Case Study 1: An Evidence-Based Practice Review Report

Theme: Interventions implemented by Parents that have an effect on child

How effective is Parent-child interaction therapy (PCIT) at reducing negative behaviour of children with Autism?

Summary

There is a significant evidence that supports Parent-child interaction therapy (PCIT) as an intervention to reduce disruptive behaviours however, there is notmuch research to suggest it is effective at reducing negative behaviours in children with autism. This systematic literature review consists of appraising seven studies in order to examine the effectiveness of implementing PCIT with families with children with autism. PCIT is an intervention which works in two phases to increase the positive bond between care-giver and child and to improve the behavioural management skills of the parent. Parents are trained by qualified therapists to use specific skills that encourage bonding and effective parenting styles which can be used for life after successfully completing the intervention. This review has found strong evidence for the effectiveness of PCIT at reducing negative behaviours in children with autism. Areas for future research revolves around the generalisability of participants, recruitment from schools for sample pools and measuring observable behaviour rather than parent reports of negative behaviour.

Introduction

Parent-child interaction therapy

Parent-child interaction therapy is an evidence-based intervention for families aimed to increase positive communication and behaviour management. It is designed for parent-child dyads with the child between the ages of 2-7 years old who have a range of problems in the areas of behaviour, emotions and family issues (Herschell et al., 2002). It is a therapy that is carried out by a trained professional with a manualised programme which trains the parent in real time to interact with the child (McNeil & Hembee-Kigin, 2010). It has two phases: the first is child-directed interaction (CDI) and the second parent-directed interaction (PDI) (Herschell et al., 2002). In the CDI phase the focus is on child-directed play where parents "follow the child's lead" and increase positive communication, attention and imitation in order to enhance the parent-child relationship (Herschell et al., 2002). While engaging in this child-led play caregivers are supposed to use PRIDE skills which teaches them how to encourage appropriate child behaviours through positive behaviour (Herschell et al., 2002). PRIDE skills, that are taught to carers are Praise (specific praise of child behaviour), reflection (actively listening and reacting to child), imitation (mirroring child play and enthusiasm), describing (narrating the child ongoing play) and enjoyment (displaying actual joy and enthusiasm when interacting with child) (McNeil & Hembree-Kigin, 2010). Parents and carers are also urged in this phase to carry out a "5minute homework" where they practise the PRIDE skills at home (Herschell et al., 2002).

Following the parents reaching a CDI skill level of a predetermined set of criteria, they then enter the second phase: PDI (Herschell et al., 2002). In this phase caregivers learn behaviour management skills. They learn how to issue clear,

developmentally appropriate commands in an authoritative parenting style and must follow through with consequences for compliance and non-compliance (Herschell et al., 2002).If the child complies then the adult must give specific praise and if the child does not comply then a time-out will be initiated (Herschell et al., 2002). The intervention takes between 10 and 16 weeks to complete usually with 1-hour sessions weekly (Herschell et al., 2002). One of the unique, key methods of PCIT training is the live coaching which is usually done by using a bug in ear and one way through mirror (Herschell et al., 2002).

Psychological underpinnings

Constance Hanf (1968) directly influenced the development of Parent-child interaction therapy (Eyberg, 1988). A two-stage model was theorised by Hanf to change the behaviour of non-compliant children which has two phases (Eyberg, 1988). In the first stage the parent was directed to play with the child and then was taught skills and strategies by a therapist to give attention to positive behaviour and ignore all negative behaviour (Eyberg, 1988). In the second phase the parent leads the play and gives the child some commands which, if they obey the child is rewarded and if the child does not, then they are punished with time-out (Eyberg, 1988). PCIT utilizes Baumrind's (1991) authoritative parenting style to foster a quality parent-child interaction by teaching nurturance and limit-setting in phase 1 and 2 of the programme (McNeil & Hembee-Kigin, 2010). Throughout the programme theories such as the attachment theory, behaviour theory, developmental parenting theory and social learning theory underpin the teachings in PCIT (McNeil & Hembree-Kigin, 2010). It is important to note that what separates PCIT from other therapies is the coaching and feedback to parents on the spot, which is more helpful

as they are able to immediately recognise and change 'established patterns of verbalization and behaviour with their child' (Eyberg, 1988).

Attachment theory suggests that care-givers and children can form different attachment types based on the responsiveness of the care-giver to child which can predict behaviours for children in the future. A secure attachment type is formed when caregivers respond to a child's needs regularly and appropriately and this helps children to form a positive schema of relationships, good emotional regulation and good social skills (Ainsworth, 1979). On the other hand, when a caregiver is less responsive or inconsistent, they can form an insecure attachment with the child which is a risk factor for children to develop behavioural difficulties (Ainsworth, 1979). The skills parents learn in the child-directed interaction phase fosters and promotes a secure attachment with the child which increases positive interaction and responsiveness between parent and child (Serchuk et al., 2021). This is why the parents are encouraged first of all to engage in child-interacted play to increase a positive bond (Serchuk et al., 2021). The PDI phase is influenced by social learning theory, developmental theory and behavioural theory with the aim to build behaviour management skills for the caregiver and strategies to help the child learn, through modelling, desired behaviours (Serchuk et al., 2021).

