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Interventions to improve parental mental health and psychological well-being in parents of adolescents with a diagnosis of ASD and/or ADHD: A systematic review

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ABSTRACT

Parents of children with neurodevelopmental conditions, such as autism spectrum disorder (ASD) and attention-deficit/hyperactivity disorder (ADHD), report higher stress levels and mental health difficulties compared to parents of typically developing children. The adolescent period can present particular challenges and there is a need to better understand how best to support parents' mental health during this time. This systematic review examines the effectiveness of interventions focused on improving the mental health of parents of adolescents with neurodevelopmental conditions and synthesises details about the intervention characteristics. We included 31 peer-reviewed papers describing 19 unique mental health interventions for parents of children aged between 10 and 19 years and diagnosed with neurodevelopmental conditions. Studies were retrieved from nine databases and their quality was appraised using Joanna Briggs Institute quality assessment. Results are reported using narrative synthesis. Mindfulness-based interventions (MBI), examined in 23 studies, reported significant reductions in stress levels and improved trait mindfulness, whilst reductions of depressive symptoms and anxiety were mixed. Psychoeducation-based interventions (PEBI), reported in 5 studies, showed significant increases in self-efficacy and reduction of depressive symptoms, but not in stress. Therapeutic-based interventions (e.g., CBT, ACT) were the focus of 4 studies and findings among them were inconclusive. Most interventions were implemented in the format of psychoeducational lectures (17 studies), and mindfulness-based techniques (22 studies) in group settings (25 studies), with eight to nine 90-minute sessions. Whereas research in interventions supporting parental mental health is in its infancy, there is some support that mindfulness-based intervention and psychoeducation can be helpful.

1. Introduction

Adolescence is a transition period characterized by significant physical, cognitive, and emotional changes (Davis et al., 2018). For people with neurodevelopmental conditions (e.g., autism spectrum disorders (ASD), attention-deficit/hyperactivity disorder (ADHD), specific learning conditions, and intellectual disabilities), these changes are often associated with additional challenges, such as

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difficulty with emotional regulation (Breaux et al., 2022), internalising and externalizing behaviours related to the pubertal stage (Penner et al., 2022), and challenges related to autonomy and decision-making processes (Racine et al., 2014). Moreover, parents of children with different developmental diagnoses also experience different stress levels. For example, parents of autistic children and parents of children with ADHD report higher levels of parental stress when compared to parents of children with other developmental conditions (Craig et al., 2016). These symptoms can be increased due to some characteristics of autism and ADHD, such as the presence of challenging behaviour, difficulty in communication, and lack of attention, for example (Breaux et al., 2021; (Craig et al., 2016).

The needs and demands of raising a child change over time, and in the context of neurodevelopmental conditions, the adolescent period can present particular difficulties. Clinical presentations of specific areas of functioning can change (Hartman et al., 2016) and adolescence marks a period of significant transitions such as from child and adolescent mental health care to adult services (Maurice et al., 2022), transitioning from primary to secondary school or from secondary school into higher education or employment (Volkmar et al., 2017; Gerdhart & Lainer, 2011; Robb & Findling, 2015). These changes significantly impact parental responsibilities concerning their children's well-being and due to the difficulties that can arise parents often show greater levels of perceived parental stress (Craig et al., 2016; Modesto-Lowe et al., 2014) and report higher physical (e.g., asthma, arthritis, back problems, migraines) and psychological (e.g. higher depression scores and lower social support) ill-health compared to parents of typically developing adolescents (Lach et al., 2009; Craig et al., 2016).

Current reviews have synthesised evidence on the effectiveness of mental health and well-being interventions for parents of younger children with neurodevelopmental conditions (e.g., (Sohmaran & Shorey, 2019; Ragni et al., 2022; Hohlfeld et al., 2018; Juvin et al., 2021; Bourke-Taylor et al., 2021), with focus on variables such as stress, depression and anxiety and strategies such as parent-training interventions. These reviews indicate that different types of interventions can be effective for different objectives, such as reducing negative parenting behaviours, increasing self-efficacy, and improving psychological well-being. Most reviews focus on parents of children up to 12 years old. They also identify various characteristics of the interventions, including format, duration, and key components.

In contrast to the increasing knowledge about how best to support parents of young neurodiverse children, intervention studies for parents of adolescents with neurodevelopmental conditions remain scarce and have not been synthesised. The present study aims to systematically review the effectiveness of interventions focused on improving the mental health and well-being of parents of adolescents diagnosed with neurodevelopmental conditions and investigate intervention characteristics associated with their effectiveness. The evidence is reported by type of intervention (mindfulness-based, psychoeducation-based, or therapeutic approach-based) and interventions' components, and delivery characteristics (e.g., format, frequency, and duration) are considered.

2. Methods

This systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines (Page et al., 2021) and was registered with PROSPERO (ref: CRD42022321418).

2.1. Inclusion and exclusion criteria

We included studies that (1) were written in English, (2) published in peer-reviewed journals, (3) used standardised assessment measures to report mental health and well-being outcomes, (4) their design included psychological interventions with control groups or pre-post comparison groups, and (5) included participants who were parents of adolescents with a neurodevelopmental condition (i.e., autism, attention-deficit/hyperactivity disorder, dyslexia, intellectual disabilities) with a mean age between 10 and 19 years old (World Health Organisation, 2020). Qualitative studies, reviews, meta-analyses, conference abstracts, book chapters, and research protocols were excluded. We did not consider the age of the publication for this review.

2.2. Search strategy

We performed searches using the keywords *parent*, mother*, father*, caregiver*, developmental disorder*, autis*, ASD, intellectual disabilit*, ADHD, attention deficit hyperactivity disorder, communication disorder*, speech disorder, dyslexi*, SLD, specific learning disorder*, dyspraxi*, DCD, developmental coordination disorder, psychotherapy, mindfulness, acceptance commitment therapy, ACT, cognitive therapy, meditat*, relax*, behavio(u)ral therap*, psychoeducation,* and *mental health, well being, psychological disorder*, stress, anxiety, depression, PTSD, psychiatric disorder** connected by Boolean operators AND and OR in May 2022 and December 2023 in the following databases: AMED, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Communication Source, Cochrane Central Register of Controlled Trials, Embase, Global Health, MEDLINE, PsycINFO, and Ovid Emcare.

2.3. Screening and selection

Retrieved records were uploaded to RefWorks, and duplicates were removed. The screening process was conducted by two reviewers (MCS and LB) independently, who screened potentially eligible papers at two points (abstract and full-text screening). Disagreements between reviewers about screening and selection were resolved by consensus between the two reviewers (MCS and AB). The electronic searches retrieved 6881 records across the selected databases, with a total of 5491 records separated after the removal of duplicates.

Studies were also retrieved using forward and backward citation and reference searches through relevant papers. Finally, when

titles and abstracts were screened, 248 relevant studies were selected for full-text review. Fig. 1 shows the flow diagram of the selection process. The final sample comprised 31 studies.

2.4. Data synthesis and quality assessment

We used the Synthesis without Meta-analysis (SWiM; Campbell et al., 2020) method to report the results. Evidence tables and descriptive statistics summarised the information extracted from the retrieved studies, and results were described with a narrative synthesis of the findings. Quality assessment was performed using the Joanna Briggs Institute (JBI) Tool for Assessing Risk of Bias (Higgins et al., 2011). The effectiveness of the interventions was synthesised by combining the significance levels (Pearson's *P* value) reported in studies for each variable investigated in post-test analyses and the effect sizes. When possible, effect sizes of studies not reporting were calculated using Cohen (1988). Other effect size measures, such as Partial Eta Squares (n^2), were also pooled in the analysis. The analysis of effect sizes followed the guidance for each measure: Cohen's *d* effect size considered 0.2 as small, 0.5 a medium effect size, 0.8 as large, and 1.3 as a very large effect size; Partial Eta Squared considered 0.01 as small, 0.06 as medium, and 0.14 as large effect sizes.

As for intervention characteristics, it was decided to prioritise the most reported ones (at least 60 % of the studies in general described the characteristic). Characteristics comprised the format, duration, frequency, and focus of the intervention. Interventions aimed specifically at parents and investigating parents' outcomes only were named parent-focused, whereas interventions that also sought children's outcomes along with parents' outcomes were named parent-child. Moreover, we also identified the components reported by each study.

3. Results

As shown in Table 1, most of the studies presented an unclear risk of bias, and nine studies showed a high risk of bias, which means that the results of the present study should be interpreted with caution, as bias might impact the results in the studies retrieved. All studies with a low risk of bias were randomised controlled trials (RCTs), with selection bias being the most common limitation. This indicates that participants were primarily recruited from homogeneous settings, limiting the generalisability of the results to the targeted population.

MBI: Mindfulness-based interventions; PEBI: Psychoeducation-based Interventions; TABI: Therapeutic approach-based intervention.

The 31 studies included 1753 participants. One study (Dykens et al., 2014) reported 2 studies involving the same number of participants comparing two different interventions, resulting in 32 studies reported in total. The RCTs comprised 1171 of the sample (66.61 %), with 549 (46.88 %) participants assigned to experimental groups and 616 (52.60 %) to control groups. Demographic information about the participants is detailed in Table 2. The majority of participants were identified as mothers, from a White background, and married. In terms of children's demographics, most of them were adolescents with a mean age of twelve years, diagnosed with ASD. All the studies were published between 2008 and 2023, with 22 (63.33 %) of them being published in the past five years. The extraction table that included information on the design, sample size, objectives, data collection, data analysis and nature of the interventions for each paper can be seen in the Appendix.

In total, 19 different interventions, programmes and/or therapies were reported across the included studies. Seven (36.85 %) interventions were adapted specifically for parents of autistic adolescents, three (15.78 %) were adapted for parents of adolescents with ADHD, four (21.05 %) were adapted for parents of adolescents with different diagnoses, and five (26.31 %) were not specifically adapted for any diagnosis. All the interventions were guided by trained professionals, who could be therapists, trained facilitators, social/health care professionals, or trained members of the community. Furthermore, twenty-three of the included studies evaluated mindfulness-based interventions, five studies investigated psychoeducation-based interventions, and four studies evaluated therapeutic approach-based interventions.

For the purpose of this review, the definition of the presented categories is: (a) mindfulness-based: interventions that are referred to as such in the studies describing them, and which use mindfulness or relaxation techniques (e.g., breathing, relaxation, mind-body connection activities; b) psychoeducation-based: interventions that provide education about health, mental health, and to increase knowledge about mental health awareness and coping strategies; and (c) therapeutic approach-based: interventions using established therapies, such as Cognitive Behaviour Therapy or Acceptance and Commitment Therapy as the reported intervention tested.

