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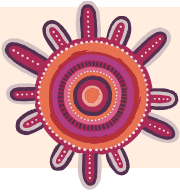
Parent-focused interventions to support the behaviours of children with disability

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Overview

This resource summarises the evidence about the effectiveness of parent-focused interventions designed to support children with intellectual disability and autistic children who display behaviours of concern. The review aims to support practitioners who work with children with disability and their families, but may not be specialists in providing disability support, to understand what parent-focused interventions include and the characteristics of effective interventions.

This review includes general research evidence on the effectiveness of interventions used to support children with disability who may display behaviours of concern and their families. It does not include information about the requirements of providers working with this cohort under the National Disability Insurance Scheme (NDIS) or specific services funded through the NDIS (e.g. behaviour support plans).

Key messages

Parent-focused interventions can be categorised into 2 broad groups:

- parent support interventions (practitioner-to-parents) that include parent education support or parent psychosocial support
- parent-mediated interventions (practitioner-to-parent-to-child) that include parent skills training or parent coaching.

Evidence suggests that:

- Parents can be trained or coached using parent-mediated interventions to provide effective behaviour support to their children with disability.
- Parent skills training interventions of varying formats (online and in-person; individual and group-based) are often effective at improving the behaviours of children with disability.
- Parent coaching interventions are usually delivered to individual families (online and in-person) and can be effective at improving the behaviours of children with disability. Some studies report large improvements in children's behaviours.
- Nearly all effective parent-focused interventions encourage or train parents to understand the functions of the behaviours of concern displayed by their child with disability (a functional approach).

Introduction

All children learn to communicate with others about what they need and how they feel (Daniels et al., 2012). Children who experience difficulties with verbal communication, such as children with intellectual disability and autistic children, may sometimes use behaviours to communicate their needs or feelings, and as a response to people and their environment (Carr & Durand, 1985; Dew et al., 2017; National Institute of Health and Care Excellence [NICE], 2015; Raising Children's Network [RCN], 2021). These behaviours are often positive and involve children acting and responding in ways that support their learning, development, wellbeing and safety (RCN, 2024).

If children's behaviour creates a risk of harm to themselves or others, or affects their ability to participate in society and limits their rights and quality of life, their behaviours may be labelled as 'concerning' or 'challenging' (The Australian Psychological Society [APS], 2011; McVilly et al., 2002). These behaviours are often referred to as 'behaviours of concern', and can include behaviours that cause physical harm, disruptive behaviours and other behaviours that do not fit in with social norms and expectations (Dew et al., 2017; Tevis & Matson, 2022). Some practitioners, researchers, people with disability and their families may use different language such as 'challenging behaviours', 'problem behaviours' or avoid labelling behaviours altogether.

Some children with disability are more likely to display behaviours of concern than children without disability (Dew et al., 2017; Dunlap & Fox, 2007; Fautha et al., 2017; NICE, 2015; O'Nions et al., 2018). Children with disability

have sometimes experienced restrictions to their rights and freedoms in response to behaviours of concern; these kinds of responses are often called ‘[restrictive practices](#)’ (Cortis et al., 2023). Restrictive practices can cause harm to people with disability, and it is important to understand effective ways to respond to and reduce behaviours of concern without restricting children’s rights and freedoms (Cortis et al., 2023; Leif et al., 2023). Interventions that aim to reduce behaviours of concern should focus on improving children’s wellbeing and quality of life and supporting whole-of-family wellbeing and functioning (APS, 2011; NICE, 2015).

To support children’s behaviours, practitioners may use a number of different interventions and often work alongside parents (Heyvaert et al., 2012; Sandbank et al., 2020). Although some interventions can be delivered by practitioners directly to children, parents play a critically important role in fostering their child’s positive behaviours, development and wellbeing (Bornstein et al., 2022; Dunlap & Fox, 2007). Including and supporting parents in interventions to support children’s behaviours has been shown to improve children’s behaviours, parent mental health and overall child and family wellbeing (Dunlap & Fox, 2007; Ragni et al., 2022; Tarver et al., 2019).

Changing behaviours can take time and interventions to support behaviours should include the people who provide daily care to children (Dunlap & Fox, 2007; Hall et al., 2020). Parent-focused interventions can provide a way for practitioners to support caregivers to reduce the use of restrictive practices (Letif et al., 2023) and learn skills and techniques to support their children’s behaviours and needs (Dunlap & Fox, 2007).

This paper examines the effectiveness of parent-focused interventions designed to improve behaviours of concern for children with intellectual disability and autistic children. It describes the characteristics of parent-focused interventions effective at improving children’s behaviours of concern. The paper closes with some implications for practice with families with a child with disability. This resource discusses general research evidence on the effectiveness of interventions and does not discuss specific NDIS-funded services or guidelines for practice.

Restrictive practices

Non-pharmacological (i.e. without the use of medication) behaviour support interventions that focus on changing children’s behaviours using social learning, attachment or cognitive behavioural approaches are supported by research evidence and are commonly used in practice (Heyvaert et al., 2012; Sandbank et al., 2020; Whitehouse et al., 2020). However, interventions such as physical restraint, seclusion or medication are sometimes used as a last resort in response to behaviours that may cause severe harm to a person with disability or the people around them (NDIS, 2021). These are called ‘restrictive practices’ as they restrict a person’s rights or freedom of movement (NDIS, 2020).

Restrictive practices should be a last resort and used in a way that is as unrestrictive as possible and causes as little harm as possible (NICE, 2015; NDIS, 2020). Many of these interventions, such as prescribing medication for behaviours, can only be delivered by clinical or specialist professionals. Restrictive practices do not address any of the underlying environmental factors or health conditions that can influence and contribute to behaviours of concern (NDIS, 2020).

The Australian Government has agreed to principles in the UN Convention on the Rights of Persons with Disability (CPRD) that encourage the reduction and elimination of restrictive practices (Commonwealth of Australia, 2023). Service providers and practitioners working in NDIS funded services are also subject to a number of standards and regulations regarding the authorised use of restrictive practice for children with very complex support needs. More information about the authorised use of restrictive practices is available on the [NDIS website](#). This review did not include a consideration of the authorised use of restrictive practices as a response to behaviours of concern and they are not discussed in this resource.

Terminology and definitions used in this review

There are ongoing debates around language and definitions in this area and it is important to continually consult with communities directly impacted by the use of these terms. A brief explanation is provided below to aid understanding of when, and in what contexts, these terms may be appropriate to use. A longer list of the terms and definitions used in this review is provided in the glossary.

Behaviours of concern

The term 'behaviours of concern' describes behaviours that (APS, 2011; McVilly et al., 2002):

- can pose a risk to the health and safety of a child or those around them
- act as a barrier(s) to their participation in society
- cause social isolation or restrictions to their rights and quality of life.

'Behaviours of concern' is not a clinical diagnosis; it is an administrative term sometimes used in practice and assessments to identify groups of behaviours that can affect a person's safety, wellbeing, rights and quality of life. It can also indicate to a practitioner that a child and their family may need additional or specialist support (Chan et al., 2012). Recently, some researchers and practitioners have suggested that terms such as 'environments of concern' can help frame external environments and situations as the cause of concerning behaviours, rather than focusing solely on individuals displaying the behaviours (Jorgensen et al., 2023 p. 95).

People with disability, autistic people and their families have emphasised that the goal of supports for behaviours of concern should be to address behaviours that can negatively impact children's wellbeing and quality of life, rather than making children with disability or neurodivergent children appear 'normalised' (Child Mind Institute, 2023; RCN, 2022). Non-harmful repetitive behaviours displayed by some children with disability are not considered behaviours of concern or in need of correction in this review. These can include, for example, repetitive, self-stimulatory body movements (sometimes referred to as 'stimming') such as hand flapping, rocking the body or rubbing a particular object (APA, 2020; Kapp et al., 2019).

The linked practice guide *Understanding Behaviours of Concern for Children with Disability* includes a more detailed discussion of the concept of 'behaviours of concern' for children with disability.