Autism

Autism spectrum condition (ASC), also known as autism spectrum disorder (ASD) is a neurological difference that impacts three main characteristics of a person (Faras et al., 2010). Differences are usually noticed in communication, social interaction and repetitive patterns of behaviour which can present with issues with adapting to change, making positive friendships, ability to focus and problem solving (Faras et al., 2010). Parents and schools have reported significant challenges with

children with autism and various interventions have been created to help treat symptoms of autism (Faras et al., 2010; Stichter et al., 2016).

Relevance to an EP in practice

Over the years there has been in increase in challenging behaviour being reported of students with ASC by schools as the number of ASC students have risen in mainstream schools (Stichter et al., 2016). Funding allocation and availability of places for students have made it difficult for children with autism to access evidence based interventions (Parish & Bryant, 2015). Equipping parents with the skills needed to combat negative behaviour may transfer improved behaviour into the school setting where educational psychologists can pinpoint pupils who have ASC who could benefit from PCIT. Early screening methods for autism have been advancing in the current years with children being diagnosed as early as two years old (Bradshaw et al., 2015). Educational psychologists have a role in suggesting interventions and strategies to support the development of children diagnosed with autism, their families and schools. PCIT can be used for children as young as two years old suggesting this could be a programme suitable for early intervention (Herschell et al., 2002). In particular, this method is helpful in supporting families at home as it teaches parents to become “co-therapists” and therefore can extend what they have learnt and practised in sessions to at home as well which is evidenced in having long lasting positive effects over years (Pasco, 2018). ‘Negative behaviours’ for the context of this review are defined as behaviours that act as a barrier to achieving the educational and social goals of children (Solomon et al., 2008). Examples of this are defiance, physical aggression and tantrums (Solomon et al., 2008). Specific behaviours such as to “destroys toys and other objects”, “yells or screams” and “hits parents” are listed in the Eyberg Child Behaviour Inventory that is

used to measure frequency of problem behaviours and how problematic the parent deem it to be (Eyberg, 1988). This review will be exploring how effective Parent-child interaction therapy (PCIT) is at reducing negative behaviour of children with autism.

Critical review of the evidence

A systematic literature search was conducted on January 12th 2023 using internet databases. These included PsychINFO, Educational Resources Information Centre (ERIC) and Education database ProQuest. In Table 1 you will find search terms used.

Table 1

Search terms

Databases	**Key concepts**	**Search terms used**		
		1		**2**
• PsychINFO • Educational Resources Information Centre (ERIC) • Education Database ProQuest	• Parent-child interaction therapy • Autism	Parent-child interaction therapy **OR** PCIT **OR** Parent-directed interaction **OR** Child-directed interaction **OR** Parent management training	**AND**	Autism **OR** ASD **OR** Asperger **OR** PDD **OR** Autism spectrum condition **OR** Autism spectrum disorder

82 studies were recovered from the online database search. 20 duplicates were removed before screening resulting in 62 studies whom title and abstract were screened. 42 studies were excluded using rational from Table 2. Full studies were sought for retrieval and only one could not be retrieved so 19 papers were assessed for eligibility in full. Once all papers were assessed in detail 12 papers were excluded; reasons are included in the PRISMA flow chart (Figure 1) and a table with rationale for detailed exclusion due to overlap of reasons (Appendix A) which shows

the literature search process. Included in the final review was 7 studies, in Table 3 they are summarised but further detail can be found described in Appendix B.