As for the intervention characteristics, the reports described the focus of the interventions, their format (group or individual), the number of sessions, the duration of the sessions, and the components implemented in the interventions for each study.

3.1. Mindfulness-based interventions (MBI)

The 23 studies retrieved investigating MBIs covered 13 different interventions, with one of the programmes being evaluated in eight different studies (MYmind – Bogels et al., 2021; De Bruin et al., 2015; Haydicky et al., 2015; Ho et al., 2021; Ridderinkhof et al., 2018; Salem-Guigis et al., 2019; Siebelink et al., 2022; Valero et al., 2023), one tested in three studies (Mindfulness-Based Positive Behaviour Support; Singh et al., 2021, 2019, 2014), and another one tested in two studies (Stress Management and Resiliency Training – Relaxation Response Resiliency Programme; (Park et al., 2020; Kuhlthau et al., 2020). Out of those thirteen MBIs, eight were investigated in randomised controlled trial studies (Ho et al., 2021; Siebelink et al., 2022; Valero et al., 2022; Singh et al., 2021; Kuhlthau et al., 2020; Park et al., 2020; Dykens et al., 2014; Flynn et al., 2020), and three studies (Kuhlthau et al., 2020; Park et al.,

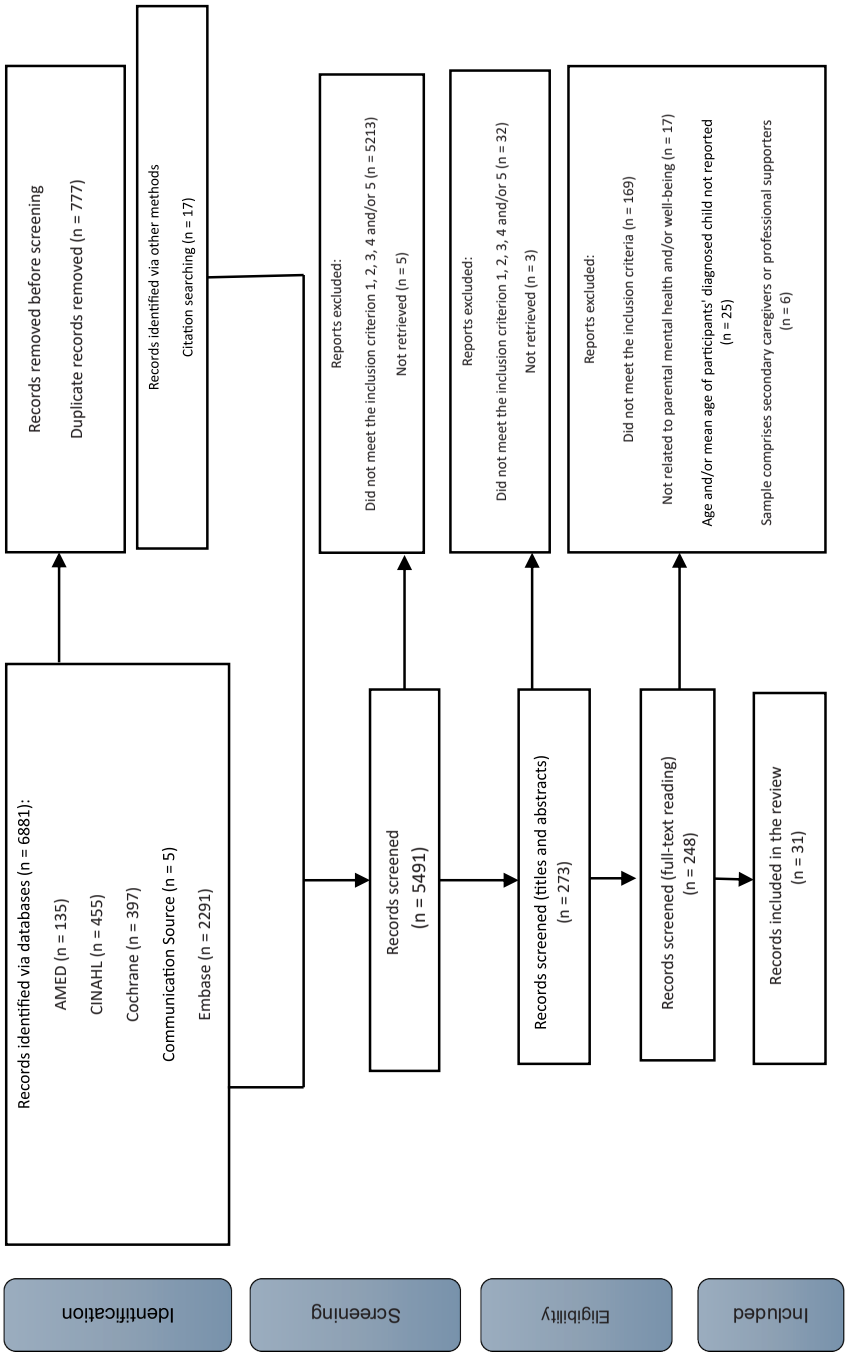

Fig. 1. PRISMA Flowchart of Retrieved Studies.

Table 1
Quality assessment of risk of Bias.

First author (year) and type of intervention	Random sequence generation (selection bias)	Allocation concealment (selection bias)	Blinding of participants and personnel (performance bias)	Blinding of outcome assessment (detection bias)	Incomplete outcome data (attrition bias)	Selective reporting (reporting bias)	Other bias	Level of Risk
Churchill (2018) - PEBI	+	+	+	+	+	?	?	Unclear
DaWalt (2018) - PEBI	?	?	+	+	+	+	?	Unclear
Dykens (2014) - MBI/PEBI	+	+	+	+	+	-	-	High
Flynn (2020) - MBI	+	?	+	+	+	+	+	Unclear
Ho (2021) - MBI	?	?	+	+	+	+	+	Unclear
Kuhlthau (2020) - MBI	+	+	+	+	+	+	+	**Low**
Magaña (2015) - PEBI	+	+	+	+	+	+	+	**Low**
Maughan (2023) - TABI	+	+	+	+	+	+	+	**Low**
Pachiti (2023) - MBI	?	+	+	?	+	?	+	Unclear
Park (2020) - MBI	+	+	+	+	+	+	+	**Low**
Siebelink (2022) - MBI	+	+	-	+	+	+	+	**Low**
Singh (2021) - MBI	+	?	+	+	+	+	+	Unclear
Valero (2022) - MBI	+	+	+	+	+	+	+	**Low**
Anclair (2014) - TABI	-	-	?	-	?	?	-	High
Bellone (2021) - MBI	?	+	+	+	+	+	?	Unclear
Bogels (2008) - MBI	x	+	+	+	?	+	?	Unclear
Bogels (2021) - MBI	-	-	?	+	+	+	?	High
De Bruin (2015) - MBI	+	+	+	?	+	+	?	Unclear
Fung (2018) - TABI	?	+	+	?	?	+	?	Unclear
Haydicky (2015) - MBI	+	+	+	+	+	+	?	Unclear
Hwang (2015) - MBI	+	+	+	-	?	+	?	High
Jones (2017) - MBI	?	+	+	?	x	+	?	Unclear
Kim (2016) - MBI	?	+	+	?	+	+	?	Unclear
Leitch (2023) - MBI	?	+	+	+	?	+	?	Unclear
Lunsky (2018) - TABI	?	?	+	?	?	+	?	Unclear
Petcharat (2021) - MBI	-	+	+	-	-	+	-	High
Ridderinkhof (2018) - MBI	+	+	+	?	-	+	?	High
Ruiz-Robledillo (2015) - MBI	-	+	+	?	+	+	?	High
Salem-Guigis (2019) - MBI	?	+	+	-	?	+	?	High
Singh (2019) - MBI	?	+	+	?	+	+	?	Unclear
Singh (2014) - MBI	?	-	?	?	+	+	-	High

Note: + = Low; - = High; *X* = Not appliable; *?* = Unclear; Studies in *italic* have RCT design; Studies in **bold** present low risk of bias and higher overall quality. Number of studies included in the table: n = 31

Table 2
Characteristics of participants included in the sample.

Parents' Variables	N (%) or M ± SD
Age	44.72 ± 3.42
Female	1411 (91.04)
Race/Ethnicity[1]	
White	430 (60.73)
Black	43 (6.07)
Asian	98 (13.84)
Latin or Hispanic	127 (17.93)
Others	10 (1.41)
Marital status[2]	
Married/Living together	725 (87.51)
Divorced/Separated	99 (12)
Never married/Widowed/Single	4 (0.48)
Educational level[3]	
Primary school	88 (12.73)
Secondary school	244 (35.31)
Higher education incomplete	23 (3.32)
Higher education or above	336 (48.62)
Occupation[4]	
Employed/self-employed	553 (86.00)
Not employed	42 (6.53)
Stay-at-home	48 (7.46)
Children's variables	N(%) or M ± SD
Age	12.85 ± 2.24
Children's diagnosis	
ASD	699 (40.04)
ASD+	433 (24.63)
ADHD	567 (35.25)
ADHD+	54 (3.07)

Note: [1]As some studies did not report information about the variable, the *n* for this characteristic was 708; [2]As some studies did not report information about the variable, the *n* for this characteristic was 828; [3]As some studies did not report information about the variable, the *n* for this characteristic was 691; [4]As some studies did not report information about the variable, the *n* for this characteristic was 862. Otherwise, the total number of participants included in the table was 1753.
ASD = autism spectrum disorders; *ASD+* = autism spectrum disorders and other diagnoses (e.g., intellectual disabilities); *ADHD* = attention-deficit/hyperactivity disorder; *ADHD+* = attention-deficit/hyperactivity disorder and other diagnoses (e.g., learning disorders)

2020; Valero et al., 2022) were considered low risk of bias.