Person-first and identity-first language

Person-first language; for example, 'people with disability', places a person's identity before their disability and is commonly used in Australia. It focuses on a person's right to an identity beyond their disability or impairment (Victoria State Government, 2022). However, some people feel that person-first language provides an individualised understanding of disability (Victoria State Government, 2022). Many autistic and neurodiverse people have voiced strong preferences for identity-first language; for example, 'autistic people' or 'disabled people' because they feel that autism is a core part of their identity (AMAZE, 2018).

This paper adopts a dual approach that uses person-first language to respect the preferences of many people with disability, particularly people with intellectual disability (Victoria State Government, 2022) but uses identity-first language whenever we refer to autistic and neurodiverse people. However, each individual has the right to decide how they are described and these terms are not used by all people with intellectual disability or all autistic people.

Parent-focused behaviour support interventions

Parents are included in behaviour support interventions in different ways and to varying degrees. The language used to describe these interventions is often unclear; terms like 'parenting intervention' and 'parent training' are sometimes used interchangeably or inconsistently and can refer to a variety of interventions with different types and levels of support (Bearss, Burrell et al., 2015). This review uses the term 'parent-focused interventions' to describe any intervention that includes parents as a core component and is either delivered to parents, or by parents, to provide support with children's behaviours of concern.

Methodology of this review

We conducted a rapid review (Garrity et al., 2021) of the research evidence on the effectiveness of interventions designed for parents of children with intellectual disability and parents of autistic children to decrease the frequency or severity of behaviours of concern. The review was guided by the research question, 'What parent-focused interventions are effective for improving behaviours of concern displayed by children with intellectual disability or autistic children?'

Effectiveness was defined as an improvement in children's behaviours of concern, which was shown by a statistically significant reduction in the frequency or severity of behaviours of concern, compared to a comparison group (Akobeng, 2005).

Relevant randomised controlled trials (RCTs) from recent research literature (published from 2012 to 2022) were identified by searching the Australian Institute of Family Studies (AIFS) Catalogue Plus database and Google Scholar. We also conducted stakeholder consultations with researchers and disability service providers to inform the design and scope of the review.

Further details on the methodology, including search strategy and data analysis, is provided in [Appendix C](#).

Understanding evidence from randomised controlled trials

This review focused on evidence from randomised controlled trials (RCTs) as they are often considered the most rigorous method of conducting primary research (Akobeng, 2005). For more information on understanding evidence in RCTs and the challenges and limitations of RCTs, see [Appendix A](#).

RCTs were examined to understand whether children's behaviours improved (i.e. behaviours of concern reduced in frequency or severity) after an intervention was delivered, compared to a group of children that did not receive the intervention. 'Effect sizes' reported in RCTs were used to understand how much children's behaviours improved. In this review, effect sizes were categorised into small, medium and large effects:

- A small effect size means that the children who received the intervention experienced an improvement in behaviours compared to the children who did not receive the intervention but the difference was small and may not be obvious in clinical or real-world settings (Sullivan & Feinn, 2012).
- A medium effect size means that children who received the intervention experienced a moderate improvement in behaviours compared to children who did not receive the intervention.
- A large effect size means that children who received the intervention experienced a much greater improvement in behaviours compared to children who did not receive the intervention, and this difference in behaviour outcomes is very easy to see (Sullivan & Feinn, 2012).

When effect sizes are larger, practitioners and policy makers can usually have greater confidence in basing their decision making or practice on the findings.

What is the nature of the evidence on parent-focused interventions?

Existing reviews of research evidence report that a range of non-pharmacological behaviour support interventions can improve the behaviours of children with disability (Gerow, et al., 2018; McIntyre, et al., 2013; Petrenko et al., 2013; Postorino et al., 2017; Ragni et al., 2022; Ruane & Carr, 2019; Skotarczak & Lee, 2015; Tellegen & Sanders, 2013; Whitehouse et al., 2020). However, they are often limited to one specific program, intervention type, or population, or they include varying levels of information about how to involve parents and families in interventions. Researchers have also observed that a significant amount of this evidence is of low quality (i.e. mostly non-experimental studies without control or comparison groups, with high risk of bias and small sample sizes; Ragni et al., 2022; Sandbank et al., 2020).

This section describes the evidence from RCTs on the effectiveness of parent-focused supports for children with disability who display behaviours of concern.

Summary of included studies

A total of 19 RCTs were included in this review.¹ The studies involved participants based in the USA (8 studies), Canada (4 studies), Australia (2 studies) and other countries with similar economic and/or political environments ([Table 5](#)).

Overall, the RCTs included a total of 1,525 families, with sample populations ranging from 23 to 209 participants per study. Most studies included one parent and one child per 'family'. Nearly all parents included in the studies

¹ Bearss, Johnson et al., 2015 and Iadorola et al., 2018 reported on the results of the same study and the results were combined for analysis.

were female (93%). Most families identified as Caucasian or white, were dual-parent households and parents had attended some college or university.

All studies measured the behaviours of one child in each family ($n = 1,525$ children). The mean age of children at the start of the study ranged from 1.56 to 12.17 years. Most children were male (74%) and diagnosed with autism spectrum disorder (ASD; 59%). Children with intellectual disability made up almost one-quarter (24%) of study participants. Eight studies included participants with different disability diagnoses (mixed-disability groups).

A wide range of measurement tools were used across studies to measure children's behaviours, and most studies focused on using parent-report measures.² There was also large variation in the terminology used to describe children's 'behaviours of concern' across studies, including 'problem behaviour' and 'challenging behaviour'. Many studies did not provide a formal definition of the term used.

The theory and approaches that underpinned interventions were rarely described in detail. However, most studies appeared to focus on interventions underpinned by behavioural theory and principles, including social learning theory, understandings of operant conditioning and applied behaviour analysis. Some of these interventions were also based on the principles of positive behaviour support (PBS).³ Definitions of these approaches are provided in the [Glossary](#).

Types of parent-focused interventions

To understand and categorise the types of parent-focused interventions that were included in this review we drew on a framework developed by Bearss, Burrell and colleagues (2015). This framework outlines 2 groups of intervention types: parent support interventions and parent-mediated interventions:

- Parent support interventions are delivered by practitioners to parents and aim to support parent wellbeing or build parent knowledge and support children indirectly.
- Parent-mediated interventions involve parents being trained or coached to deliver an intervention to their child or build parent capabilities and skills with the primary aim of supporting the child.

Parent support and parent-mediated interventions were classified into further subcategories to reduce potential confusion around terms such as 'parent training' and support the understanding of interventions, how to compare them and why they may or may not be effective (Whitehouse et al., 2020) (see [Table 1](#)). For details on the type of parent-focused intervention included in each study see [Table 6](#).

Table 1: Categories of parent-focused interventions⁴

| Intervention types | Description |
|------------------------------|---|
| Parent support intervention | Knowledge building and wellbeing focused. Designed to provide support from practitioners directly to parents that benefits parents. Practitioners are the agents of change and parents are the primary beneficiaries. ⁵ |
| Parent education support | Practitioners support parents to build knowledge and provide up-to-date information, e.g. about their child's disability and needs, information on how to access and coordinate services. |
| Parent psychosocial support | Practitioners provide parents with therapeutic support to help improve their mental health and wellbeing, e.g. mindfulness support, acceptance and commitment therapy (ACT), providing respite services. |
| Parent-mediated intervention | Parenting skills and capability building focused. Designed for practitioners to train parents to provide support or learn skills that benefit the child. Parents are the agents of change and their child is the primary beneficiary. |

² The NDIS provide a comprehensive list of measurement tools used in supporting people with disability, including supporting behaviours of concern (NDIS, 2019). It is important to consider if tools are appropriate for children with disability who may be non-verbal or have communication difficulties (APS, 2011).

³ Some individual interventions were called 'Positive Behaviour Support (PBS)'; for example, 'mindfulness based PBS' (Singh et al., 2021). However, PBS does not refer to a single intervention but a broader approach to behaviour support that is based in a set of values and principles that guide the ways supports are offered. PBS can include a range of complementary assessments and individual interventions to support behaviours and improve a person's quality of life (Gore et al., 2013; see [Glossary](#)).