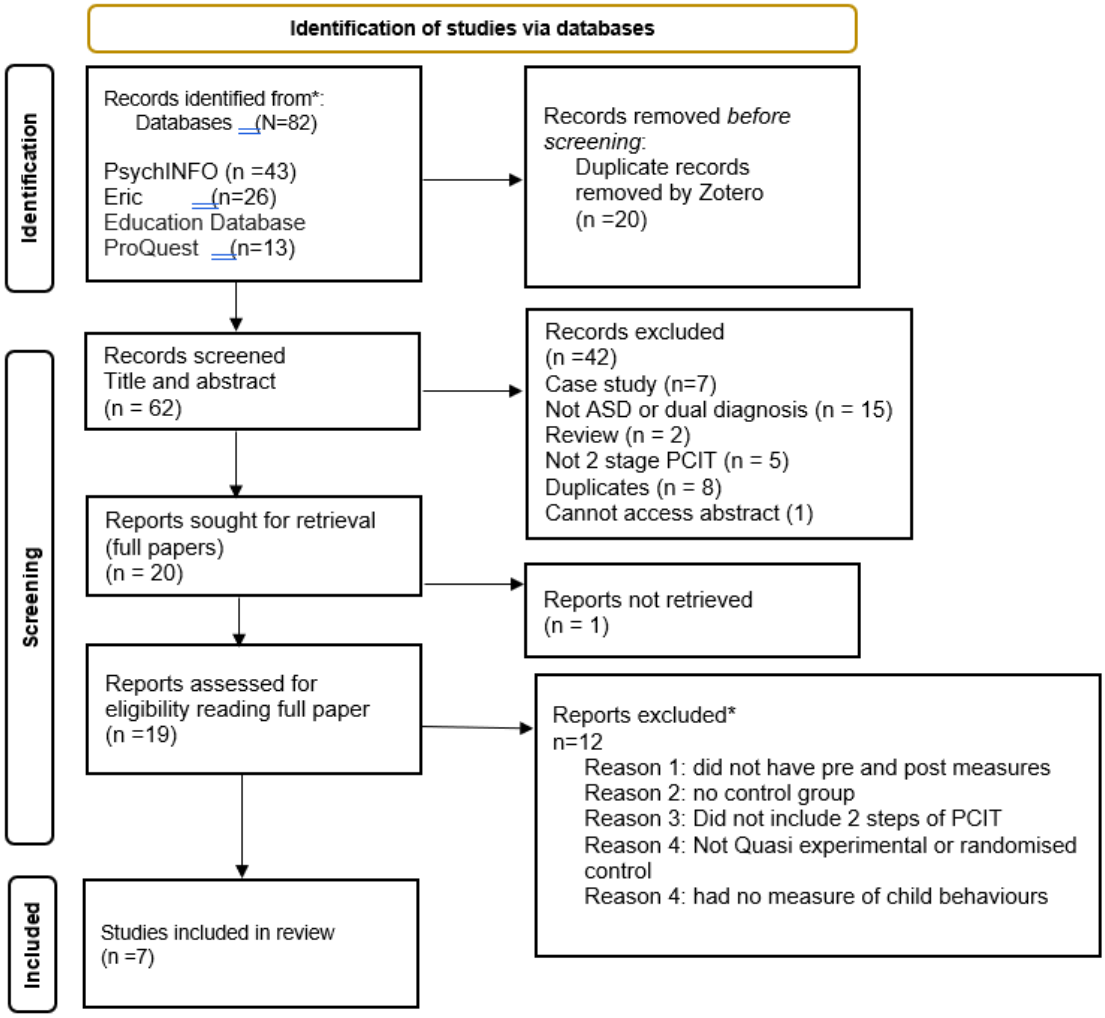
Table 2

Rationale for exclusion and inclusion criteria:

Criteria	Inclusion criteria	Exclusion criteria	Rationale
1. Participants	• Must be between 2-17 years old • Must have diagnosis of autism	• Over 18 years old • Dual diagnosis for example ASD and ADHD	• We want to find out effectiveness of intervention for children who have autism
2. Settings	• Intervention carried out in community, professional work place or at care-givers home	• Controlled setting	• Maintain fidelity of intervention
3. Intervention	• Parent-child interaction therapy • Must have child-directed interaction and parent-directed phase	• Only had one phase of PCIT	• Purpose of review is to critically evaluate Parent-child interaction therapy on children with autism
4. Compare effectiveness of studies	• Studies that contain control group • Randomised control group or quasi experimental	• Case studies • Any other design that does not have a control group	• Petticrew and Roberts (2003) recommend studies with control group to compare effectiveness of studies
5. Outcome variable	• Must have pre and post conditions measured • Must have outcome of child behaviour measured	• Only outcome of parent	• Intentions of the review is to see how the intervention impacts child behaviours

Figure 1:

PRISMA flow chart showing inclusion and exclusion process:



*Reasons for exclusion overlapped between studies so number not included for each reason. Full details found in Appendix A

Table 3

A summary of final studies included in the review.

No.	Studies included
1.	Han, R. C., Naguib, S., Owen, C. K., Druskin, L. R., Keen, K. R., Piper, R., Holbert, S. N., Shank, S. D., Victory, E. J., & McNeil, C. B. (2022). An Effectiveness Trial of PCIT for Children with and without Autism Spectrum Disorder in a Private Practice Setting. *Evidence-Based Practice in Child &*

Adolescent Mental Health, *7*(1), 125–141. Child Development & Adolescent Studies. https://doi.org/10.1080/23794925.2021.1993109

2. Zlomke, K. R., & Jeter, K. (2020). Comparative Effectiveness of Parent–Child Interaction Therapy for Children with and Without Autism Spectrum Disorder. *Journal of Autism and Developmental Disorders*, *50*(6), 2041–2052. ProQuest Central; Social Science Premium Collection. https://doi.org/10.1007/s10803-019-03960-y