As shown in Table 3, MBIs were largely delivered in groups, except for those reported by Singh and colleagues (2014), Kuhlthau and colleagues (2020) and Flynn and collaborators (2020). The majority lasted around two months, with the number of sessions varying between eight and nine for the majority of studies (n = 8), (Bogels et al., 2021; Haydicky et al., 2015; Siebelink et al., 2022; Valero et al., 2022; Singh et al., 2014; Bellone et al., 2021; Flynn et al., 2020; Hwang et al., 2015; Jones et al., 2017); n = 9; (De Bruin et al., 2015; Ho et al., 2021; Ridderinkhof et al., 2018; Salem-Guigis et al., 2019; Kuhlthau et al., 2020; Park et al., 2020; Kim, 2016; Ruiz-Robledillo et al., 2015), with one study including six sessions (Dykens et al., 2014) one five sessions (Leitch et al., 2023), and three studies four sessions (Singh et al., 2021; Singh et al., 2019; Petcharat and Liehr, 2021). Most studies described 90-minute-long interventions, except for three studies which used 120-minute-long interventions (Jones et al., 2017; Ruiz-Robledillo et al., 2015); 150-minute-long interventions: (Kim, 2016). Six studies did not state the duration of the investigated interventions. To sum up, most MBIs followed the traditional MBI framework and were delivered in groups, with eight or nine sessions over two months, where each session lasted 90 min.

The focus of the interventions as described by each study was mixed, with thirteen studies stating the interventions were parent-focused (Haydicky et al., 2015; Singh et al., 2021; Singh et al., 2014; Kuhlthau et al., 2020; Park et al., 2020; Bellone et al., 2021; Dykens et al., 2014; Flynn et al., 2020; Jones et al., 2017; Kim, 2016; Petcharat and Liehr, 2021; Ruiz-Robledillo et al., 2015; Leitch et al., 2023) and nine describing them to focus on both children and parents (Bogels et al., 2021; De Bruin et al., 2015; Ho et al., 2021; Ridderinkhof et al., 2018; Salem-Guigis et al., 2019; Siebelink et al., 2022; Valero et al., 2022; Singh et al., 2019; Bogels et al., 2008; Hwang et al., 2015). The most common components included mindfulness techniques collectively (n = 20, 86.95 %), and lectures/discussions on specific topics such as acceptance strategies, problem-solving and positive parenting (n = 14, 60.86 %).

Fourteen different outcome variables were investigated in the studies, as presented in Table 4. The three most investigated variables were stress (n = 19), depressive symptoms (n = 10), and anxiety (n = 10).

The most consistent result reported was regarding trait mindfulness, with thirteen studies reporting significant improvements,

Table 3
Delivery characteristics and components of MBI studies.

First author (year)	Delivery characteristics				Components											
	Focus	Format	Number of sessions	Duration (minutes)	Discussion/ lectures on specific topics	Meditation	Mindfulness techniques					Homework	Behaviour activation	Problem-solving training	Coping training	Positive parenting activities
							Mindful daily activities	Body scan	Awareness activities	Breathing techniques	Acceptance strategies					
Bellone (2021)	PF	G	8	90	√	√	√	√	√	√		√				
Bogels (2008)	C/P	G	9	90		√		√	√	√	√	√				
Bogels (2021)	C/P	G	8	90	√	√	√	√	√	√		√				
De Bruin (2015)	C/P	G	9	90	√	√	√	√	√	√	√		√	√		
Dykens – MBSR (2014)	**PF**	**G**	**6**	**90**		√	√	√	√	√						
Flynn (2020)	PF	I	8	N/R		√	√	√	√						√	
Haydicky (2015)	PF	G	8	90		√					√		√	√		√
Ho (2021)	**C/P**	**G**	**9**	**90**	√	√						√				
Hwang (2015)	C/P	N/R	8	N/R	√	√							√	√		
Jones (2017)	PF	G	8	120												√
Kim (2016)	PF	G	9	150	√	√	√	√	√	√	√					
Kuhlthau (2020)	**PF**	**I**	**9**	**90**		√	√	√	√	√						
Park (2020)	**PF**	**G**	**9**	**90**		√	√	√	√	√						
Petcharat (2021)	PF	G	4	N/R	√											
Ridderinkhof (2018)	C/P	G	9	90	√	√	√	√	√	√	√		√	√		
Ruiz-Robledillo (2015)	PF	G	9	120	√	√	√					√				
Salem-Guigis (2019)	C/P	G	9	90	√	√	√					√				
Siebelink (2022)	**C/P**	**G**	**8**	**90**	√							√				
Singh (2014)	PF	I	8	N/R	√	√										
Singh (2019)	C/P	G	4	N/R	√	√	√									
Singh (2021)	**PF**	**G**	**4**	**N/R**		√										√
Valero (2022)	**C/P**	**G**	**8**	**90**		√					√	√	√	√		√
Leicht (2023)	PF	G	5	90		√	√	√	√	√	√	√				
Total	-	-	-	-	14	20	13	11	11	10	7	9	5	5	1	4

Studies in **bold** are randomised controlled trials. Number of studies included in the table: n = 23
PF: Parent-focused intervention; C/P: Children- and parent-focused intervention; G: Group; I: Individual; N/R: Not reported

Table 4
MBIs variables' results at post-test analysis.

First author (year) and name of intervention	Children's diagnoses	Stress		Depression		Anxiety		Mindfulness	
		p	d/n^2	*p*	d/n^2	*p*	d/n^2	*p*	d/n^2
Bogels (2021) - MYmind	ADHD	> 0.05	0.01	-	-	-	-	*< 0.05*	*0.19*
De Bruin (2015) - MYmind	ASD	*< 0.05*	*0.31*	-	-	-	-	*< 0.001*	*0.58*
Haydicky (2015) - MYmind	ADHD	0.285	0.18	0.638	0.07	0.262	0.2	*0.027*	*0.43*
Ho (2021) - MYmind	**ASD**	**> 0.05**	**0.21**	**-**	**-**	**-**	**-**	**> 0.05**	**0.53**
Ridderinkhof (2018) - MYmind	ASD	*< 0.01*	*0.43*	-	-	-	-	*< 0.01*	*0.42*
Salem-Guigis (2019) - MYmind	ASD	> 0.1	0.18	> 0.1	0.1	> 0.1	0.1	*< 0.05*	*0.36*
Siebelink (2022) - Mymind	**ADHD**	**> 0.1**	**0.19**	**> 0.1**	**0.2**	**> 0.1**	**0.2**	***< 0.01***	***0.58***
Valero (2022) – Mymind*	**ADHD**	***0.018***	***0.198***	**-**	**-**	**-**	**-**	**-**	**-**
Singh (2021) - MBPBS	**ASD**	***< 0.001***	***0.47***	**-**	**-**	**-**	**-**	**-**	**-**
Singh (2019) – MBPBS*	ASD	*0.028*	*0.935*	-	-	-	-	-	-
Singh (2014) – MBPBS*	ASD	*< 0.01*	*0.94*	-	-	-	-	-	-
Kuhlthau (2020) - SMART−3RP	**ASD**	**0.23**	**0.38**	***0.047***	***0.64***	***0.047***	***0.64***	***0.018***	***0.77***
Park (2020) - SMART−3RP	**ADHD**	***0.01***	***0.83***	***0.03***	***0.71***	***0.03***	***0.71***	***0.0***	***0.86***
Bellone (2021) - MSCC	ASD	0.1692	0.6	0.1056	0.65	-	-	*0.0257*	*1.02*
Bogels (2008) - MBCT	ADHD	-	-	-	-	-	-	-	-
Dykens (2014) - MBSR	**ASD+**	**> 0.05**	**0.01**	***< 0.01***	***0.26***	***< 0.05***	***0.2***	**-**	**-**
Flynn (2020) - Be Mindful	**ASD+**	***< 0.001***	***1.09***	**-**	**-**	**-**	**-**	**-**	**-**
Hwang (2015) - Cultivating Minds	ASD	*0.043*	-	-	-	-	-	*0.042*	-
Jones (2017) - MBW-P	ASD+	*0.031*	*0.49*	0.459	0.21	0.204	0.26	*0.008*	*0.49*
Kim (2016) - BOF Meditation	ASD+	-	-	*< 0.001*	*1.21*	0.196	0.05	-	-
Petcharat (2021) - BCTTMi	ADHD+	0.131	0.25	-	-	*0.005*	*0.6*	-	-
Ruiz-Robledillo (2015) - MBP	ASD	-	-	*0.0042*	*1.08*	*0.000*	*0.39*	-	-
Leitch (2023) - PTM	ADHD	> 0.05	0.46	-	-	-	-	*< 0.05*	*0.89*

Studies in **bold** are randomised controlled trials; Effect sizes underlined were calculated by the authors based on the information provided in the studies; Results in *italic* are statistically significant; * for studies calculating the effect size using n^2. Number of studies included in the table: n = 23
MBPBS: Mindfulness-based Positive Behaviour Support; SMART-3RP: Stress Management and Resiliency Training – Relaxation Response Resiliency Programme; MSCC: Mindful Self-Care for Caregivers; MBCT: Mindfulness-Based Cognitive Therapy; MBSR: Mindfulness-Based Stress Relief; MBW-P: Mindfulness-Based Well-Being for Parents; BOF: Buddhist Ontology Focused; BCTTMi: Brief Culturally-Tailored Thai Mindfulness; MBP: Mindfulness-Based Programme; PTM: Parents That Mind; ADHD; Attention-deficit/Hyperactivity disorder; ADHD+ : Attention-deficit/Hyperactivity disorder and/or other neurodevelopmental conditions; ASD: Autism spectrum disorder; ASD+ : autism spectrum disorder and/or other developmental conditions; *p:* Pearson's statistical significance; *d:* Cohen's effect size; n^2*: Partial eta square*

mostly with medium to large effect sizes, as presented in Table 4. Other key mental health variables, such as stress, depressive symptoms, and anxiety, showed mixed results, with half of each sample presenting significant results. As for the effect sizes of the significant results, the studies reported mostly medium to large effect sizes for stress, with four of them coming from RCTs (Valero et al., 2022; Singh et al., 2021; Park et al., 2020; Flynn et al., 2020). Studies reporting significant reductions in depressive symptoms also showed medium to large effect sizes in general, with three of the studies being RCTs (Kuhlthau et al., 2020; Park et al., 2020; Dykens et al., 2014). Lastly, the variable anxiety had significant reports showing small to medium effect sizes, with three of them derived from RCTs (Kuhlthau et al., 2020; Park et al., 2020; Dykens et al., 2014). Nonetheless, the reported effectiveness of the interventions did not appear to indicate that any of the previously described characteristics were decisive factors in treatment success.