⁴ Based on Bearss, Burrell et al., 2015; Marino et al., 2021; McCrossin et al., 2023, and Snodgrass et al., 2017.

⁵ Parents and children can benefit from all parent-focused interventions but the 'primary beneficiary' describes who the intervention is mainly designed to support.

| Intervention types | Description |
|------------------------|--|
| Parent skills training | <p>Practitioners provide education and teach general behaviour support skills to parents, including how to practically develop and apply skills.</p> <ul style="list-style-type: none"> • Training includes two-way interactions and parents will usually practice the skills, e.g. in-session role play. • Teaching occurs outside of the natural setting (i.e. home), with no direct child involvement and no practitioner observation-and-feedback loop. • Often delivered to groups of parents and includes education on principles and training in general skills, rather than specific techniques tailored to individual family needs. |
| Parent coaching | <p>Practitioners provide education and teach parents how to develop and implement behaviour support skills and specific techniques relevant to their family needs.</p> <ul style="list-style-type: none"> • Parents are usually trained in how to deliver an intervention directly to their child, with no or minimal practitioner-child interaction. • Coaching involves parents taking part in an observation-and-feedback loop, where professionals observe parents implementing skills in a natural setting and provide feedback on how to improve. • Interventions are more individualised and intensive than parent skills training (delivered over longer periods, for more hours at a time, using more practitioner resources). |

What does the evidence say about the effectiveness of parent-focused interventions?

This section describes the research evidence on the effectiveness of interventions, the similarities and differences between the 2 categories of parent-focused interventions and the characteristics of effective interventions.

As each child displays unique behaviours, studies often measured a diverse range of behaviours to understand whether interventions were effective at improving children's behaviours of concern. In this resource, interventions are described as effective if there was a reduction in the frequency and/or severity of the behaviours that were measured in the study after the intervention was delivered (see the [Methodology](#) section of this paper for a more in-depth discussion of understanding the evidence for effectiveness).

Parent support interventions

Parent support interventions include parent education support and parent psychosocial support. Studies indicate that education and psychosocial support for parents are most likely to be effective for improving children's behaviours when they are combined with other effective interventions, such as parent skills training.

Parent education support

Research evidence indicates that providing education to parents may support small reductions in children's behaviours of concern for some families (Bearss, Johnson et al., 2015; Charman et al., 2021). However, parent education alone does not lead to significant changes in children's behaviours and parent-mediated interventions may be better suited to support families (Bearss, Johnson et al., 2015; Magaña et al., 2020; Suzuki et al., 2014).

Parent education was sometimes included as part of effective parent-mediated interventions (e.g. delivering education to parents at the start of a skills training intervention; Charman et al., 2021; Kostulski et al., 2021; Roux et al., 2013; Ruane et al., 2019). This suggests that while education for parents may not be the most effective way to support children's behaviours, it can form part of other effective interventions.

Parent psychosocial support

We found limited research on standalone psychosocial support for parents in this review. Some studies suggest that when psychosocial supports are provided alongside, or as part of, other parent-mediated interventions (e.g. providing mindfulness training alongside other training in behaviour support) they can contribute to significant improvements in children's behaviours of concern (Durand et al., 2013; Singh et al., 2021). However, it is not possible to draw strong conclusions on whether psychosocial support for parents can improve children's behaviours.

Parent-mediated interventions

Parent-mediated interventions include parent skills training and parenting coaching. Overall, both types of interventions were effective at improving children's behaviours of concern. Parent skills-training interventions were most frequently found to be effective but some parent coaching interventions reported larger improvements in children's behaviours.

Parent skills training

Research findings suggest that providing parents with training in behaviour support skills is an effective way to improve children's behaviours of concern. In the studies included in this review, most parent skills training interventions were found to be effective at improving children's behaviours of concern with medium ($n = 4$) or small ($n = 3$) effect sizes (Table 2).

For more information about the interventions, and the individual study characteristics, see Table 5 and Table 6. Practitioners and service providers may need to consider licencing requirements (e.g. training and payment) to access some of the interventions.

Table 2: Findings from parent skills training interventions

| Intervention name | Were positive effects on children's behaviour reported? | Was the intervention effective compared to a control or comparison group? ^a | Effect size ^b |
|--|---|--|--------------------------|
| Predictive parenting | Yes | No | N/A |
| Online parent training | Yes | Yes | Small |
| Parent management training (PMT) | Yes | Yes | Medium |
| Group Stepping Stones Triple P (G-SSTP) | Yes | Yes | Small and medium |
| Mindfulness-Based Positive Behaviour Support (MBPBS) | Yes | Yes | Small |
| Primary Care Stepping Stones Triple P (P-SSTP) | Yes | Yes | Medium |
| Interactive web training (IWT) | Yes | Yes ^c | Medium |

Notes: a Interventions are considered effective if the study reported that the difference in child behaviour outcomes between the intervention and comparison group was statistically significant after the intervention was delivered.

b Effect sizes show the size of the difference in outcomes between the intervention and comparison group after the intervention was delivered.

c Authors did not recommend the intervention as a standalone treatment due to high attrition (lost to follow up) and social validity concerns (ability to meet the needs and goals of recipients and families).

N/A = not applicable.

Parent coaching

Research findings suggest that coaching parents in behaviour support skills and interventions can effectively improve children's behaviours of concern.

The majority of parent coaching interventions included in this review were effective at improving children's behaviours of concern with a variety of effect sizes, including small to medium ($n = 1$), medium ($n = 2$) and large ($n = 2$; Table 3).

Table 3: Findings from parent coaching interventions

| Intervention name | Were positive effects on children's behaviour reported? | Was the intervention effective compared to a control or comparison group? ^a | Effect size ^b |
|--|---|--|---------------------------|
| Prevent-Teach-Reinforce (PTR) | Yes | No | N/A |
| Parent training | Yes | Yes | Medium |
| Positive Family Intervention (PFI) | Yes | Yes | Medium |
| Parent child interaction therapy (PCIT) | Yes | Yes | Large |
| Telehealth-enabled functional communication training (FCT) | Yes | Yes | Small, medium and large |
| Stepping Stones Triple P (SSTP) | Yes | Yes | Not reported ^c |
| Stepping Stones Triple P (SSTP) with IDEA Part C services | Yes | No | N/A |
| Keeping Parents Trained and Supported with FIND video modelling (KEEP-V) | No | No | N/A |

Notes: a Interventions are considered effective in this review if the study reports that the difference in child behaviour outcomes between the intervention and comparison group was statistically significant after the intervention was delivered.

b Effect sizes show the size of the difference in outcomes between the intervention and comparison group after the intervention was delivered.

c This study did not report effect sizes.

N/A = not applicable.

The overall effectiveness of parent-mediated interventions

Overall, parent-mediated interventions were often effective at improving children's behaviours of concern. Most interventions that were categorised as 'not effective' ($n = 3$) showed some positive effect on children's behaviours but improvements in children's behaviours were not statistically significant when compared to children who received a different intervention (Argumedes et al., 2021; Charman et al., 2021; Salisbury et al., 2022; see [Appendix D](#)). In other words, these studies compared 2 different interventions and both interventions led to similar improvements in children's behaviour.

Studies that assessed improvements in children's behaviours in the longer term (i.e. more than 3 months after the intervention was delivered) found that effectiveness was largely maintained over time. However, not all studies measured long-term outcomes and more research is needed to fully understand the effects of parent-mediated interventions in the long term.

The evidence in this review suggests parent-mediated interventions can effectively improve children's behaviours of concern. Parent skills training interventions were frequently reported to be effective. Parent coaching interventions were also effective and some reported larger effect sizes. Detailed descriptions of individual study characteristics, including interventions, formats, duration and delivery are provided in [Appendix D](#), [Table 5](#) and [Table 6](#).

Characteristics of effective interventions

The research evidence that we reviewed included varying levels of information about what the interventions comprised and how they were delivered.⁶ Based on the information available, it was not possible to understand which specific elements of the interventions contributed to their level of effectiveness. However, a functional approach to understanding behaviours was commonly used as a core component in both parent skills training and parent coaching interventions. A functional approach is a core part of the theories and approaches that often underpin behavioural interventions.