3. Scudder, A., Wong, C., Ober, N., Hoffman, M., Toscolani, J., & Handen, B. L. (2019). Parent-child interaction therapy (PCIT) in young children with autism spectrum disorder. *Child & Family Behavior Therapy*, *41*(4), 201–220. https://doi.org/10.1080/07317107.2019.1659542

4. Parladé, M. V., Weinstein, A., Garcia, D., Rowley, A. M., Ginn, N. C., & Jent, J. F. (2020). Parent-Child Interaction Therapy for Children with Autism Spectrum Disorder and a Matched Case-Control Sample. *Autism: The International Journal of Research and Practice*, *24*(1), 160–176. Social Science Premium Collection. https://doi.org/10.1177/1362361319855851

5. Allen, K., Harrington, J., Quetsch, L. B., Masse, J., Cooke, C., & Paulson, J. F. (2022). Parent-child interaction therapy for children with disruptive behaviors and autism: A randomized clinical trial. *Journal of Autism and Developmental Disorders*, *Abidin, R.R. (1995). Parenting Sress Index, professional manual (3 ed.). Psychological Assessment Resources*, No-Specified. https://doi.org/10.1007/s10803-022-05428-y

6. Solomon, M., Ono, M., Timmer, S., & Goodlin-jones, B. (2008). The Effectiveness of Parent-Child Interaction Therapy for Families of Children on the Autism Spectrum. *Journal of Autism and Developmental Disorders*, *38*(9), 1767–1776. ProQuest Central; Social Science Premium Collection. https://doi.org/10.1007/s10803-008-0567-5

7. Quetsch, L. B., Bradley, R. S., Theodorou, L., Newton, K., & McNeil, C. B. (2022). Community-based agency delivery of parent-child interaction therapy: Comparing outcomes for children with and without autism spectrum disorder and/or developmental delays. *Journal of Autism and Developmental Disorders*, *Aarons, G.A., Hulburt, M., and Horwitz, S.M. (2011). Advancing a conceptual model of evidence-based practice implementation in public service sectors. Administration and Policy in Mental Health, 38, 1, 4-23. http://dx.doi.org/10.1007/s10488-010-0327-7*, No-Specified. https://doi.org/10.1007/s10803-022-05755-0

Weight of Evidence

In order to critically appraise the studies in a systematic way, 'Weight of Evidence Framework' (WoE) (Gough, 2007) was used to review the research question. Three dimensions will be given a rating and then an overall rating will determine the weight of evidence for each study. A 0-3 scoring system is used throughout the appraisal with criteria and rationale described throughout in Appendices E, F and G.

Weight of Evidence A (WoE A) looks at the quality of methodology of each study. This has been done using the Kratochwill (2003) APA Task Force on Evidence Based Intervention in School Psychology for group-based designs, as all the studies have an experimental group-based design. Adaptations were made to the protocol,detailed in Appendix E with criteria, rationale and ratings.

Weight of Evidence (WoE B) looks at the relevance of methodology which reviews the type of design to ensure it is appropriate for answering the review question. The hierarchy of evidence was used to weigh this (Petticrew, 2003) and rationale for each rating is given in Appendix F.

Weight of Evidence C (WoE C) is weighed in order to make a judgement about the relevance of each study to the review question (Gough, 2007). Criteria and rationale is described for each study and rating is given accordingly in Appendix G.

Weight of Evidence D (WoE D) is the overall rating of WoE A, B and C combined and the average which provides an overall weight of evidence (WoE D) for the studies contribution of effectiveness to the review question. The overall weighting score ranges from <1.4 considered 'low', to 1.5-2.4 considered 'medium' and >2.4 considered 'high'. Below you will find a Table (4) with the overall weight of evidence score for all the studies included in this review.

Table 4

Overall weight of evidence

Study	Ratings				Rating descriptor
	WoE A	WoE B	WoE C	WoE D- overall rating	
Han et al., 2022	2.75	2	3	2.6	High
Zlomke, &; Jeter., 2020	2.75	2	3	2.6	High
Scudder et al., 2019	2.5	3	3	2.8	High
Parladé et al., 2020	3	2	3	2.7	High
Allen et al., 2022	2.25	3	3	2.75	High
Solomon et al., 2008	2.75	3	2.7	2.8	High
Quetsch et al., 2022	2.5	2	3	2.5	High

Please note: <1.4 (low), 1.5-2.4 (medium) and >2.4 (high)

Study participants

In the seven studies included in this review overall, there was 2,616 participants which included parent and child dyads from the United States with an age range of child participants of 2-12 years old. It's important to note that the recommended age range for this intervention is 2-7 years old (McNeil & Hembree-Kigin, 2010) , although Allen et al (2022) and Solomon et al (2008) had participants above this age range. They had large effect sizes, as shown in Table 5 so it is still relevant in determining the effectiveness of PCIT for children. Study participants were recruited from various sources such as: community resources, health professionals, teachers, self-referrals and ASD advocacy groups (Allen et al., 2023; Parladé et al., 2020; Scudder et al., 2019; Solomon et al., 2008) and the remaining studies (Han et al., 2022; Quetsch et al., 2022; Zlomke & Jeter., 2020) do not explicitly record where the participants were recruited as the analysed data was

extracted from PCIT tials at a university-based clinic. Gender and ethnicity were reported in majority of studies which can be found in Appendix B. There was a high number of male participants in all studies which is likely due to autism being diagnosed more in males than in females, which reflects the gender ratio in these studies. Other demographics like, financial income, language spoken, role of caregiver participant was only analysed in some studies.