Other variables were investigated on a smaller scale by different studies. Significant improvements were observed in studies investigating well-being (Dykens et al., 2014) ($p < 0.05$; $d = 0.01$; (Flynn et al., 2020) ($p < 0.001$; $d = 0.58$)), with small to medium effect sizes, and social support (Kuhlthau et al., 2020) ($p = 0.04$; $d = 0.65$; (Park et al., 2020) ($p = 0.03$; $d = 0.71$)), with medium to large effect sizes, both of the results coming from RCTs only. Two variables were investigated by one study only (RCTs) and did not show significant results: self-efficacy (Flynn et al., 2020) and life satisfaction (Dykens et al., 2014). The variables parent-child relationship, quality of life, positive affect, self-compassion and positive gains demonstrated mixed results as well, with some RCTs reporting significant results for some of them (e.g., (Flynn et al., 2020) – parent-child relationship ($p < 0.001$; $d = 0.59$) and quality of life ($p < 0.01$; $d = 0.33$; (Siebelink et al., 2022) – quality of life ($p < 0.01$; $d = 0.6$) and self-compassion ($p < 0.05$; $d = 0.3$); and (Kuhlthau et al., 2020) and (Park et al., 2020) – positive affect ($p = 0.05$; $d = 0.6$ and $p = 0.01$; $d = 0.55$, respectively)).

Considering the significant outcomes only for the most investigated variables (stress, depressive symptoms and anxiety), studies reported mixed focus, with half of them focusing on parents' outcomes only (Singh et al., 2021; Singh et al., 2014; Kuhlthau et al., 2020; Dykens et al., 2014; Kim, 2016; Ruiz-Robledillo et al., 2015; Park et al., 2020; Flynn et al., 2020; Jones et al., 2017; Petcharat and Liehr, 2021) and the other half focusing on both children's and parents' outcomes (De Bruin et al., 2015; Ridderinkhof et al., 2018; Valero et al., 2022; Hwang et al., 2015; Singh et al., 2019). Most of them had interventions tested in samples of parents of autistic adolescents and parents of autistic adolescents and/or with other neurodevelopmental conditions (De Bruin et al., 2015; Ridderinkhof et al., 2018; Singh et al., 2021; Singh et al., 2019; 2014; Hwang et al., 2015; Jones et al., 2017; Kuhlthau et al., 2020; Dykens et al., 2014; Kim, 2016; Ruiz-Robledillo et al., 2015; Flynn et al., 2020) and the other two investigated parents of adolescents with ADHD and/or other neurodevelopmental conditions (Valero et al., 2022; Petcharat and Liehr, 2021; Park et al., 2020). Only three studies reported using an individual format for the intervention (Singh et al., 2014; Kuhlthau et al., 2020; Flynn et al., 2020). Nonetheless,

studies reporting non-significant results for the most investigated variables and others also presented a similar pattern in terms of interventions' characteristics.

3.2. Psychoeducation-based interventions (PEBI)

Five different interventions were considered to be psychoeducation-based (PEB): Parents and Children Together – PACT (Churchill et al., 2018) and Child ViReal Support (Pachiti et al., 2023), which were tested in samples of parents of adolescents with ADHD, and Transitioning Together (DaWalt et al., 2018), Positive Adult Development – PAD (Dykens et al., 2014), and Caring for Myself (Magaña et al., 2015), which were tested in samples of parents of autistic children with or without other diagnoses. All the interventions were tested in RCT studies.

Delivery characteristics described by each study for their intervention and the set of components used are set out in Table 5. Results regarding the characteristics were mixed, with most studies reporting children- and parent-focused interventions (Churchill et al., 2018; DaWalt et al., 2018; Pachiti et al., 2023), based in a group setting (DaWalt et al., 2018; Dykens et al., 2014; Pachiti et al., 2023), and comprising eight sessions (DaWalt et al., 2018; Magaña et al., 2015; Pachiti et al., 2023). All studies reporting the duration of each session stated they were 90 min long (DaWalt et al., 2018; Magaña et al., 2015; Pachiti et al., 2023). Regarding the components, the two most implemented were coping strategies training (n = 4; (Churchill et al., 2018; DaWalt et al., 2018; Dykens et al., 2014; Pachiti et al., 2023) and discussion and/or lectures on specific topics (n = 3; (Dykens et al., 2014; Magaña et al., 2015; Pachiti et al., 2023).

Six different variables were investigated in terms of effectiveness among the PEBIs, namely stress (n = 4; (Churchill et al., 2018; DaWalt et al., 2018; Dykens et al., 2014; Pachiti et al., 2023), depressive symptoms (n = 4; (Churchill et al., 2018; DaWalt et al., 2018; Dykens et al., 2014; Magaña et al., 2015), self-efficacy (n = 3; (DaWalt et al., 2018; Magaña et al., 2015; Pachiti et al., 2023), anxiety (n = 2; (Churchill et al., 2018; Dykens et al., 2014), parent-child relationship (n = 2; (DaWalt et al., 2018; Dykens et al., 2014), and well-being (n = 1; (Dykens et al., 2014). Significance values and effect sizes for each study can be seen in Table 6.

Most interventions showed significant reductions in depressive symptoms with varying effect sizes (DaWalt et al., 2018; Dykens et al., 2014; Magaña et al., 2015), and all studies investigating self-efficacy reported significant results mostly with large effect sizes (DaWalt et al., 2018; Magaña et al., 2015; Pachiti et al., 2023). The only study investigating well-being also reported significant improvements, but with a very small effect size (Dykens et al., 2014). Only one study reported significant reductions in anxiety symptoms and well-being (Dykens et al., 2014), and studies investigating stress and parent-child relationships did not report significant results.

Although the heterogeneity in the studies' characteristics and results for each variable cannot allow for to determination of which key factors lead to successful interventions, some similarities were found among studies. All studies reporting significant reductions in depressive symptoms were tested in samples of parents with autistic adolescents, whereas the studies that did not report significant results involved parents of adolescents with ADHD. As for the studies reporting significant improvements in self-efficacy, similarities were observed in terms of duration and frequency, with all three studies reporting implementation with eight sessions of 90 min each. However, the studies with no significant results for this variable did not share other similarities in the interventions' characteristics, focus or participants involved.

3.3. Therapeutic approach-based interventions (TABI)

Four studies reported TABIs, with three investigating the same form of Acceptance and Commitment Therapy (ACT) programme (Lunsky et al., 2018; Fung et al., 2018; Maughan et al., 2023), and one study reporting the results of clinical case studies using Cognitive Behavioural Therapy (CBT). Although Lunksy and Maughan's and Fung's studies reported on the same intervention, the authors described a few different characteristics: Fung and colleagues (2018) defined the ACT programme as a parent-focused intervention and had eight sessions, whereas Lunsky and collaborators (2018) and Maughan and colleagues (2023) had three group sessions. Another difference among studies regarded the focus of the intervention, as Fung and colleagues (2018) and Maughan and colleagues (2023) indicated that the programme was focused on parents' outcomes, and Lunsky and collaborators (2018) focused on both parents' and children's outcomes. Furthermore, both ACT and CBT interventions were tested in a sample of parents of autistic adolescents. The CBT intervention was set individually, and the duration of the sessions was an average of 60 min. The number of sessions each patient had was not disclosed. The ACT programme was investigated in an RCT by Maughan and colleagues (2023), and examined the variables examined by both Lunsky's and Fung's studies.

In terms of components, Anclair and Hiltunen (2014) reported using meditation, discussion and/or lectures on specific topics, and mindful daily activities. ACT interventions varied in terms of components reported: whilst Fung and colleagues (2018) reported using only discussion and/or lectures on specific topics, Lunsky and collaborators (2018) reported implementing homework, acceptance strategies, behaviour activation, problem-solving training, and coping training as part of the intervention. Maughan and colleagues (2023) reported using the same components as both Fung and Lunsky's protocols.

Finally, each study investigated different variables. Fung and colleagues (2018) investigated variables related to the core principles of ACT, such as flexibility, cognitive fusion, and acceptance concerning depressive symptoms and anxiety. Among these variables, the researchers found that the increase in flexibility appeared to be significantly related to reductions in depression and anxiety. As for Lunsky and collaborators (2018), the two investigated variables, stress and depressive symptoms, showed significant reductions for both pre-post and pre-follow-up analyses (17-week post-randomisation analysis). Though Anclair and Hiltunen (2014) also investigated depressive symptoms in the two participants of their study along with burnout symptoms, there was no report of the significance of the reductions, as the study described case studies only.

Table 5
Components mentioned by studies regarding PEB interventions.

First author (year)	Delivery characteristics				Components						
	Focus	Format	Number of sessions	Duration (minutes)	Discussion/lectures on specific topics	Homework	Acceptance strategies	Behaviour activation	Problem-solving training	Coping training	Positive parenting activities
Churchill (2018)	**C/P**	**I**	**N/R**	**N/R**				√	√	√	
DaWalt (2018)	**C/P**	**G**	**8**	**90**			√			√	
Dykens – PAD (2014)	**PF**	**G**	**6**	**N/R**	√		√			√	
Magaña (2015)	**PF**	**I**	**8**	**90**	√						
Pachiti (2023)	**C/P**	**G**	**8**	**90**	√	√		√	√	√	√
Total	-	-	-	-	3	1	2	2	2	4	1

Note: Studies in **bold** are randomised controlled trials. Number of studies included in the table: n = 5.
PF: Parent-focused intervention; C/P: Children- and parent-focused intervention; G: Group; I: Individual; N/R: Not reported

Table 6
PEBIs variables' results in post-test analysis.