⁶ Intervention procedure manuals may be available online or be purchased from libraries and service providers but they were not available for all interventions described in this review. Only information provided in peer-reviewed published papers of the RCT studies were summarised.

A functional approach to behaviour:

- views all behaviour as a form of communication
- aims to identify the functions behind a child's behaviours
- focuses on finding ways to alter a child's environment so the behaviour is no longer needed or teaching alternative behaviours to fill that function (Gore et al., 2013; Hall et al., 2020; Hanley et al., 2003).

This approach often uses the process of a 'functional assessment' to understand behaviours. This includes detailed analysis of each individual behaviour to help identify the most appropriate and effective supports (Gore et al., 2013; Hanley, 2012). (See the Glossary and this practice guide for more information.)

Parent coaching and parent skills training delivered a functional approach to behaviours in slightly different ways, largely due to differences in the intensity of interventions. Parent skills training often taught groups of parents to understand and apply the principles of a functional approach and assessment, whereas parent coaching usually included a tailored functional assessment of each individual child's behaviours with the support of trained practitioners.

While a functional approach was commonly used (as most interventions appeared to be based on behavioural theories), other approaches to understanding and supporting behaviours may also effectively support children's behaviours. One effective intervention used a developmental or attachment-based approach focused on improving parent-child interactions and relationships (Ginn et al., 2017). Other effective interventions used cognitive-behavioural approaches alongside behavioural interventions to help parents support their mental wellbeing and identify current thinking patterns (Durand et al., 2012; Singh et al., 2021).

In summary, understanding the functions of a child's behaviours of concern was a core part of most parent-mediated behavioural interventions in this review. Parent coaching interventions taught parents to do this in more detail with more guidance from practitioners.

Parent fidelity in parent-mediated interventions

Parent fidelity is the degree to which parents can deliver an intervention accurately, as it is intended to be delivered (Mowbray et al., 2003). In interventions that rely on parents' understanding of content to deliver behavioural supports to their child, parent fidelity can potentially impact the effectiveness of the intervention. For example, if parents do not accurately deliver the intervention, the intervention may be evaluated as being less effective or ineffective.

Only 2 studies measured parent fidelity against the effectiveness of a parent-mediated intervention. One study (Hall et al., 2020) found that when parents more accurately delivered the intervention, the improvements in children's behaviours were greater. However, another study (Argumedes et al., 2021) found that even when parents delivered the intervention with lower accuracy, some improvements were still observed in children's behaviours (Argumedes et al., 2021). More research is needed to understand the impact of parent fidelity on the effectiveness of parent-mediated interventions.

Evidence-informed implications for practice

Parents have a large influence on children's development and wellbeing, and it is important to include parents and caregivers in interventions that support children's behaviours (Dunlap & Fox, 2007; Ragni et al., 2022; Tarver et al., 2019). Overall, the evidence included in this review suggests that parents can be trained or coached to deliver effective behaviour supports to their child with intellectual disability or autistic child who displays behaviours of concern, specifically:

- Parent-mediated interventions (parent skills training and parent coaching) can be effective at improving behaviours of concern for children with disability.
- Effective parent-mediated behavioural interventions used a functional approach to understanding behaviours. These interventions encouraged parents to understand behaviour as a form of communication and to identify the environmental influences and functions of children's behaviours of concern.

When deciding which supports or interventions to provide to families, it may be useful for practitioners to consider the differences between education, skills training and coaching for parents:

- Parent skills training interventions can support improvements in behaviours of concern for children with disability. These interventions are varied, and it may be useful to recommend the format that is best suited to each family, considering the availability of resources. Certain types of skills training (e.g. group or online interventions) may be more appropriate for families who have less time and would like more general support.
- Parent coaching interventions can lead to larger improvements in behaviours of concern for children with disability than parent skills training. Parent coaching interventions tend to be more individualised and intensive and may be better suited to families that want more detailed assessments of children's needs and more one-to-one time with practitioners (e.g. for children exhibiting higher levels of behaviours of concern).
- Preliminary evidence on parent education interventions for families with a child with disability indicates that while parent education alone does not effectively improve children's behaviours, it can form part of effective parent-mediated interventions.

When providing parent-focused interventions to support the behaviours of children with disability, it may also be helpful to consider:

- how accurately parents implement interventions with their child/ren, as it is not clear how parent fidelity impacts the effectiveness of interventions. More research is needed to understand this.
- the characteristics of the children that interventions aim to support. Most children in the studies reviewed for this paper were male with a diagnosis of autism or developmental delay. These findings may not necessarily apply to female children and/or children with other disabilities.
- other interventions and approaches that can also support children with disability and their behaviours, such as interventions that focus on children's development, attachment and mental health.

Research gaps and limitations

This review identified several limitations and gaps in the existing evidence base that should be considered alongside the findings and implications. (The limitations of the rapid review methodology are detailed in [Appendix C](#)).

- More research is needed to understand the effectiveness of parent-focused interventions for children with disability for male and gender diverse caregivers as nearly all participants were mothers or female caregivers.
- Further research is needed with more diverse populations to understand the effectiveness of interventions for different population groups (e.g. First Nations families, families from culturally and linguistically diverse backgrounds, single parent and LGBTQIA+ parent households).
- The 2 Australian-based studies included in this review did not include any Aboriginal or Torres Strait Islander participants. More research is needed to understand, design and evaluate interventions that are culturally appropriate and safe for Aboriginal and/or Torres Strait Islander families, and that reflect and respect their world view including the way communities understand disability (First Peoples Disability Network [FPDN], 2022).
- The research evidence we reviewed was unclear about how the delivery of behavioural interventions or reductions in behaviours of concern affected children's wellbeing. This may be influenced by our study selection criteria as RCTs are often designed to explore the effects of interventions on one outcome (i.e. children's behaviours) and don't include detailed information on the experiences of families and children. Future evidence reviews may want to specifically explore the impact of interventions on child wellbeing and overall quality of life from the perspectives of children with disability.
- Future research may want to examine practitioner skills and capabilities needed to deliver parent-focused interventions as this is likely to impact the availability and effectiveness of interventions.

Conclusion

This paper reviewed evidence on interventions that can be delivered by, or to, parents to improve behaviours of concern for children with intellectual disability and autistic children. The findings suggest that parent-mediated training and coaching interventions can be effective for supporting parents and their children with disability to improve behaviours of concern. Parent education interventions were generally not effective for improving

children's behaviours of concern; however, providing education to parents may form part of effective parent-mediated interventions or support other outcomes not included in this review (e.g. parent confidence).

There are various types of effective parent-mediated interventions that can be delivered in different ways and use different procedures. However, a core component of effective interventions included identifying the functions of children's behaviours and training parents to modify environments or teach alternative behaviours.

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*Indicates study included in the rapid review

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Appendix A: Understanding evidence in RCTs

This review only included evidence from randomised controlled trials (RCTs). RCTs are useful for understanding effectiveness because they seek to test whether an intervention is effective by examining outcomes for 2 groups of people (Johnson, 2021):

1. those who have received the intervention (usually called a treatment or intervention group)
2. those that have not (usually called a control or comparison group).

For example, an RCT may test whether children's behaviours of concern improve after receiving an intervention and compare their behaviours to a group of children who didn't receive the intervention.

RCTs randomly assign people to these groups so that factors such as participant characteristics (e.g. age, income, education) are equally distributed between groups. This reduces the chance that these external factors are the key influence on changes in children's behaviours, rather than the intervention being studied (Akobeng, 2005; Johnson, 2021; MacLehose et al., 2000).

Once an intervention is delivered, it is usually considered effective if children's behaviours improve more in the intervention group rather than the comparison group, and the difference in improvement is statistically significant. A statistically significant result means that it was very unlikely to have occurred by chance, and the intervention likely led to the improvements in behaviours (Sullivan & Feinn, 2012). However, a statistically significant finding on its own may not be meaningful in the 'real world' for clinicians, practitioners or families, especially when the difference in outcomes between the 2 groups is very small (Akobeng, 2005).