The focus of this review is how effective PCIT is in reducing negative behaviours in children with autism so, ensuring participants meet diagnostic status is important to the significance of the findings of each study. This is one of the criteria that must be met in for WoE C which is displayed in Appendix G, Table 1.

Study design

All studies that had a randomised control design (Allen et al., 2023; Scudder et al., 2019; Solomon et al., 2008) and therefore given a high rating in WoE B, as stated in Appendix F, Table 3, had a wait-list control group.All other studies were non-randomised with non-ASD comparative groups of which Parladé et al (2020) matched two groups by case-control to reduce selection bias. In this particular intervention, the parent and child participate in the intervention however, it is the child who is assigned to groups based on certain variables as PCIT looks at child behaviour as one of the primary outcomes.

None of the studies reported a follow up phase, although Allen et al (2022) said it collected 3-month follow up data but would report in future publications. The follow up phase was emitted from the Kratochwill coding protocol (2003) with ratioale reported in Appendix C, Table 1. It is important to satisfy if PCIT is effective in reducing negative behaviours in children with autism before undertaking further

research into longevity of its impact. Attrition rates between pre and post intervention are rated in WoE A coding protocols of which all studies have an 80% or more retainment of participants.

All the above information has been used as factors to give rating sections of WoE A and WoE B to indicate the quality of methods for each study.

Intervention & Fidelity

The interest of this review is how PCIT reduces negative behaviours; all studies except for one (Solomon et al., 2008) followed a manualised PCIT protocol. All professionals conducting the intervention had training on PCIT in which they have to meet a certain number of training hours and receive a certificate to become qualified in delivering PCIT. Delivery of the intervention is one of the criteria in WoE C of which all studies received a high rating. Solomon et al (2008) received a rating of 2 (Medium) on PCIT intervention in WoE C as a modified approach specific to working with children with autism was used. Even though the study describes the modifications made, this reduces the validity of the study and makes it harder for it to be replicated by other researchers as professionals are trained strictly according to normal PCIT protocol as described in McNeil and Hembree-Kigins (2010) book 'Parent-child interaction therapy'.

Fidelity of the studies are reported in all studies, and ratings of it are reported in WoE A in the 'Implementation fidelity' section and make up part of the criteria in WoE C. Fidelity was maintained through various methods such as in-vivo supervision, coding practise, case discussion, consistent reviews of session recording to assess fidelity, group/individual supervision and treatment integrity checklists.

Measurement

The Eyberg child behaviour inventory (Eyberg & Pincus, 1999) was used to measure the frequency of negative behaviour in the participants. It is used by care-givers to report on the disruptive behaviours of their children through a 7-point Likert scale for subscale Intensity and a “yes” or “no” scale for subscale Problem. Data from this measure was collected at pre, mid and post intervention to see the effect of the intervention. Most studies reported the inter-reliability coefficient for ECBI and all studies reported on the scale’s reliability from different sources. The weight of reliability of this measurement was recorded in WoE A in the feature ‘Measurement’ which impacted the consequent score. Each study also measures parent outcomes however this is not considered and it is not the focus of this review. Other measurements that observed child outcomes were also used and reported in Mapping of the Field in Appendix B however, only ECBI was considered in this review as it was used as a primary measurement in all studies.

Outcomes and Effect sizes

Han et al (2022) revealed promising outcomes for the effectiveness of PCIT on children with autism]. However did not have enough sample size power to detect a statistically significant change as there was a difference in pre to post scores for ECBI; the effect sizes were small according to Cohens d as reported in Table 5. Due to COVID-19 the authors were not able to recruit more participants to increase the power of the study. A statistically significant effect was found for both groups from pre to post treatment on both subscales of the ECBI in the Quetsch et al (2022) study although small and medium effect sizes were found as reported in Table 5. This suggests a PCIT is effective at reducing negative behaviours in children with autism.