First author (year) and name of intervention	Children's diagnoses	Stress		Depression		Anxiety		Parent-child relationship		Well-being		Self-efficacy	
		p	d/n^2	*p*	d/n^2	*p*	d/n^2	*p*	d/n^2	*p*	d/n^2	*p*	d/n^2
		0.866	**-**	**0.567**	**-**	**0.95**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
DaWalt (2018) - Transitioning Together	**ASD**	**0.572**	**0.64**	***0.035***	***1.94***	**-**	**-**	**0.659**	**0.45**	**-**	**-**	***0.0029***	***1.42***
Dykens (2014) - PAD	**ASD+**	**> 0.05**	**0.02**	***< 0.01***	***0.08***	***< 0.05***	***0.08***	**> 0.05**	**0.08**	***< 0.05***	***0.07***	**-**	**-**
Magaña (2015) - Caring for Myself	**ASD+**	**-**	**-**	***< 0.01***	***0.4***	**-**	**-**	**-**	**-**	**-**	**-**	***< 0.001***	***1***
Pachiti (2023) - Child ViReal Support	**ADHD**	**> 0.05**	**0.1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**> 0.05**	**0.25**

Note: Studies in **bold** are randomised controlled trials; Effect sizes underlined were calculated by the authors based on the information provided in the studies; Results in *italic* are statistically significant. Number of studies included in the table: n = 5

PACT: Parents and Children Together; PAD: Positive Adult Development; ADHD; Attention-deficit/Hyperactivity disorder; ASD: Autism spectrum disorder; ASD+ : autism spectrum disorder and/or other developmental conditions; *p:* Pearson's statistical significance; *d:* Cohen's effect size; n^2*:* Partial eta square

The only RCT in this group of studies, conducted by Maughan and collaborators (2023), investigated the variables of depressive symptoms, stress, positive affect, positive gains, family functioning, mindfulness, and ACT process measures and the effectiveness of the ACT programme in affecting them. Significant improvements in depressive symptoms ($p = 0.002$; $d = 0.87$), positive affect ($p < 0.001$; $d = 0.77$), positive gains ($p = 0.007$; $d = 0.80$), and family functioning ($p = 0.02$; $d = 0.41$) were observed at post-test analyses. Maughan and collaborators (2023) also evaluated long-term effects in a follow-up analysis, with only depressive symptoms ($p = 0.03$; $d = 0.64$) and family functioning ($p = 0.04$; $d = 0.57$) maintaining the significant improvements seen in the results. In the follow-up analysis, although the effect of reductions in depressive symptoms decreased to a medium effect size, the opposite was observed for the variable family functioning, which showed an increase in the effect size.

4. Discussion

The present study aimed to identify and describe interventions for parents of adolescents with neurodevelopmental conditions focused on parental mental health and well-being. This review identified 31 studies published between 2008 and 2023 reporting on nineteen different interventions, which can be grouped into mindfulness-based approaches (the most prevalent among published studies), psychoeducation-based approaches, and therapeutic approach-based interventions, including ACT and CBT. All interventions were facilitated by a therapist or trained facilitator, and most were delivered in groups and focused on parent outcomes only. Although delivery characteristics such as the duration and frequency of sessions were not reported by many studies, when those details were reported, the literature suggests that the most common format implemented was group-based interventions with 90-minute sessions over two months (eight to nine sessions weekly).

The majority of included studies have used MBIs as the tested interventions, whilst relatively little was observed about relative but equally well-informed interventions, such as PEBIs and TABIs for parents of neurodivergent adolescents. Research turned its attention to MBIs in the past years, and discussions on its emergence can be traced back to 15 years ago, with Greeson (Greeson, 2009) and Cullen (2011) highlighting the popularisation of mindfulness-based practice, especially in Western countries, which matches the pattern observed in the analysed studies in the present review. However, a review including several meta-analyses showed that, although studies investigating the effectiveness of MBIs increased significantly, the focus is often placed on broadening the scope of targeted groups benefiting from the interventions rather than deepening the evidence for them (Michalak & Heidenreich, 2019). These results resonate with the findings of this review, with most of the MBIs being investigated in experimental and cohort studies with post-test analysis only. Although other types of interventions, such as psychoeducation, ACT and CBT) were found to be as effective as MBIs in improving the mental health of the overall population (e.g., Singh and Gorey, 2018; Fang and Ding, 2023; Lucksted et al., 2012; Rodrigues et al., 2022; Ruiz, 2012; Donker et al., 2009; Li et al., 2021), only one-third of the studies retrieved covered their effectiveness to improve the mental health of parents of adolescents diagnosed with ASD and/or ADHD. Some explanations for this phenomenon could be the secularisation of mindfulness practices, aspects of the healthcare system in different countries, and the lower cost-effectiveness of the implementation of non-MBIs when compared to MBIs (Singh and Gorey, 2018; Lucksted et al., 2012; Michalak and Heidenreich, 2018).

The literature focuses almost exclusively on parents of children with ASD and/or ADHD, despite the use of more wide-reaching search terms that included other neurodevelopmental conditions. Out of the nineteen interventions, only three were designed specifically for parents of autistic adolescents and adolescents with ADHD, namely MYmind, Transitioning Together, and Caring for Myself. The other two interventions, MBPBS and MBP, while not explicitly designed for parents of autistic adolescents, only recruited parents of autistic adolescents for their participant samples. Similar patterns were found in other systematic reviews and meta-analyses, such as the ones conducted by Gyereh and Shukla (Gyereh and Shukla, 2023) and Masulani-Mwale and colleagues (2018). These findings contrast with the prevalence of neurodevelopmental conditions in the past decades, with ADHD being the most prevalent, followed by specific learning conditions and communication disorders.

The prevalence and epidemiologic studies have shown an increase in autism diagnoses in the past decades (Zeidan et al., 2022; Russell et al., 2022; Fombonne et al., 2021), which might explain the increase in studies focusing on this population and their support systems. However, Bishop conducted a study in 2010 analysing the number of published papers related to different neurodevelopmental conditions and the tendency for growth over the years, with the greatest increases being in studies about autism and ADHD, which shows that such patterns have been observed and maintained over time.

These findings emphasize the need not only for more studies on interventions specifically designed for parents of adolescents with other neurodevelopmental conditions, such as specific learning conditions, intellectual and developmental disabilities, developmental coordination conditions and developmental communication conditions, but for more studies focusing on these groups in general. Future studies should prioritise interventions aimed at improving the mental health and psychological well-being of parents of neurodivergent adolescents with multiple co-occurrences, regardless of the presence of ADHD and/or autism. Individuals with co-occurring developmental conditions are typically at higher risk of psychological difficulties and represent the majority of those diagnosed with neurodevelopmental conditions (McConkey, 2023; Bishop, 2010).

There is a noticeable inconsistency in the outcomes reported and the provision of details about the interventions' characteristics among the identified studies, which limits the analysis of the overall effectiveness of the types of interventions and which components are related to them. Mental health is a broad concept and involves many constructs and can be measured based on different aspects and domains (biological, psychological or social). Considering the psychological domain only, most instruments measuring mental health and well-being focus on the absence of illness (Cooke et al., 2016). Therefore, it is not a surprise that the most investigated variables regarding the effectiveness of the interventions were centred on stress, depressive symptoms, and anxiety, but there are multiple outcome measures that we need to investigate, including physical health, social support and positive psychological outcomes.

Additionally, there are many different psychometric measures assessing the same variables, making the comparison between results more difficult. The same issue can be conveyed by the lack of information about the interventions' characteristics reported in studies, as it hinders the identification of patterns and similarities among interventions, leading to inconclusive results.

Considering the holistic character of well-being as a construct and mental health in general, it would be interesting for future studies investigating novel or adapted interventions to explore other facets of parental mental health beyond the absence of illness. Evaluating the effectiveness of interventions to improve variables such as trait mindfulness, positive affect, life satisfaction, and self-efficacy can be beneficial in demonstrating the effectiveness of interventions in promoting positive mental health and psychological well-being (Avey et al., 2011; Li et al., 2014; Hendriks et al., 2020). For instance, interventions showing positive outcomes for improving positive mental health constructs, such as MYmind (trait mindfulness), the ACT programme (positive affect), SMART-3RP (trait mindfulness and social support) and Caring for Myself (self-efficacy) also reported positive outcomes regarding the decrease of negative mental health symptoms (stress, depressive symptoms, and anxiety). The presence of positive outcomes related to positive psychological constructs is also important to the development of internal resources, which are the mechanisms implemented to deal with the stressors. Studies should also be more careful when reporting the characteristics of the interventions to help build evidence of their effectiveness in replicable models.

The findings of this review, although not robust enough to indicate clear practical recommendations for healthcare providers working with families of individuals diagnosed with ASD and ADHD, can be used to suggest possible directions for practice. For instance, mindfulness-based interventions seem to be an interesting option for the improvement of trait mindfulness and other variables related to positive psychological well-being. On the other hand, psychoeducation-based interventions might be useful to reduce depressive symptoms and increase self-efficacy.

This study had several limitations that restricted the results. The systematic review found that only five out of the 31 studies analysed had a low risk of bias, while nine had a high risk of bias. This issue of bias in neurodevelopmental intervention research has been acknowledged for almost a decade (Milner and Cho, 2014) and has been the focus of attention in recent years. Other systematic reviews have also emphasized the need for researchers to prioritize methodological rigour to avoid bias and address all potential sources of conflicts of interest in their studies (e.g., Green and Garg, 2018; Rodgers et al., 2020; Cortese et al., 2015; Garcia et al., 2022). Due to these limitations, findings overall are very inconclusive, with little to no consistency in reported benefits of parent-focused interventions for parental mental health, which is a recurrent issue among systematic issues on interventions for parents of neurodivergent children in general. Moreover, the sample of participants in this review is mostly comprised of White parents from privileged socio-economic backgrounds, living in high-income countries. Therefore, results might not be generalisable to parents of individuals with ASD and ADHD with different backgrounds compared to the sample, as research has shown that cultural and contextual factors can influence parental well-being and intervention outcomes (Norbury and Sparks, 2013).

The development, optimisation, and implementation of interventions focused on parents of adolescents with neurodevelopmental conditions is a recent area of research and interest, with an ongoing growth of publications related to it in the past five years. Nonetheless, when compared to interventions for parents of children with neurodevelopmental conditions, parents of adolescents are still overlooked. Although there is a continued need for more studies, especially RCTs, to draw more precise conclusions, this review presented an array of interventions with promising results regarding parents' mental health and well-being, such as stress, depressive symptoms, and anxiety, in samples of parents of autistic adolescents and adolescents with ADHD.

CRediT authorship contribution statement

Angeliki Bogosian: Writing – review & editing, Supervision. **Costa e Silva Mariana Rodrigo do Vale:** Writing – original draft, Methodology, Investigation, Formal analysis, Conceptualization. **Sebastian B Gaigg:** Writing – review & editing, Supervision. **Lewis Benjamin:** Writing – review & editing, Investigation.