RCTs sometimes calculate effect sizes to understand the size of the difference in outcomes between the intervention and comparison group (Sullivan & Feinn, 2012; Tomczak & Tomczak, 2014). Effect sizes can be calculated using different statistical methods, and are often translated into general categories of small, medium and large effect sizes (Sullivan & Feinn, 2012).

While RCTs can be useful for understanding how effective interventions are, other study designs (e.g. qualitative research) can provide valuable and detailed information on how people experience and feel about interventions, and why an intervention works (Johnson, 2021). It can also be difficult to conduct RCTs with families and children in situations that reflect real-life service delivery environments (Johnson, 2021), and there are additional ethical considerations when randomising treatment and control groups for families experiencing multiple challenges or who have complex needs. Considering evidence from multiple sources and study designs can build a holistic view of families' experiences.

Appendix B: Glossary

| Term | Definition |
|------------------------------------|--|
| Applied behaviour analysis (ABA) | An approach to understanding behaviours that uses behavioural theory and principles to examine things that influence and change behaviours and develop strategies to encourage positive behaviour (Whitehouse et al., 2020) |
| Autism spectrum disorder (ASD) | <p>A disorder characterised by:</p> <ul style="list-style-type: none"> • persistent deficits in social communication and social interaction across multiple contexts; including deficits in social reciprocity, nonverbal communicative behaviours used for social interactions, and skills in developing, maintaining and understanding relationships (American Psychiatric Association [APA], 2013, p. 50) • restricted repetitive patterns of behaviour, interests or activities that present in early developmental period and cause significant impairment in social, occupational or other important areas of functioning and cannot be better explained by intellectual disability (APA, 2013, p. 50). |
| Behaviour(s) of concern | Any behaviour(s) that poses a risk to a person's health and safety or to others around them, or acts as a barrier to their participation in the community, causes social isolation, or leads to a restriction of their dignity, rights or quality of life (based on McVilly et al., 2002, p. 7) |
| Children with disability | A child with a limitation, restriction or impairment that has lasted, or is likely to last, for at least 6 months and restricts everyday activities. (Australian Institute of Health and Welfare [AIHW], 2022). This can include physical, mental, intellectual or sensory impairments, which in interaction with various barriers may hinder their full and effective participation in society on an equal basis (United Nations [UN], 2006). |
| Comparison or control group | In this review, a comparison group refers to a group of participants in a RCT who did not receive the intervention, and may continue with care as usual or be waitlisted to receive the intervention after the trial has finished, or received a different intervention or treatment to the one being tested. |
| Family | Includes biological family members (e.g. parents, siblings, grandparents and other kinship carers) and non-related people providing care to the young child (e.g. foster carers). |
| Functional approach and assessment | <p>A functional approach to understanding behaviour includes:</p> <ul style="list-style-type: none"> • understanding all behaviour as a form of communication • identifying the functions behind a child's behaviours • focusing on finding ways to alter a child's environment so the behaviour is no longer needed or teaching alternative behaviours to fill that function (Gore et al., 2013; Hall et al., 2020; Hanley et al., 2003). <p>Functional approaches to understanding behaviour often use a 'functional assessment' that includes a detailed analysis of:</p> <ul style="list-style-type: none"> • the antecedents (i.e. what happens before a behaviour) • behaviour characteristics (e.g. what it is and how long it lasts) • and consequences (i.e. what happens immediately after a behaviour) of each individual behaviour to help identify the most appropriate and effective supports (Gore et al., 2013; Hanley, 2012). |
| Global developmental delay | A diagnosis reserved for individuals under the age of 5 years when the clinical severity or exact diagnosis cannot be reliably assessed in early childhood. For example, when a child fails to meet developmental milestones in several areas of intellectual functioning and children who are not able to have systematic assessments or are too young to participate in standardised testing (APA, 2013, p. 41). |

| Term | Definition |
|----------------------------------|---|
| Intellectual disability (DSM-V) | <ul style="list-style-type: none"> • A disorder with onset during the developmental period that includes both intellectual and adaptive functioning deficits in the following: • intellectual functioning (e.g. reasoning, problem solving, planning, abstract thinking, academic learning, learning from experience; APA, 2013, p. 31) • adaptive functioning, such that without ongoing support the adaptive deficits limit functioning in daily life activities (e.g. communication, social participation, independent living; APA, 2013, p. 31). |
| Operant conditioning | Operant conditioning is based in social learning theory and refers to the way behaviours are reinforced and shaped by a child's environment, e.g. positive reinforcement increases the likelihood that a child will repeat a behaviour, and negative reinforcement decreases the likelihood of repetition (Whitehouse et al., 2020). |
| Parent(s) | Biological parents and legal guardians but also other primary (non-paid) caregivers. (Note: research usually uses 'parents' to refer only to biological parents or legal guardians.) |
| Positive behaviour support (PBS) | Positive behaviour support (PBS) is a multi-component approach to supporting individuals who display behaviours of concern. PBS can be delivered across a range of settings and contexts, and can include multiple complementary interventions. The core components of PBS include a functional assessment of behaviours, continuous consultation with individuals who display concerning behaviours and their families, using information from assessments and consultations to develop an 'enduring system of support' that is tailored to individual's needs and improves the quality of life for the individual receiving support and their family (Gore et al., 2013). |
| Randomised control trial (RCT) | RCTs are a type of study that randomly assigns participants to 2 or more different groups, either a group of people who have received the intervention or those that have not (a comparison or control group). The comparison group may continue with usual care and activities or may receive a different intervention (Akobeng, 2005). |
| Restrictive practice | In Australia, restrictive practice refers to a practice or intervention that has the effect of restricting the rights or freedom of movement of a person with disability, and can include physical, mechanical and chemical restraint and seclusion (Leif et al., 2023; NDIS, 2021) |
| Social learning theory | Social learning theory proposes that behaviours are learned through observations, i.e. children observe other people's behaviours and copy them. Behaviours are reinforced when people around the child provide positive reinforcement or repeatedly display the behaviours they copy (O'Connor et al., 2013) |

Appendix C: Detailed methodology

How this review was conducted

This review was conducted using the Cochrane rapid review guidelines (Garrity et al., 2021), which were adapted to fit the project's scope. Guidance from Cochrane Consumers and Communication Review Group: data synthesis and analysis (Ryan & Cochrane Consumers and Communication Review Group, 2013) and Synthesis without meta-analysis (SWiM) in systematic reviews: reporting guidelines from the British Medical Journal (BMJ) (Campbell et al., 2020) informed data analysis and synthesis.

This resource was also guided by consultations with 10 experts and stakeholders. This group included 8 researchers (including National Disability Insurance Agency (NDIA) staff and university researchers) and 2 disability practitioners. Stakeholders included a person with disability and parents of children with disability. Stakeholders were consulted during initial scoping stages to help develop the scope and research question. Three stakeholders were consulted multiple times through the development of the resource to test the research question, the findings once analysis was complete, and to review the final paper.

Approaches to understanding disability

This review was informed by a human rights-based approach⁷ and the social model of disability⁸.

Examples of how a rights-based approach and the social model of disability influenced this review include:

- Our search strategy excluded punishment-based interventions or practices that were exclusively restrictive (also called restrictive practice).
- Studies were only included if they measured children's behaviour outcomes that met our definition of 'behaviours of concern'. For example, non-harmful repetitive behaviours that may not be displayed by children without disability, such as stimming, were not included in the review.
- Our analysis understood children's behaviours of concern as a form of communication and a response to their environment, not an inherent characteristic of the child or their impairment regardless of how the research studies defined, or did not define, behaviours of concern.

This practice guide provides a more in-depth discussion of rights-based approaches to understanding behaviours and the social model of disability.

Search strategy and search terms

The research question, search strategy and inclusion criteria focused on interventions that include parents or other primary caregivers of children with intellectual disability and autistic children. This was identified during consultation with stakeholders and topic scoping as a key population that requests support when children display behaviours of concern.

Four concepts including relevant keywords were used to search peer-reviewed literature in AIFS Catalogue Plus in July 2022. Concepts included: disability, children and young people, behaviours of concern, and interventions. An additional search was conducted on Google Scholar to identify literature that may not be included in AIFS Catalogue Plus.

