286. https://doi.org/10.1007/s10803-017-3361-4

Oñate, L., & Calvete, E. (2019). The Beneficial role of nindfulness facets in relatives of people with intellectual and developmental disabilities. *Mindfulness*, *10*(9), 1883–1892. https://doi.org/10.1007/s12671-019-01140-8

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/10.1016/j.rasd.2007.06.004

Parent, J., Garai, E., Forehand, R., Roland, E., Potts, J., Haker, K., Champion, J. E., & Compas, B. E. (2010). Parent mindfulness and child outcome: The roles of parent depressive symptoms and parenting. *Mindfulness*, *1*(4), 254–264. https://doi.org/10.1007/s12671-010-0034-1

Parent, J., McKee, L. G., N. Rough, J., & Forehand, R. (2016). The Association of parent mindfulness with parenting and youth psychopathology across three developmental stages. *Journal of Abnormal Child Psychology*, *44*(1), 191–202. https://doi.org/10.1007/s10802-015-9978-x

Piro-Gambetti, B., Greenlee, J., Hickey, E. J., Putney, J. M., Lorang, E., & Hartley, S. L. (2022). Parental depression symptoms and internalizing mental health problems in autistic children. *Journal of Autism and Developmental Disorders*, https://doi.org/10.1007/s10803-022-05518-x

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*(3), 879–891. https://doi.org/10.3758/BRM.40.3.879

Raulston, T. J., Kosty, D., & McIntyre, L. L. (2021). Mindful parenting, caregiver distress, and conduct problems in children with autism. *American Journal on Intellectual and Developmental Disabilities*, *126*(5), 396–408. https://doi.org/10.1352/1944-7558-126.5.396

Reaven, J., Washington, L., Moody, E. J., Stern, J. A., Hepburn, S. L., & Blakeley-Smith, A. (2015). Examining the relationship between parental anxiety and treatment response in children and adolescents with autism spectrum disorder and anxiety. *Journal of Autism*

and Developmental Disorders, *45*(8), 2464–2473. https://doi.org/10.1007/s10803-015-2410-0

Ren, Y., Han, Z. R., Ahemaitijiang, N., & Zhang, G. (2021). Maternal mindfulness and school-age children's emotion regulation: Mediation by positive parenting practices and moderation by maternal perceived life stress. *Mindfulness*, *12*(2), 306–318. https://doi.org/10.1007/s12671-019-01300-w

Ridderinkhof, A., de Bruin, E. I., Blom, R., & Bögels, S. M. (2018). Mindfulness-based program for children with autism spectrum disorder and their parents: Direct and long-term improvements. *Mindfulness*, *9*(3), 773–791. https://doi.org/10.1007/s12671-017-0815-x

Sameroff, A. (2009). The transactional model. In *The transactional model of development: How children and contexts shape each other.* (pp. 3–21). American Psychological Association. https://doi.org/10.1037/11877-001

Sanders, M. R., Morawska, A., Haslam, D. M., Filus, A., & Fletcher, R. (2014). Parenting and family adjustment scales (PAFAS): Validation of a brief parent-report measure for use in assessment of parenting skills and family relationships. *Child Psychiatry and Human Development*, *45*(3), 255–272. https://doi.org/10.1007/s10578-013-0397-3

Singh, N. N., Lancioni, G. E., Medvedev, O. N., Hwang, Y. S., & 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

Singh, N. N., Lancioni, G. E., Winton, A. S. W., Karazsia, B. T., Myers, R. E., Latham, L. L., & Singh, J. (2014). Mindfulness-Based Positive Behavior Support (MBPBS) for mothers of adolescents with autism spectrum disorder: Effects on adolescents' behavior and parental

stress. *Mindfulness*, *5*(6), 646–657. https://doi.org/10.1007/s12671-014-0321-3

Sofronoff, K., Attwood, T., & Hinton, S. (2005). A randomised controlled trial of a CBT intervention for anxiety in children with Asperger syndrome. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, *46*(11), 1152–1160. https://doi.org/10.1111/j.1469-7610.2005.00411.x

Storch, E. A., Zavrou, S., Collier, A. B., Ung, D., Arnold, E. B., Mutch, P. J., Lewin, A. B., & Murphy, T. K. (2015). Preliminary study of family accommodation in youth with autism spectrum disorders and anxiety: Incidence, clinical correlates, and behavioral treatment response. *Journal of Anxiety Disorders*, *34*, 94–99. https://doi.org/10.1016/j.janxdis.2015.06.007

Sumargi, A., Sofronoff, K., & Morawska, A. (2015). A Randomized-controlled trial of the Triple P-Positive Parenting program seminar series with Indonesian parents. *Child Psychiatry and Human Development*, *46*(5), 749–761. https://doi.org/10.1007/s10578-014-0517-8

Tajik-Parvinchi, D. J., Farmus, L., Cribbie, R., Albaum, C., & Weiss, J. A. (2020). Clinical and parental predictors of emotion regulation following cognitive behaviour therapy in children with autism. *Autism*, *24*(4), 851–866. https://doi.org/10.1177/1362361320909178

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*, *23*(7), 1630–1644. https://doi.org/10.1177/1362361319830042

Ting, V., & Weiss, J. A. (2017). Emotion regulation and parent co-Regulation in children with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *47*(3), 680–

689. https://doi.org/10.1007/s10803-016-3009-9

van der Oord, S., Bögels, S. M., & Peijnenburg, D. (2012). The effectiveness of mindfulness training for children with ADHD and mindful parenting for their Parents. *Journal of Child and Family Studies*, *21*(1), 139–147. https://doi.org/10.1007/s10826-011-9457-0

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., Thomson, K., & Chan, L. (2014). A systematic literature review of emotion regulation measurement in individuals with autism spectrum disorder. *Autism Research*, *7*(6), 629–648. https://doi.org/10.1002/aur.1426

Weiss, J. A., Viecili, M. A., & Bohr, Y. (2015). Parenting stress as a correlate of cognitive behavior therapy responsiveness in children with autism spectrum disorders and anxiety. *Focus on Autism and Other Developmental Disabilities*, *30*(3), 154–164. https://doi.org/10.1177/1088357614547808

Wolstencroft, J., Robinson, L., Srinivasan, R., Kerry, E., Mandy, W., & Skuse, D. (2018). A systematic review of group social skills interventions, and meta-analysis of outcomes, for children with high functioning ASD. *Journal of Autism and Developmental Disorders*, *48*(7), 2293–2307. https://doi.org/10.1007/s10803-018-3485-1

Zhang, W., Wang, M., & Ying, L. (2019). Parental mindfulness and preschool children's emotion regulation: the role of mindful parenting and ssecure parent-child attachment. *Mindfulness*, *10*(12), 2481–2491. https://doi.org/10.1007/s12671-019-01120-y

Appendix A: Intervention Overview

Figure A

Intervention Overview of Parent and Child Sessions