Appendix. Characteristics of the studies included in the review

Design	First author (year) and intervention	Parents' sample size (n)	Objectives	Data collection and analysis	Measures	Main findings*	Limitations
RCT	Churchill (2018) - PACT	174 (T: 84; C: 84)	To evaluate the efficacy of the intervention in families of children with ADHD at different points in time	Data collection: 1 - After randomisation into C and T, an initial home visit was made to obtain informed consent and to collect demographic information and complete questionnaires (T1); 2 - Follow-up questionnaires were	Family functioning: FSS; Distress, Anxiety and Depression: BSI	Maternal distress did not significantly differ from T to C, as well as family functioning	1 - Sample was mostly comprised of well-educated, white and married participants

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Design	First author (year) and intervention	Parents' sample size (n)	Objectives	Data collection and analysis	Measures	Main findings*	Limitations
				administrated at T2 (post-intervention, T3 (follow-up 1) and T4 (follow-up 2); Dara analysis: 1 - Descriptive analyses were performed and the two groups were compared; 2 - Student's t tests and Pearson's chi-square were used for categorical variables; 3 - Within-subject correlation structures were examined using the optimal longitudinal analysis method			
RCT	DaWalt (2018) - Transitioning Together	41 (T: 16; C: 25)	To evaluate the effectiveness of the intervention in autistic adolescents and their parents	Data collection:1 - Data were collected from parents and adolescents at two time points separately (T1, pre-intervention and T2, post-intervention); 2 - Parents completed interviews and self-reported assessment tools; 3 - Interviews and assessment tools were identical for both time points, with the exception of the demographic questionnaire, cognitive testing and exit interview questions for T2; 4 - Participants in C group were invited to undertake the intervention after T2 assessment; Data analysis: Conduction of a series of 2 × 2 (time x group) repeated covariance analyses to test the differences between T1 and T2	Parental well-being: CES-D; Parent-child relationship: PAI	The intervention group showed a significant reduction in depressive symptoms and an increase in parental problem-solving, but no statistically significant result was observed for parent-child relationship	1 - Significant differences between groups; 2 - Small sample size; 3 - Study focused on autistic adolescents with less need for assistance
RCT	Dykens (2014) - MBSR/PAD	243 (MBSR: 116; PAD: 127)	To examine the benefits of two different interventions in parents of autistic children and evaluate parents' responses to each treatment	Data collection: 1 - All participants recruited hadn no previous training in mindfulness or positive psychology practices; 2 - Participants were randomised using a computer programme, and no significant differences in baseline characteristics or treatment responses were observed; 3 -	Stress: PSI-SF; Depression: BDI; Anxiety: BAI; Well-being: Ryff Scales of Psychological Well-Being (Short Form); Life satisfaction: Life Satisfaction Scale	Participants showed significant improvements during treatment for anxiety, depressive symptoms, and life satisfaction for both interventions, and whilst MBSR performed better for reducing anxiety and depressive symptoms, PAD showed better outcomes in life satisfaction	1 - Inconsistency between tables and text-reported outcomes; 2 - No use of an untreated group; 3 - No testing of the effects of parents' outcomes in children's outcomes; 4 - Use of self-report measures; 5 - Drop-out rates across the study

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Design	First author (year) and intervention	Parents' sample size (n)	Objectives	Data collection and analysis	Measures	Main findings*	Limitations
				Outcomes were assessed in six waves (baseline: T1; Mid-treatment: T2; Post-test: T3; After one month: T4; After three months: T5; After six months: T6); Data analysis: 1 - Slope-as-outcome mixed random-effects model was used to analyse each outcome			
Pilot RCT	Flynn (2020) - Be Mindful	60 (T: 30; C: 30)	To examine the feasibility and implementation of the intervention for parents of children with disabilities prior to the conduction of a definitive RCT	Data collection: 1 - Family carers who expressed interest in participating underwent a short screening to determine their eligibility; 2 - Eligible participants responded to the baseline questionnaires; 3 - Participants were allocated randomly to each group; 4 - All participants received follow-up questionnaires at 12 weeks and 6 months post-randomisation; Data analysis: 1 - Linear regression model was used to compare the scores of the measures used; 2 - Exploratory analyses used repeated mixed-effects linear models to estimate the time-related changes in all outcomes	Well-being: WEMWBS; Stress and depression: HADS; Quality of life: EQ−5D-5L; Family functioning: Family APGAR Scale; Self-efficacy: PSOC; Parent-child relationship: Child-Parent Relationship Scale; Positive gains: Positive Gains Scale	Significant time-related increase for psychological well-being, but the logarithmic change was also statistically significant, suggesting that the initial increases reduced over time; moreover, stress and participant-child conflict decreased significantly over time	1 - Sample comprised mostly of mothers; 2 - Inconsistency with the Mentoring Manual; 3 - Lack of recordings
RCT	Ho (2021) - MYmind	37 (T: 19; C: 18)	To evaluate the feasibility and preliminary effectiveness of the intervention on Chinese autistic adolescents and their parents	Data collection: 1 - Participants were randomised between T and C groups; 2 - Pre-specified questionnaires were self-administered by participants in both groups at pre- and post-test time points; Data analysis: 1 - Group comparisons were made through samples of t-tests and chi-square tests; 2 - Multi-level mixed effects regression with time was applied to detect effects over time between subjects	Stress: PSI; Mindfulness: IM-P; Well-Being: WHO−5	No significant results were found for the outcomes stress, mindfulness and well-being when comparing the groups T and C	1 - Short follow-up duration; 2 - Small sample size; 3 - No data about the completion of homework; 4 - Overlapping of assessment reports; 5 - No blinding of the participants and facilitators
RCT	Kuhlthau (2020) - SMART−3RP	51 (T: 25; C: 26)	To determine the feasibility, acceptability, and preliminary	Data collection: 1 - Pre-screen questionnaires were administrated before	Stress: PSS and VAS; Depression and anxiety: PHQ−4; Positive	Significant results were observed for the variables depression, anxiety,	1 - Participants' demographics cannot be generalised; 2 -

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Design	First author (year) and intervention	Parents' sample size (n)	Objectives	Data collection and analysis	Measures	Main findings*	Limitations
			effectiveness of the intervention in parents of autistic children	consent to evaluate eligibility; 2 - Participants were assigned to groups randomly; 3 - Participants were assessed at three-time points pre- (T1), post-test (T2) and follow-up six months after the first group finished the intervention (T3); Data analysis: 1 - Preliminary efficacy was assessed through paired samples t-tests, group difference t-tests, and a series of Pearson's correlations	affect: PANAS-P; Social support: MOS-SSS; Mindfulness: CAMS-R	social support, and mindfulness, but not for stress and positive affect	Study was not powered to detect changes in all the measures; 3 - Small sample size
RCT	Magaña (2015) - Caring for Myself	100 (T:50; C: 50)	To examine the efficacy of the intervention in Latino parents of youth and adults with disabilities	Data collection: 1 - After giving consent, participants were randomly assigned to group T or C; 2 - Participants completed demographic questionnaires and assessment measures (T1); 3 - After the intervention, participants responded to the assessment measures one more time (T2); Data analysis: 1 - Paired samples t-tests were used to calculate the effect sizes using Morris and DeShon's (2002) method; 2 - Repeated-measure analysis of covariance was conducted to assess group-by time interaction effect	Depression: CES-D; Self-efficacy: Chronic Disease Self-Efficacy Scales	The intervention had significant results in improving self-efficacy in participants of the T group and reduction of depressive symptoms as well	1 - No double-blinded assignment; 2 - use of self-reported measures; 3 - Homogeneous participants' sample; 4 - One of the demographic variables was significantly different between groups
RCT	Maughan (2021) - ACT	54 (T: 27; C: 27)	To evaluate the efficacy of the intervention in parents of children, adolescents, and adults diagnosed with ASD	Data collection: 1 - Power analysis conducted indicated that a sample size of 55 would detect medium effects; 2 - Following baseline appointments, participants were randomised into either T or C and randomisation was stratified by gender; 3 - Following baseline data (T1), T participants were assigned to the intervention and C were in a waitlist, and measures were	Depression and Stress: DASS−21; Positive Affect: PANAS; Family functioning: BFDS; Positive gains: Goal Attainment Scaling; Flexibility and Acceptance: AAQ-II; Mindfulness: BMPS	Primary outcome: significant differences between T and C with a large time x condition interaction for depressive symptoms, with improvements sustained with across T2 and T3; results indicated that 67% of the participants in the clinical range improved to non-clinical by T3; Secondary outcomes: significant	1 - Limitation of generalisation of outcomes; 2 - only part of the T samples fully completed the intervention; 3 - Use of self-reported assessment tools; 4 - Homogeneity of participants' demographic information

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Design	First author (year) and intervention	Parents' sample size (n)	Objectives	Data collection and analysis	Measures	Main findings*	Limitations
				retaken at 3 more times (T2: 3 weeks post-randomisation; T3: 7 weeks post-randomisation; T4: 17 weeks post-randomisation); Data analysis: 1 - A series of linear mixed effects regression analyses were conducted to examine the relationship between group and outcome, as well as group and time; 2 - Differences for positive gains were tested using chi-square analyses, as well as interaction between group and improvement to non-clinical range		improvements for positive affect, positive gains, and family functioning at post-test analysis, but only family functioning results were sustained over time	
RCT	Pachiti (2023) - MBSR	30 (T: 16; C: 14)	To assess the impact of the intervention on parenting stress, parental self-efficacy, and parenting practices, as well as children with ADHD	Data collection: 1 - Participants underwent an initial baseline (T1) assessment, followed by the random assignment to T or C; 2 - After completing the intervention, a second (T2) assessment was performed; 3 - The second phase of the programme (including child training) was applied and a third assessment (T3) was performed after its conclusion; 4 - A final assessment (T4) was performed weeks after T3; Data analysis: Variance analysis was used for assessing the equality of means across time, with a focus on the average effect of the independent variables on the dependent ones	Stress: PSI-SF; Self-efficacy: PSOC	Child training group (C): significant reduction in stress and increase in self-efficacy from T1 to T3 and T4; Parent training group (T): no significant reduction in stress at any point in time, and significant improvement in self-efficacy observed between T1 and T4 only	1 - Small sample size; 2 - Use of self-reported assessment tools; 3 - Decreased power to find significant effects between groups; 4 - Problems observed during the randomisation process
RCT	Park (2020) - SMART−3RP	53 (T: 31; C: 22)	To examine the effectiveness of the intervention in parents of children with learning and attention disorders, as well as its feasibility and acceptability	Data collection: 1 - Pre-screen questionnaires were administrated before consent to evaluate eligibility; 2 - Participants were assigned to groups randomly; 3 - Participants were assessed at three-time points pre- (T1), post-test (T2) and follow-	Stress: PSS and VAS; Depression and anxiety: PHQ−4; Positive affect: PANAS-P; Social support: MOS-SSS; Mindfulness: CAMS-R	Significant results were observed for the variables stress, depression, anxiety, social support, and mindfulness, but not for positive affect	1 - Participants' demographics cannot be generalised; 2 - Study was not powered to detect changes in all the measures; 3 - Small sample size