All other studies showed a statistically significant main effect for time for the group of children with a. This suggests the intervention had an impact before it was delivered and after which shows strong evidence that PCIT can be effective at reducing negative behaviours of children with autism. Most studies looking at the efficacy of PCIT had comparison groups, including wait-list control has shown that the treatment condition is more effective than control settings.(Herschell et al., 2002). Solomon et al (2008) yielded a significant main effect for group X time for the problem scale which shows there is a difference between groups of how parents perceived problematic nature of their behaviours. As this study design delivers a wait-list control, this shows promising evidence for PCIT having positive effects on parent-led interventions impacting the behaviours of children with autism. All studies, apart from Han et al (2022) and Quetsch et al (2022) revealed large to huge effect sizes shown in Table 5. Cohens *d* (Cohen, 1988) was used to interpret effect sizes for majority of studies. Quetsch et al (2022) reported partial eta squared as shown in the effect size tables.

Table 5

Table showing effect sizes and WoE overall rating

Study	Sample size	Groups comparison	Outcome measurements	Effect size type	Effect size (ES)	ES descriptor [a]	Overall Weighting (WoE D)
(Han et al., 2022)	22	ASD vs non-ASD	ECBI	Cohens d	Problem = 0.09 Intensity= 0.18	Small Small	High
(Zlomke & Jeter., 2020)	28	ASD vs non-ASD	ECBI	Cohens d	Intensity= 2.27	Huge	High
(Scudder et al., 2019)	23	ASD vs wait-list control	ECBI	Cohens d	Problem -0.873 Intensity -1.416	Large Very large	High
(Parladé et al., 2020)	36	ASD vs non-ASD	ECBI	Cohens f	Intensity ME time 1.64 Group X time 0.22	Very large Large	High
(Allen et al., 2023)	55	ASD vs non-ASD	ECBI	Cohens d	Intensity 2.04 Problems 1.09	Huge Large	High
(Solomon et al., 2008)	19	ASD vs wait-list control	ECBI	Cohens d	ME group x time Intensity -0.855 Problem -0.916	Large Large	High
(Quetsch et al., 2022)	2,433	ASD vs non-ASD	ECBI	Partial eta squared *	Intensity 0.11 Problem 0.07	Small Medium	High

[a] Cohen' d **(1988)** interpreted as d = .10 (small), d = .50 (medium), d = .80 (large) and d = .1.2 (very large) and d = 2.0 (Sawilosky, 2009)
*Partial eta squared interpreted as η_p^2 = .01 (small), η_p^2 = .06 (medium) and η_p^2 = .14 (large) **(Cohen et al., 2014)**

Conclusions and Recommendation

This review wanted to know if PCIT as a parent implemented intervention was going to have an effect on the negative behaviours of children with autism. To summarise, this review suggests strong evidence for PCIT having a positive effect on negative behaviours of children with autism as all studies received a Weight of Evidence rated 'High'. The primary outcome measurement, ECBI, are parent reported indicating further evidence should be explored looking at observable behaviour from another source different to the care-giver.. All studies were carried out in USA so further research will need to be carried out to explore the generalisation of PCIT on children with autism in the UK. Furthermore, majority of participants were male so conclusions can not be made about whether or not PCIT would be effective for reducing negative behaviours in children with autism who are female although, in Han et al (2022), Zlomke & Jeter, (2020), Scudder et al (2019) no statistical difference was found between genders which suggests PCIT could be effective in male and female children who have autism. This should be further explored as Quetsch et al (2022) revealed a statistically significant difference between child gender $p < 0.001$.

Another recommendation for further research is how PCIT affects behaviour of children with autism at school. This would be helpful in indicating if this parent-led intervention has effects that spread to all areas of the child's life not just home-life with the parent. This lends a suggestion to researchers to recruit from schools who experience high levels of negative behaviour from children with autism as only one study mentioned referral from a teacher but it is not known if that participant met

requirements to be included in the study. Some researchers such as: Gershenson et al (2010) began to look at PCIT being modified for school use and implications of behaviour at school after parent-child dyads having this intervention. It would be helpful to also recruit participants from secondary school to sixth-form age to see is parent-child interaction therapy would be effective for these age group as research for these age ranges are scarce. This sample pool, pending exploration, could provide another effective intervention for parents with children with autism to reduce negative behaviours which educational psychologists could advocate for. PCIT has been adapted to universal teacher child interaction therapy (U-TCIT) to create positive relationships between students and teachers and manage behaviour (Fawley et al., 2020) using the same principles as PCIT. This would be useful for educational psychologists in the UK to train teachers how to improve teacher-child interaction for young people who may be experiencing social, emotional and mental health (SEMH) problems. Although U-TCIT is being deployed as one-to-one intervention it could be further adapted to a whole-school approach so educational staff learn PRIDE skills to promote positive relationships between students and staff which could consequently aid in managing challenging behaviour and support students with SEMH difficulties.