⁷ A human rights-based approach to disability recognises that people with disability should have full and equal enjoyment of all human rights and freedoms and are active, valued members of society, capable of making decisions about their lives based on their 'free and informed consent' (United Nations, 2006, p. 18). It also acknowledges that a 'person's impairment is part of human diversity' (Australian Council of Learned Academics [ACOLA], 2022, p. 75), and sometimes important adaptations are needed to ensure people with disability have equitable support to effectively exercise and enjoy their rights (UN, 2006).

⁸ The social model of disability recognises that 'disability' is a result of the interaction between people living with impairments and the social and physical environmental barriers that can prevent people from exercising their rights and participating as equal members of society (UN, 2006). That is, the environmental barriers such as 'system attitudes, practices, and structures' are disabling, not the characteristics of an individual person (Department of Health and Human Services [DHHS], 2018, p. 10). The social model of disability implies that to fully support people with disability, social and physical barriers need to be removed (ACOLA, 2022; Commonwealth of Australia, 2021; Oliver, 1983).

Systematic searches of the peer-reviewed literature were conducted to identify evidence (published 2012–22) from randomised controlled trials (RCTs) on interventions that can be delivered to or implemented by parents to support their children with intellectual disability or autistic children who display behaviours of concern.

Data screening and analysis

Search results were uploaded to Covidence, an online research review tool that was used to manage the rapid review process.

To reduce the risk of bias, double screening was completed for 10% of search results (title and abstract and full text). Researchers used the study selection criteria (Table 4) and a decision-making hierarchy to independently screen studies. Discrepancies were resolved by discussion between the 2 reviewers. A total of 2,576 title and abstract records were screened, and 221 full texts were assessed for eligibility. Twenty studies were included in this review.

Data from included studies was extracted into Covidence. Extracted data comprised the characteristics of each study, including population characteristics, intervention characteristics, outcomes, key findings and limitations.

After data screening and extraction, a narrative synthesis was conducted, following the synthesis and analysis guidance outlined by Cochrane Consumers and Communication Review Group (Ryan & Cochrane Consumers and Communication Review Group, 2013) and SWiM guidelines from BMJ (Campbell et al., 2020). This included preliminary descriptive synthesis of study findings, exploring relationships in the data within and between studies, and considering the robustness of the synthesis and methods in included studies.

Table 4: Study selection criteria

| Inclusion criteria | Exclusion criteria |
|--|--|
| <p>Studies were included in the review if they included:</p> <ul style="list-style-type: none"> • a non-pharmacological intervention aimed to support parents and their child(ren) with disability who display behaviours of concern • an intervention delivered either to parents/caregivers or to children by parents/caregivers • children (under 18 years) with an intellectual disability or autism spectrum disorder or other global developmental delay who display behaviours of concern • measures (frequency or severity) of children's behaviours of concern • randomised controlled trials published between 2012 and 2022. | <p>Studies were excluded from the review if they included:</p> <ul style="list-style-type: none"> • interventions for adults with disability • interventions only including teachers or delivered in education settings, e.g. schools • children without intellectual disability, autism spectrum disorder or other developmental delay • pharmacological interventions • any restrictive or punishment-based intervention • interventions that focus on behaviours that do not meet our definition of 'behaviour of concern'. |

Methodology limitations

There are several key methodological limitations of this review:

- A risk of bias assessment and formal quality appraisal of studies was not conducted. Therefore, the quality of the RCTs included in the review was not assessed and discussed in the synthesis of findings.
- Information about interventions found in specific intervention procedures and manuals were not obtained and analysed. This limits the ability to understand the core and common characteristics of effective interventions and which aspects of behavioural interventions contribute to behaviour change. However, the diversity of how intervention procedures are studied and reported may make this difficult.
- Other study designs, such as qualitative research (e.g. Dew et al., 2019; Meltzer et al., 2021), provide additional important information such as building in-depth understanding of families' experiences. Including evidence from studies using other methods may provide a more detailed understanding of how parents and their children experience and respond to effective interventions.

Study design considerations

When understanding the effectiveness of interventions, it can be useful to consider the results alongside the study's design and other factors that can affect the real-world implications of the findings. In this review, it is important to note that:

- There were a variety of measurement tools used to measure behaviours of concern. The type of measurement tool used can affect the level of bias in the study. For example, custom measurement tools can provide detailed assessments of behaviours from trained professionals. However, the lack of standardisation can make comparison with other interventions and measurement tools difficult.
- Smaller sample sizes can allow for more intensive interventions to be tested. However, conclusions about the effectiveness may not be generalisable to larger populations. Especially if the population group all have one specific diagnosis.
- It can be helpful to consider the study design when determining whether an RCT shows that an intervention can support reductions in children's behaviours of concern. RCTs either examine if an intervention is better than no intervention (waitlist or care as usual control group) or which of 2 interventions is better (alternative intervention comparison group). When studies are comparing 2 interventions it is possible that both interventions can reduce behaviours of concern.
- It can also be useful to consider the participant characteristics. Most studies were conducted with parents of children with moderate or high levels of behaviours of concern. However, one study had a prevention and early intervention focus (Shapiro et al., 2014) and the parent coaching intervention was not reported as effective. The authors suggest participants' low levels of behaviours of concern may mean there was limited room for improvement and could indicate that parent coaching is better suited to families with children with higher levels of behaviours of concern.

Appendix D: Detailed study characteristic tables

Table 5: Detailed study characteristics

| Author, year | Country | Intervention name | <i>n</i> | Child diagnoses included in study | Child age (mean, range) | Measurement tool(s) used | Who completed the measure? | Control conditions | Were child behaviours of concern reduced? | Was the intervention reported as effective? ^a | Effect size ^b (small, medium, large) |
|--|-----------|---------------------------------------|----------|--|--|--|---|--|---|--|---|
| Parent education support interventions | | | | | | | | | | | |
| Magana et al., 2020 | USA | In-home parent education and training | 96 | ASD | <i>M</i> = 5.31 years, range NR | Scales of Independent Behaviour Revised (SIBR) | Parent report | Waitlist | No | No | N/A |
| Suzuki et al., 2014 | Japan | Brief group psychoeducation program | 72 | ASD | <i>M</i> = 4.50 years, range NR | Aberrant Behaviour Checklist (ABC) | Parent report | Care as usual | No | No | N/A |
| Parent skills training interventions | | | | | | | | | | | |
| Charman et al., 2021 | UK | Predictive parenting | 62 | ASD | <i>M</i> = 6.50 years, range 4–8 years | ABC; Observation Schedule for Children with Autism, Anxiety, Behaviour and Parenting; Home Situations Questionnaire (HSQ); Assessment of Concerning Behaviours scale; Clinical Global Impression (CGI) | Independent observation, parent report and teacher report | Active comparison group (parent education) | Yes | No | N/A |
| Grenier-Martin et al., 2022 | Canada | Online parent training | 29 | Intellectual disability | <i>M</i> = 4.10 years, range 0.92–7.75 years | Behaviour Problems Inventory (BPI); Parent-report frequency and intensity of behaviours (Custom) | Parent report | Waitlist | Yes | Yes | Small |
| Kostulski et al., 2021 | Germany | Parent management training (PMT) | 42 | Intellectual disability | <i>M</i> = 11.19 years, range 6–16 years | Developmental Behaviour Checklist (DBC) | Parent report | Waitlist | Yes | Yes | Medium |
| Roux et al., 2013 | Australia | Group Stepping Stones Triple P (SSTP) | 45 | ASD, intellectual disability, and other diagnosis ^c | <i>M</i> = 4.80 years, range NR | Early Childhood Behaviour Inventory | Parent report | Waitlist | Yes | Yes | Small |