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Design	First author (year) and intervention	Parents' sample size (n)	Objectives	Data collection and analysis	Measures	Main findings*	Limitations
				up six months after the first group finished the intervention (T3); Data analysis: 1 - Preliminary efficacy was assessed through paired samples t-tests, group difference t-tests, and a series of Pearson's correlations			
RCT	Siebelink (2022) - MYmind	103 (T: 55; C: 48)	To analyse the changes in children with ADHD and parents' outcomes post-treatment after using the intervention	Data collection: 1 - Participants were randomised to groups T or C; 2 - Assessments took place at baseline (T1), post-test (T2), and six-month follow-up (T3). Data analysis: 1 - Covariation analyses were performed to investigate the effects of the intervention	Stress, depression and anxiety: DASS; Well-being: WHO−5; Self-compassion: Self-Compassion Scale; Mindfulness: Mindfulness in Parenting Scale	Significant results from T1 to T2 were observed for mindfulness only, but from T1 to T3, significant improvements were also reported for stress, depressive symptoms and anxiety	1 - No blinding of participants; 2 - Use of self-report measures
RCT	Singh (2021) - MBPBS	195 (T: 65; C1: 65; C2: 65)	To extend the analysis of the intervention and compare its effectiveness to two other interventions	Data collection: 1 - Data was collected with the help of an app to enable real-time recording of multiple events; 2 - Data collection occurred for four and six hours during the week and seven to nine hours during weekends. Data analysis: 1 - Participants' outcomes were analysed using two-level covariance analyses with the three groups	Stress: PSS−10	The treatment group showed significant improvements in stress levels when compared to the other two control groups over time	1 - Homogeneous participant's sample; 2 - Use of self-reported measures
RCT	Valero (2022) - MYmind	30 (T: 15; C: 15)	Analyse the efficacy of the intervention in a sample of children with ASD and their parents	Data collection: 1 - Families completed baseline (T0) demographics and assessment tools; 2 - Assessment was conducted at 3 times (T0: baseline; T1: post-test; T2: follow-up); Data analysis: 1 - Analysis of covariance to compare T and C; 2 - Partial eta squared calculated for effect size	Stress: PSI-SF	T group showed significant improvements in stress levels in pre-post-test analysis with a large effect size	1 - Small sample size; 2 - Use of self-reported assessment tools; 3 - No active control group
Quasi-experimental cohort	Bogels (2021) - MYmind	167	To examine the effects of the intervention on both parents and children and adolescents with ADHD from using family perspective	Data collection: 1 - Participants were contacted in different institutions and screened for eligibility; 2 - Participants waited before the start of the	Stress: PSI; Mindfulness: IM-P	Parental stress showed no effect from T0 to T1, and no effect after intervention at T2 and T3, but indicated a significant	1 - Less control in the study design; 2 - Lack of randomisation; 3 - Use of self-reported assessment tools; 4 - Lack of follow-up participants

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Design	First author (year) and intervention	Parents' sample size (n)	Objectives	Data collection and analysis	Measures	Main findings*	Limitations
				intervention and participated in a waitlist assessment (T0) to correct the effect of time and assessment; 3 - Participants were reassessed prior the application of the intervention (T1), in the week after the intervention finished (T2), after an 8-week period (T3), and after 1 year (T4); Data analysis: 1 - Multilevel regression analysis used with repeated measurements, and effects were represented by coefficients for deviations from time points; 2 - Continuous variables were standardised		improvement at T4 with a small effect; 2 - Mindfulness did not change from T0 to T1, but significantly improved at T2 and maintained the improvement across other time points (small effect)	
Prospective cohort	De Bruin (2015) - MYmind	29	To examine the effects of the intervention on autistic adolescents and their parents	Data collection: 1 - Participants were assessed after giving consent at three different time points: pre-test (T1), post-test (T2), and nine weeks after the end of the intervention (T3); Data analysis: 1 - Treatment effectiveness was examined with multi-level analyses, with dependent variables signalised as the outcome measures and time entering as predictor	Stress: PSI; Mindfulness: FFMQ and IM-P; Well-being: WHO−5	Significant changes were found for mindfulness, but no significant result was observed for the variables stress and well-being at any time point	1 - Reduced sample size; 2 - Absence of C group; 3 - Participants included had average cognitive abilities; 4 - Use of self-reported measures
Prospective cohort	Fung (2018) - ACT	33	To examine the impact of the intervention among parents of autistic children with a focus on variables related to the interventions' processes, and to examine their potential role as mediators of clinical change	Data collection: 1 - Participants gave their informed consent at three points (pre-, post-test and follow-up); Data analysis: Within-subject repeated analysis of variance was used to assess significant changes; 2 - For mediational analyses, methods and MEMORE macro were used to estimate the total, direct, and indirect effects of time/intervention on the variables through the mediators	Flexibility: AAQ-II; Depression and anxiety: DASS−21	Improvements were reported by participants in all variables investigated, and data showed that values were a predictor of improvement of depression and stress at both post-test and follow-up analyses	1 - No active T group; 2 - Short follow-up; 3 - Scales not specifically developed for the targeted group of participants; 4 - Use of self-reported measures

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Design	First author (year) and intervention	Parents' sample size (n)	Objectives	Data collection and analysis	Measures	Main findings*	Limitations
Prospective cohort	Haydicky (2015) - MYmind	17	To support and extend the findings regarding children's outcomes, parenting stress, trait mindfulness, parent-child conflict, and family functioning in a sample of adolescents with ADHD and their parents	Data collection: 1 - Participants were enrolled on the intervention after consent; 2 - Participants were divided into parallel groups (parents and adolescents); 2 - Data was collected at four points (T1: Baseline; T2: Pre-test; T3: Post-test; T4: Follow-up)	Stress: SIPA; Mindfulness: IM-P	The study reported statistical significance only for the variable mindfulness from T2 to T3	1 - Reduced sample size; 2 - Lack of randomised control group; 3 - Use of self-reported measures; 4 - Lack of C groups
Prospective cohort	Kim (Kim, 2016) - BOF Meditation	9	To evaluate the influence on physiological indicators of parents of children with disabilities and the effectiveness in improving parents' outcomes	Data collection: 1 - Data was collected in six non-specified time points; Data analysis: 1 - Repeated-measures variance analysis was used to test possible differences across all time points against condition	Depression: BDI-II; Anxiety: STAI; Positive affect: PANAS	The intervention showed significant improvements in depressive symptoms after post-test analyses, and positive affect was significantly improved after follow-up analysis	1 - Reduced sample size; 2 - No C group; 3 - Triple exposure to the same questionnaires during assessment
Prospective cohort	Lunsky (2018) - ACT	33	To report the clinical outcomes of the intervention in parents of autistic children	Data collection: 1 - Participants gave their consent and completed online questionnaires pre-test, post-test + refresher, and follow-up three months later; Data analysis: 1 - Within-subject repeated measures analysis of variance was used to assess significant changes across three time points	Stress: PSI−4; Depression and anxiety: DASS−21	The intervention showed significant improvements in stress levels and depressive symptoms from pre- to post-test, and the improvements were maintained over the short-term follow-up	1 - No active T group; 2 - Short follow-up; 3 - Scales not specifically developed for the targeted group of participants; 4 - Use of self-reported measures; 5 - Homogeneous participants' sample
Prospective cohort	Petcharat (2021) - BCTTMi	24	To examine the feasibility and effects of the intervention in Thai parents of children with disabilities	Data collection: 1 - Participants were assigned to the intervention and were asked to do their home practices during the time of the intervention; 2 - Data was collected at three points: T1 (baseline), T2 (post-test) and T3 (2-week follow-up); Data analysis: 1 - Following the report of descriptive statistics, evaluation of feasibility was described through repeated-measures variance analyses	Stress: PSI-SF; Anxiety: SAI-Y−1; Mindfulness: MAS	The intervention showed significant improvements in anxiety from T1 to T2, but the results were not sustained in T3	1 - Presence of Type II error due to small sample size; 2 - Issues with mindfulness measure; 3 - Use of one-tailed test; 4 - T3 examined too quickly; 5 - Use of self-report measures
Prospective cohort	Ridderinkhof (2018) - MYmind	45	To add to preliminary findings of the intervention by evaluating it in a sample of autistic youth and their parents, and investigating its	Data collection: 1 - Assessment happened at five points: waitlist (T1), pre-test (T2), post-test (T3), two-month follow-up (T4), and one-year follow-up (T5); Data	Stress: PSS and PSI - Competence scale; Mindfulness: IM-P	Results regarding mindfulness showed a significant change that was sustained through T3, T4 and T5 assessments; as for stress, it was observed that	1 - Use of repeated measures over time without a C intervention; 2 - Part of the participants received additional therapy; 3 - Not all participants

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Design	First author (year) and intervention	Parents' sample size (n)	Objectives	Data collection and analysis	Measures	Main findings*	Limitations
			effectiveness in both groups' outcomes	analysis: 1 - Multilevel analyses were conducted to test differences overtime on the standardised outcome measures, with measurement occasions nested within participants		significant reductions occurred at T3 and T4, but not at T5	completed the questionnaires on all measurement occasions
Prospective cohort	Salem-Guigis (2019) - MYmind	23	To replicate and add to the literature on the intervention by evaluating it in autistic youth and their parents, and comparing the results with a sample undertaking traditional interventions	Data collection: 1 - Sessions were video-recorded to examine procedural integrity after the end of the trial; 2 - Part of the records were double-scored to check for inter-reliability; 3 - Sessions were chosen for review randomly and included an evaluation of both youth and parent sessions; Data analysis: 1 - Multilevel modelling was used to evaluate change overtime for each outcome measure; 2 - Assessment time points were included as predictors and measurements time points were fixed	Stress, depression and anxiety: DASS−21; Mindfulness: FFMQ-SF and IM-P	Participants only had significant outcomes for the variable mindfulness in post-test analysis	1 - Different facilitators delivered the intervention for each group; 2 - Lack of more stringent control conditions and randomisation procedures; 3 - Use of self-reported measures; 4 - Lack of tracking of homework practice; 5 - Reduced sample size
Prospective cohort	Singh (2019) - MBPBS	92	To evaluate the effectiveness of the intervention in two different groups: parents of autistic children compared to parents of children with intellectual disabilities	Data collection: 1 - The study took 40 weeks, with the first 10 constituting a control phase before the intervention started; 2 - The other 30 following weeks were dedicated to the implementation of the intervention; Data analysis: 1 - Outcomes were assessed with a mixed-model variation analysis to compare main effects of group, time and their interaction	Stress: PSS	Within-subject analysis indicated a significant change in stress for both groups	1 - Use of self-reported measures
Pilot prospective cohort	Bogels (2008) - MBCT	14	To evaluate the effects of the intervention in adolescents with externalising disorders and their parents in an outpatient youth community mental health care setting	Data collection: 1 - After obtaining consent, participants in the C group waited six weeks before completing the pre-test measures to control the effects of time and assessment; 2 - Immediately before the intervention, participants were	Positive gains: GAS	Significant and substantial improvement occurred for parents' own goals for the immediate and longer-term effects	1 - Reduced sample size; 2 - Absence of randomised waitlist group; 3 - Outcome measures were restricted to those who followed the training