| Author, year | Country | Intervention name | <i>n</i> | Child diagnoses included in study | Child age (mean, range) | Measurement tool(s) used | Who completed the measure? | Control conditions | Were child behaviours of concern reduced? | Was the intervention reported as effective? ^a | Effect size ^b (small, medium, large) |
|-------------------------------|-----------|--|----------|--|---|--|---|--|---|--|---|
| Ruane et al., 2019 | Ireland | Group Stepping Stones Triple P (SSTP) | 84 | ASD, global developmental delay, intellectual disability, and other diagnosis ^c | <i>M</i> = 5.45 years, range NR | DBC; Strengths and Difficulties Questionnaire (SDQ) | Parent report | Care as usual | Yes | Yes | Medium |
| Singh et al., 2021 | USA | MBPBS: Mindfulness-Based Positive Behavior Support | 195 | ASD | <i>M</i> = 12.17 years, range NR | Parent-report frequency of behaviours (Custom) | Parent report | 2x Active comparison groups (Parent psychosocial support and parent skills training) | Yes | Yes | Small (Medium for meditation time only) |
| Tellegen et al., 2014 | Australia | Primary Care Stepping Stones Triple P (PCSSTP) | 64 | ASD | <i>M</i> = 5.66 years, range 2-9 years | Eyberg Child Behaviour Inventory (ECBI); Family Observation Schedule | Parent report | Care as usual | Yes | Yes | Medium |
| Turgeon et al., 2021 | Canada | Interactive web training (IWT) | 47 | ASD | <i>M</i> = 7 years, range NR | BPI | Parent report | Waitlist | Yes | Yes (Not recommend as a standalone treatment due to high attrition and during social validity concerns) ^d | Medium |
| Parent coaching interventions | | | | | | | | | | | |
| Argumedes et al., 2021 | Canada | Prevent-Teach-Reinforce (PTR) | 23 | ASD | <i>M</i> = 4.30 years, range 2-10 years | BPI; Individualised Behavioural Rating Scale | Independent observation and parent report | Active comparison group (parent skills training) | Yes | No | N/A |
| Bearss et al., 2015 | USA | Parent training | 180 | ASD | <i>M</i> = 4.80 years, range 3-7 years | ABC; HSQ; CGI | Independent observation and parent report | Active comparison group (parent education) | Yes | Yes | Small and medium |
| Durand et al., 2012 | USA | Positive Family Intervention (PFI) | 35 | ASD and other diagnosis ^c | <i>M</i> = 4.40 years, range NR | SIBR; Observations by trained researcher (Custom) | Independent observation | Active comparison group (parent coaching) | Yes | Yes | Medium |

| Author, year | Country | Intervention name | n | Child diagnoses included in study | Child age (mean, range) | Measurement tool(s) used | Who completed the measure? | Control conditions | Were child behaviours of concern reduced? | Was the intervention reported as effective? ^a | Effect size ^b (small, medium, large) |
|------------------------|-------------|--|-----|---|---------------------------------------|---|---|--|---|---|---|
| Ginn et al., 2017 | USA | Parent-child interaction therapy (PCIT) | 30 | ASD | M = 4.30 years, range NR | ECBI | Parent report | Waitlist | Yes | Yes | Large |
| Hall et al., 2020 | USA | Telehealth-enabled functional communication training (FCT) | 57 | Intellectual disability | M = 6.80 years, range 3.2-10.7 years | ABC; Functional analysis and review by professional (Custom) | Independent observation and parent report | Care as usual | Yes | Yes | Small and medium |
| Kleefman et al., 2014 | Netherlands | Stepping Stones Triple P (SSTP) | 209 | Intellectual disability | M = NR, range 5-12 years | SDQ; ECBI | Parent report and teacher report | Care as usual | Yes | Yes (Only effective when teachers reported behaviours, not parents) | NR |
| Lindgren et al., 2020 | USA | Telehealth-enabled functional communication training (FCT) | 38 | ASD | M = 4.14 years, range 2.42-6.92 years | Functional analysis and review by professional (Custom measure only) | Independent observation | Waitlist | Yes | Yes | Large |
| Salisbury et al., 2022 | Canada | KEEP-V Keeping Parents Trained and Supported - with FIND video modelling | 175 | Global developmental delay and other neuro-developmental disorders | M = 3.97 years, range 2.33-5.83 years | Child Behaviour Checklist (CBCL); Preschool and Kindergarten Behaviour Scales (PKBS); Parent Daily Report (PDR) | Parent report | Active comparison group (parent skills training) | Yes | No | N/A |
| Shapiro et al., 2014 | USA | Stepping Stones Triple P (SSTP) with IDEA Part C services | 49 | Global developmental delay, intellectual disability, and other diagnosis ^c | M = 1.56 years, range NR | CBCL | Parent report | Care as usual | No | No | N/A |

Notes: a Effective interventions were interventions that led to a statistically significant difference in child behaviour outcomes between the intervention and comparison group.
 b Effect sizes were calculated using either Cohen’s d, eta-squared, or r-squared. The effect sizes were translated into the standardised categories of small, medium, or large for each calculation method to allow for comparison (Sullivan & Feinn, 2012).
 c ‘Other’ diagnosis included language disorder, low birth weight, Cerebral Palsy, and ‘other’ categories that were not specified in studies (Durand et al., 2012; Roux et al., 2013; Ruane et al., 2019; Shapiro et al., 2014)
 d Interactive Web Training (Turgeon et al., 2021) was reported as effective but was not recommended as a standalone treatment as 45% of participants did not complete the intervention and parents reported concerns around their child experiencing discomfort during the intervention The authors did not measure child discomfort and were unable to validate parent’s concerns.
 ASD = Autism spectrum disorder; N/A = not applicable; NR = not reported.

Table 6: Intervention descriptions and results by intervention

| Study (Author name, year) | Intervention name | Intervention description ^a | Intervention type (Parent support or Parent-mediated intervention) | Intervention format ^b (In-person or online, individual or group-based) | Intervention duration and cadence ^b (Length of time, number of sessions, time per session) | Who delivered the intervention? (Practitioner skill/qualification) | Was the intervention effective at improving child behaviours of concern? ^c |
|------------------------------|--|--|---|--|--|--|--|
| Suzuki et al., 2014 | Brief group psycho-education program | Provides information to parents on neurodevelopmental disorders (i.e. ASD), how to treat their child based on individual characteristics, social support resources and mother's mental health. Includes supportive group therapy focused on problem-solving skills. | Parent education support | In-person, at clinic, in group sessions | 4 x 120 minute sessions, delivered each fortnight for 8 weeks | Psychiatrists, psychologists, speech pathologists and a social worker, with training in the intervention | No |
| Magana et al., 2020 | In-home parent education and training | Consists of interactive sessions, including promoter presentations and discussions, to support parents to better understand the child with ASD, identify misinformation, understand evidence-based methods and develop practical skills to improve daily functioning. | Parent education support | In-person, at home, with individual sessions | 14 x weekly lessons | Members of the community with training in the intervention | No |
| Turgeon et al., 2021 | Interactive web training (IWT) | Consists of self-guided online training. Teaches and trains parents in how to assess the functions of behaviours; understand antecedents and consequences of behaviours; and learn ways to support their child to learn alternative behaviours, including practical and ethical implications of behaviour support. | Parent-mediated intervention: Parent skills training | Online, individual sessions | 2 week: 3 hours, self-paced | N/A | Yes* *Not recommended by authors as a standalone treatment due to high attrition and social validity concerns |
| Salisbury et al., 2022 | Keeping Parents Trained and Supported with FIND video-modelling (KEEP-V) | Parent management training-based intervention that teaches parents strategies for responding to behaviours, including setting limits, managing stress, avoiding power struggles and increasing cooperation. Includes video modelling where parents are filmed during routine interactions with children and given feedback on positive engagement and responses with children. | Parent-mediated intervention: Parent coaching | In-person, group | 12 weeks, 12 sessions, 2 hours | Practitioners with qualifications in psychology and training in the intervention | No |

| Study (Author name, year) | Intervention name | Intervention description ^a | Intervention type (Parent support or Parent-mediated intervention) | Intervention format ^b (In-person or online, individual or group-based) | Intervention duration and cadence ^b (Length of time, number of sessions, time per session) | Who delivered the intervention? (Practitioner skill/qualification) | Was the intervention effective at improving child behaviours of concern? ^c |
|------------------------------|---|---|---|--|--|--|---|
| Singh et al., 2021 | Mindfulness-Based Positive Behavior Support (MBPBS) | Combines teaching mindfulness-based practice, such as meditation, with Positive Behaviour Support (PBS) that includes education on the principles of PBS, helping parents create and implement PBS plans, training parents to assess the functions of children's behaviours and learn ways to modify environments and support their child to learn alternative behaviours. | Parent-mediated intervention: Parent skills training | In person, group sessions or individual telephone sessions | 3-day training, plus 30-week implementation (with check-ins but no further training sessions) | Certified behavioural analyst and a meditation teacher | Yes |
| Ginn et al., 2017 | Parent-child interaction therapy (PCIT) | This intervention included only the Child-Directed Interaction (CDI) part of PCIT, which involves creating an environment in which children view play and parent-child interactions as positive experiences. Parents were coached to follow their child's lead in play and provide positive attention combined with active ignoring of minor misbehaviour. | Parent-mediated intervention: Parent coaching | In-person, individual | 10 weeks, 8 sessions, 1-1.25 hours | Clinical psychologists with training in the intervention | Yes |
| Bearss et al., 2015 | Parent training | Uses a parent training manual and coaching sessions with feedback to teach parents to identify functions of behaviours by analysing antecedents and consequences; strategies for preventing behaviours of concern; positive reinforcement for appropriate behaviours and planned ignoring for inappropriate behaviours, how to teach children new skills and maintain behaviour improvements over time. | Parent-mediated intervention: Parent coaching | In-person, individual | 16 weeks, 11 sessions, 1-1.5 hours + home visit and parent/child coaching sessions | Therapists with training in and supervision when delivering the intervention | Yes |
| Kostulski et al., 2021 | Parent management training (PMT) | Consists of group training including presentations, discussions and partner and group work that educates parents on child disability and assumptions and how to access helpful services, with training on how to improve parent management in difficult situations and support their child's positive behaviours. | Parent-mediated intervention: Parent skills training | In-person, group sessions | 6 months: 10 x 1.5 hour sessions | Psychotherapists and special education teachers | Yes |

| Study (Author name, year) | Intervention name | Intervention description ^a | Intervention type (Parent support or Parent- mediated intervention) | Intervention format ^b (In-person or online, individual or group- based) | Intervention duration and cadence ^b (Length of time, number of sessions, time per session) | Who delivered the intervention? (Practitioner skill/ qualification) | Was the intervention effective at improving child behaviours of concern? ^c |
|---------------------------------|------------------------------------|---|---|---|---|--|--|
| Durand et al., 2012 | Positive family intervention (PFI) | PFI involves PBS plus cognitive-behavioural optimism training (CBO-T). Parents are taught how to identify patterns in their child's behaviour, develop intervention strategies (PBS), and how to identify patterns in their own thinking and feelings, and ways to restructure their thoughts and feelings to encourage optimism (CBO-T). | Parent-mediated intervention: Parent coaching | In-person, individual | 8 weeks, 8 sessions, 1.5 hours | Therapists with qualifications and background in positive behaviour support and/or clinical psychology | Yes |
| Charman et al., 2021 | Predictive parenting | Trains parents to predict children's behaviour more effectively, make life for the child more predictable, and help the child cope with unpredictability. Includes group presentations, didactic teaching, group coaching and practising techniques, and parents supporting each other. | Parent-mediated intervention: Parent skills training | In-person, group sessions with supplementary individual sessions | 12 x 2 hr sessions delivered weekly; plus 2 x 45-60 min supplementary individual sessions | Clinical psychologists experienced working with autistic children | No |
| Argumedes et al., 2021 | Prevent-Teach-Reinforce (PTR) | Uses a PTR model based on PBS principles that supports parents with goal setting, data collection, functional behavioural assessment and teaches parents to implement a PTR intervention and use data to make decision. Parents were provided with corrective feedback when they applied the PTR intervention. | Parent-mediated intervention: Parent coaching | In-person, individual | 8 weeks, 8 sessions, 2 hours | Researcher with training in and supervision when delivering the intervention | No |
| Grenier-Martin et al., 2022 | Online parent training | Uses online modules to train parents in how to document and assess functions of problem behaviours, what antecedents are and their associated intervention strategies; how caregivers can react to behaviours of concern and teach their child appropriate behaviours. | Parent-mediated intervention: Parent skills training | Online, individual sessions | 2 weeks: 4 hours, self-paced | N/A | Yes |
| Kleefman et al., 2014 | Stepping Stones Triple P (SSTP) | Trains and coaches parents on how to formulate hypotheses about behaviours including the causes; how to learn and implement parenting strategies. During implementation parents are observed interacting with their child and provided with feedback. | Parent-mediated intervention: Parent coaching | In-person, individual | 10-12 weeks, 8-10 sessions, 0.7-1.5 hours | Practitioners with accreditation in Triple P | Yes |

| Study (Author name, year) | Intervention name | Intervention description ^a | Intervention type (Parent support or Parent-mediated intervention) | Intervention format ^b (In-person or online, individual or group-based) | Intervention duration and cadence ^b (Length of time, number of sessions, time per session) | Who delivered the intervention? (Practitioner skill/qualification) | Was the intervention effective at improving child behaviours of concern? ^c |
|------------------------------|--|---|---|--|---|---|---|
| Roux et al., 2013 | Stepping Stones Triple P (Group) (SSTP-G) | Trains parents in positive parenting strategies specifically for children with disability to help parents manage children's behaviours of concern, increase parent confidence responding to difficult situations, learn ways to support their child's development and competence, and develop positive parent-child relationships. | Parent-mediated intervention: Parent skills training | In person, group sessions with supplementary individual telephone follow-up sessions | 9 x 2-2.5 hr group sessions, plus 3 x 15-30 min follow-up telephone sessions | Postgraduate clinical psychology students, with training in Triple P | Yes |
| Ruane et al., 2019 | | | | In person, group sessions with supplementary individual telephone follow-up sessions | 5 x 2-hour group sessions, plus 4 x 15-30 min follow-up telephone sessions | Clinical psychologists, with accreditation in Triple P, research assistants, and clinical psychology students | Yes |
| Tellegen et al., 2014 | Stepping Stones Triple P (Primary Care) (SSTP-PC) | Provides parents with tailored information and trains parents in positive parenting practices to support them to address one or two specific behaviours of concern that their child displays. | Parent-mediated intervention: Parent skills training | In person, individual sessions | 8 weeks: 4 x 15-30 min sessions planned with extended time per session allowed | Practitioners with psychology degrees and accreditation in Triple P | Yes |
| Shapiro et al., 2014 | Stepping Stones Triple P (SSTP) with IDEA Part C services | SSTP sections use guided participation to assess children's behaviours and share findings with parents. Parents are taught strategies for supporting positive behaviours and managing behaviours of concern, and observed implementing parenting strategies and provided with feedback. IDEA Part C services are USA government-mandated early intervention services for children with disability or at risk of developmental delays (unclear what these services include). | Parent-mediated intervention: Parent coaching | In-person, individual | 5 months, 10 sessions | Practitioners with various qualifications (psychology, social work or counselling) and accreditation in Triple P and supervision when delivering the intervention | No |
| Lindgren et al., 2020 | Telehealth-enabled functional communication training (FCT) | Supports parents to identify functions of children's behaviours of concern, teach their child alternative communication strategies and how not to reinforce behaviours of concern. Parents were taught techniques and skills, then observed via video call implementing them at home with their child, and provided with suggestions and feedback. | Parent-mediated intervention: Parent coaching | Online, individual | 12 weeks, approx. 12 sessions, 1 hour | Trained behavioural consultant | Yes |
| Hall et al., 2020 | | | | Online, individual | 12 weeks, varied session numbers (5 sessions per week, gradual decrease to 1-2 sessions per week), 1 hour | Certified behavioural analyst | Yes |

Notes: a This information is based on information provided in RCT studies. Intervention procedure manuals were not accessed.

b Effective interventions were interventions that led to a statistically significant difference in child behaviour outcomes between the intervention and comparison group.

c Intervention format, duration and cadence refers to how the intervention was delivered in the RCT study included in this review. There may be other known ways to deliver these interventions that were not included in the study.

ASD = Autism spectrum disorder.