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Design	First author (year) and intervention	Parents' sample size (n)	Objectives	Data collection and analysis	Measures	Main findings*	Limitations
				assessed (T1), and two more times at post-test (T2) and eight weeks after the end of the intervention (T3); Data analysis: 1 - Changes over time were analysed using paired-sample t-tests			
Pilot prospective cohort	Leicht (2023) - PTM	13	To examine the feasibility, acceptability, and effectiveness of the intervention for parents of children with ADHD	Data collection: 1 - Eligible consenting families were enrolled in the intervention and invited to attend the retreats; 2 - at the end of the programme, parents were invited to take part in a semi-structured phone interview and survey; 3 - parents received a follow-up survey weeks after the programme's end; Data analysis: 1 - Feasibility and acceptability were assessed using descriptive statistics; 2 - parents' outcomes were assessed, but researchers focused on the effect size (Cohen's *d*) instead of the *p*-value	Stress: PSI-SF; K6; Mindfulness: IM-P; Parent-child relationship: CPRS-SF	Quantitative analysis: 1 - Feasibility: less than one-third of the parents were recruited, and 27,77% dropped after the first retreat; 2 - Acceptability: all parents reported that the programme was helpful and that they would recommend it; 3 - Effectiveness: PSI-SF did not show significant results, but K6 did with a medium effect size; trait mindfulness also showed significant improvements with a large effect size; and the conflict subscale of the parent-child relationship also presented significant reductions with a medium effect size	1 - Difficulty recruiting and engaging the participants; 2 - Use of self-report measures
Cross-sectional	Hwang (2015) - Cultivating Mind	6	To evaluate the effectiveness of the intervention in parents of autistic children and the transactional effectiveness of the intervention in their children	Data collection: 1 - Participants were set for Stage 1 (intervention for parents); 2 - After that, they entered a self-practice period in preparation for Stage 2 (parent-mediated intervention for children); 3 - Assessment was conducted at three-time points; Data analysis: 1 - Paired-sample Wilcoxon Signed Rank test to identify differences across the intervention periods at a group level.	Stress: PSS; Mindfulness: FMI; Quality of life: FQQL	The intervention had significant results for mindfulness at assessments between times 1 and 2, as well as for stress between times 1 and 3	1 - Absence of control group; 2 - Reduced sample size; 3 - Homogeneous participants' demographics; 4 - One participant did not complete the final stage
Cross-sectional	Ruiz-Robledillo (2015) - MBP	13	To analyse the effects of the intervention on mood and health states of parents of	Data collection: 1 - Data was collected at three points across the application of the	Depression: BDI; Anxiety:: STAI-S; Well-being: GHQ−28	Significant positive effect on health in all participants was perceived regarding	1 - Reduced sample size; 2 - Lack of waiting-list control design

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Design	First author (year) and intervention	Parents' sample size (n)	Objectives	Data collection and analysis	Measures	Main findings*	Limitations
			autistic individuals, in contrast to parents of typically developing children	intervention: first before the start of the intervention, second during, and lastly right after the end of the intervention; Data analysis: 1 - Non-parametric Friedman tests were conducted to analyse differences from pre-session and post-session; 2 - Post-hoc analyses were conducted with the Wilcoxon signed-rank test, with Bonferroni adjustments for multiple comparisons		levels of depressive symptoms and anxiety when comparing the outcomes pre- and post-test	
Pilot cross-sectional	Bellone (2021) - MSCC	13	To evaluate the feasibility, safety, and acceptability of the intervention among parents of autistic youth	Data collection: 1 - Participants were assessed by a psychiatrist after giving consent to investigate risk for adverse psychological experience; 2 - A safety protocol was developed to mitigate possible risks during assessment; 3 - All measures were administrated at pre- (T1), mid- (T2), and post-test (T3), eight weeks after the start of the intervention; Data analysis: 1 - Descriptive statistics were analysed and interpreted to inform advisability of future trials	Stress: NIH Toolbox Perceived Stress Fixed Form Age 18 + ; Depression: PHQ−9; Self-efficacy: PSOC; Mindfulness: FFMQ−15	Although clinically significant results were observed for stress, there was no statistically significant result for this variable. Nonetheless, significant improvements were observed for self-efficacy and mindfulness in both the statistical model and the Bonferroni-adjusted model	1 - Lack of control group; 2 - Female-only sample; 3 - No fidelity information on facilitator behaviour or homework completion
Pilot cross-sectional	Jones (2017) - MBW-P	21	To preliminarily evaluate the intervention in parents of children with disabilities (ASD and/or ID) in improving parents' and children's outcomes	Data collection: 1 - Participants were given the T1 questionnaires either during orientation sessions or were sent through mail; 2 - T2 questionnaires were handed out after the end of the final session. Data analysis: Paired-samples t tests compared T1 and T2 scores, and effect sizes were calculated using Cohen's d	Stress: HADS, DASS, and QRS-F; Anxiety and Depression: DASS; Positive gains: PGS; Positive affect: PANAS; Mindfulness: FFMQ and BMPS; Self-compassion: Self-Compassion Scale - Short Form	The intervention showed significant improvements for the variables mindfulness, self-compassion, and general stress from T1 to T2, with all the variables indicating small effect sizes	1 - No comparison group; 2 - Difficulty in tracking engagement with homework
Case studies	Anclair (2014) - CBT	2	To present the effectiveness of CBT in reducing stress and improving mental health among parents of autistic children	Data collection: Participants were assessed at baseline (T0) and post-therapy (T1). Data analysis: Psychological measures were analysed as instructed in the manual, and the data were	Depression: MADRS; Burnout symptoms: SMBQ	Both participants showed visible improvements in depressive and burnout symptoms at the end of the therapy	1 -Study design with high risk of bias; 2 - Small sample size; 3 - No statistical analysis provided

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Design	First author (year) and intervention	Parents' sample size (n)	Objectives	Data collection and analysis	Measures	Main findings*	Limitations
				analysed using descriptive statistics			
Proof-of-concept case-control	Singh (2014) - MBPBS	3	To evaluate the preliminary effectiveness and feasibility of the intervention in parents of autistic children	Data collection: 1 - Participants underwent an initial pre-training before starting the official intervention; 2 - Data was collected at four points: before pre-training, baseline, after training, and after the intervention. Data analysis: Analysis included Phi coefficient effect size and corresponding *p-value* for each target behaviour and variable observed	Stress: PSS−10	The results regarding parental stress showed statistically significant outcomes, which researchers say it was obtained due to the large effect size	1 - Reduced sample size; 2 - Use of convenience sample; 3 - Lack of follow-up data

Note: *Main findings regarded the results focused on parents' outcomes only. Number of studies included in the table: n = 31
SMART-3RP: Stress Management and Resiliency Training - Relaxation Response Resiliency Program; RCT: Randomised controlled trial; PACT: Parents and Children Together; MBSR: Mindfulness-Based Stress Reduction; PAD: Positive Adult Development; ACT: Acceptance and Commitment Therapy; BOF: Buddhist Ontology-Focused; BCTTMi: Brief Culturally-Tailored Thai Mindfulness Programme; MBPBS: Mindfulness-Based Positive Behavior Support; MBCT: Mindfulness-Based Cognitive Therapy; PTM: Parents that Mind; MBP: Mindfulness-Based Programme; MBW-P: Mindfulness-Based Well-Being for Parents; MSCC: Mindful Self-Care for Caregivers; CBT: Cognitive Behaviour Therapy; T: Treatment; C: Control; FSS: Family System Scale; BSI: Brief Symptom Inventory; CES-D: Centre of Epidemiologic Studies Depression Scale; PAI: Parental Authority Instrument; PSI: Parent Stress Index; BDI: Beck Depression Inventory; BAI: Beck Anxiety Inventory; WEMWBS: Warwick-Edinburgh Mental Well-Being Scale; HADS: Hospital Anxiety and Depression Scale; EQ-5D-5L: EQ 5 Dimensions 5 Levels; PSOC: Parenting Sense of Competence Scale; IM-P: Interpersonal Mindfulness in Parenting Scale; WHO-5: World Health Organisation Well-Being Index; PSS: Perceived Stress Scale; VAS: Visual Analogue Scale; PHQ-4: Patient-Health Questionnaire; PANAS-P: Positive and Negative Affect Schedule - Positive Subscale; MOS-SSS: Medical Outcome Study Social Support Survey; CAMS-R: Cognitive and Affective Mindfulness Scale – Revised; DASS: Depression Anxiety Stress Scales; BFDS: Brief Family Distress Scale; AAQ: Acceptance and Action Questionnaire; BMPS: Bangor Mindful Parenting Scale; SAI-Y-1: The State Anxiety Inventory; MAS: Mindful Attention Awareness Scale; K6: Kessler Psychological Distress Scale; CPRS: Child-Parent Relationship Scale; NIH: National Institute of Health; FFMQ: Five Facet Mindfulness Questionnaire; QRS-F: Questionnaire on Resources and Stress; PGS: Positive Gain Scale; MADRS: Montgomery-Asberg Depression Rating Scale; SMBQ: Shirom-Melamed Burnout Questionnaire; FMI: Freiburg Mindfulness Inventory; FQOL: Family Quality of Life Scale; STAI: State-Trait Anxiety Inventory; GAS: Goal Attainment Scale; SIPA: Stress Index for Parents of Adolescents

Data availability

No data was used for the research described in the article.

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