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Masse, J. J., McNeil, C. B., Wagner, S. M., & Chorney, D. B. (2007). Parent-child interaction therapy and high functioning autism: A conceptual overview. *Journal of Early and Intensive Behavior Intervention*, *4*(4), 714–735. APA PsycInfo <2006 to 2007>. https://doi.org/10.1037/h0100402

Masse, J. J., Mcneil, C. B., Wagner, S., & Quetsch, L. B. (2016). Examining the Efficacy of Parent-Child Interaction Therapy with Children on the Autism Spectrum. *Journal of Child and Family Studies*, *25*(8), 2508–2525. ProQuest Central; Social Science Premium Collection. https://doi.org/10.1007/s10826-016-0424-7

Matano, M., Monden, Y., Kurane, K., Kawasaki, M., & Kamo, T. (2021). Potential of internet-delivered PCIT for ASD in the COVID-19 era: A pilot study. *Pediatrics International*. Coronavirus Research Database. https://doi.org/10.1111/ped.14699

McInnis, P., Kohlhoff, J., & Eapen Valsamma. (2020). Real-world Outcomes of PCIT for Children at Risk of Autism or Developmental Delay. *Journal of Child and Family Studies*, *29*(6), 1701–1711. ProQuest Central; Social Science Premium Collection. https://doi.org/10.1007/s10826-020-01699-0

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Parladé, M. V., Weinstein, A., Garcia, D., Rowley, A. M., Ginn, N. C., & Jent, J. F. (2020). Parent-Child Interaction Therapy for Children with Autism Spectrum Disorder and a Matched Case-Control Sample. *Autism: The International Journal of Research and Practice*, *24*(1), 160–176. Social Science Premium Collection. https://doi.org/10.1177/1362361319855851

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Scudder, A., Wong, C., Ober, N., Hoffman, M., Toscolani, J., & Handen, B. L. (2019). Parent-child interaction therapy (PCIT) in young children with autism spectrum disorder. *Child & Family Behavior Therapy*, *41*(4), 201–220. https://doi.org/10.1080/07317107.2019.1659542

Serchuk, M., Phan, J., Mehrtens, I., & Young, M. (2021). *Research in Brief: Examining the Importance of Child-Directed Interaction (CDI) and the use of PRIDE Skills for Treatment of Disruptive Behavior Disorders*.

Smith, T. (2014). Safe utilization of a holding chair in short-term parent training to reduce high-risk behaviors: Commentary on Lesack et al. (2013). *Clinical Practice in Pediatric Psychology*, *2*(1), 83–85. https://doi.org/10.1037/cpp0000049

Sofronoff, K., & Farbotko, M. (2002). The effectiveness of parent management training to increase self-efficacy in parents of children with Asperger syndrome. *Autism*, *6*(3), 271–286. https://doi.org/10.1177/1362361302006003005

Solomon, M., Ono, M., Timmer, S., & Goodlin-jones, B. (2008). The Effectiveness of Parent-Child Interaction Therapy for Families of Children on the Autism Spectrum. *Journal of Autism and Developmental Disorders*, *38*(9), 1767–1776. ProQuest Central; Social Science Premium Collection. https://doi.org/10.1007/s10803-008-0567-5

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Vess, S. F., & Campbell, J. M. (2022). Parent–child interaction therapy (PCIT) with families of children with autism spectrum disorder. *Autism & Developmental Language Impairments*, *7*. ProQuest Central; Social Science Premium Collection. https://doi.org/10.1177/23969415221140707

Zlomke, K. R., & Jeter, K. (2020). Comparative Effectiveness of Parent–Child Interaction Therapy for Children with and Without Autism Spectrum Disorder. *Journal of Autism and Developmental Disorders*, *50*(6), 2041–2052. ProQuest Central; Social Science Premium Collection. https://doi.org/10.1007/s10803-019-03960-y

Zlomke, K. R., PhD, Jeter, K., MS, & Murphy, J., MS. (2017). Open-Trial Pilot of Parent-Child Interaction Therapy for Children With Autism Spectrum Disorder. *Child & Family Behavior Therapy*, *39*(1), 1–18. ProQuest Central; Social Science Premium Collection. https://doi.org/10.1080/07317107.2016.1267999

Appendices

Appendix A: Rationale for exclusion of studies at full text screening:

Excluded studies	Rationale for exclusion
Zlomke, K. R., Bauman, S., & Edwards, G. S. (2019). An Exploratory Study of the Utility of the Dyadic Parent-Child Interaction Coding System for Children with Autism Spectrum Disorder. *Journal of Developmental and Physical Disabilities*, *31*(4), 501–518. ProQuest Central; Social Science Premium Collection. https://doi.org/10.1007/s10882-018-9648-3	Outcome measurement: Did not match with the intentions of the review. Study aimed to measure reliability of dyadic coding system in PCIT
Agazzi, H., Tan, S. Y., Ogg, J., Armstrong, K., & Kirby, R. S. (2017). Does Parent-Child Interaction Therapy Reduce Maternal Stress, Anxiety, and Depression Among Mothers of Children with Autism Spectrum Disorder? *Child & Family Behavior Therapy*, *39*(4), 283–303. https://doi.org/10.1080/07317107.2017.1375622	Study design: Study did not have a control group design and did not have pre and post conditions measures of child outcomes
Masse, J. J., McNeil, C. B., Wagner, S., & Quetsch, L. B. (2016). Examining the efficacy of parent–child interaction therapy with children on the autism spectrum. *Journal of Child and Family Studies*, *25*, 2508-2525 ProQuest Central; Social Science Premium Collection. https://doi.org/10.1007/s10826-016-0424-7	Study design: Study did not have a control group. Used case study design
Ros, R., & Graziano, P. A. (2019). Group PCIT for preschoolers with autism spectrum disorder and externalizing behavior problems. *Journal of Child and Family Studies*, *28*, 1294-1303. ProQuest Central; Social Science Premium Collection. https://doi.org/10.1007/s10826-019-01358-z	Study design: Study did not have a control group design and did not have pre and post conditions measures of child outcomes
Zlomke, K. R., Jeter, K., & Murphy, J. (2017). Open-trial pilot of parent-child interaction therapy for children with autism spectrum disorder. *Child & Family Behavior Therapy*, *39*(1), 1-18. ProQuest Central; Social Science Premium Collection. https://doi.org/10.1080/07317107.2016.1267999	Study design: Study did not have a control group
Vess, S. F., & Campbell, J. M. (2022). Parent–child interaction therapy (PCIT) with families of children with autism spectrum disorder. *Autism & Developmental Language Impairments*, *7*, 23969415221140707. ProQuest Central; Social Science Premium Collection. https://doi.org/10.1177/23969415221140707	Study design: Study did not have control group Used single subject multiple probe design

Lesack, R., Bearss, K., Celano, M., & Sharp, W. G. (2014). Parent–Child Interaction Therapy and autism spectrum disorder: Adaptations with a child with severe developmental delays. *Clinical Practice in Pediatric Psychology*, *2*(1), 68. https://doi.org/10.1037/cpp0000047	Study design: Study did not have a control group design and did not have pre and post conditions measures of child outcomes
Masse, J. J., McNeil, C. B., Wagner, S. M., & Chorney, D. B. (2007). Parent-child interaction therapy and high functioning autism: A conceptual overview. *Journal of Early and Intensive Behavior Intervention*, *4*(4), 714. https://doi.org/10.1037/h0100402 (Masse et al., 2007)	Study design: Study did not have a control group. Used case study design
Matano, M., Monden, Y., Kurane, K., Kawasaki, M., & Kamo, T. (2022). Potential of internet-delivered PCIT for ASD in the COVID-19 era: A pilot study. *Pediatrics International*, *64*(1). Coronavirus Research Database. https://doi.org/10.1111/ped.14699 (Matano et al., 2021)	Study design: Study did not have a control group. Used case study design
McInnis, P., Kohlhoff, J., & Eapen, V. (2020). Real-world outcomes of PCIT for children at risk of autism or developmental delay. *Journal of Child and Family Studies*, *29*, 1701-1711. ProQuest Central; Social Science Premium Collection. https://doi.org/10.1007/s10826-020-01699-0	Intervention: Did not complete PCIT phase 1 and 2
Smith, T. (2014). Safe utilization of a holding chair in short-term parent training to reduce high-risk behaviors: Commentary on Lesack et al.(2013). https://doi.org/10.1037/cpp0000049	Intervention: Study did not use Parent-child interaction therapy. Used another parent training intervention
Sofronoff, K., & Farbotko, M. (2002). The effectiveness of parent management training to increase self-efficacy in parents of children with Asperger syndrome. *Autism*, *6*(3), 271-286. https://doi.org/10.1177/1362361302006003005	Intervention: Study did not use Parent-child interaction therapy. Used another parent training intervention

Appendix B

Mapping table

Authors	**Study design**	**Sample size, age range and location**	**Characteristics of participants**			**Measurement of child externalising behaviour**	**Summary of outcome**
			Gender	Ethnicity	ASD diagnosis by		
(Han et al., 2022)	Non-randomised with control group	22 dyads, 2-8 years old, USA	45% female 55% male	95% Caucasian	Licensed psychologist, psychiatrist or developmental paediatrician	Eyberg child behaviour inventory (ECBI) X Child compliance	Outcomes for ECBI groups were not statistically different but both groups had a large difference in pre to post improvements of scores with large effect sizes. Outcomes for child compliance did not reach statistical significance but have large effect sizes in the direction of greater compliance in the ASD group. This suggests PCIT is effective in reducing negative behaviours for children who have ASD and compliance
(Zlomke & Jeter, 2020)	Non-randomised with control group	28 dyads, 2-8 years old, USA	71%male	67.9% Caucasian, 10.7% African American, 7.1% Hispanic, 14.3% other	Previous data from University. Gilliam Autism Rating Scale (GARS-2) carried out to confirm diagnosis.	Eyberg child behaviour inventory (ECBI) & Behaviour assessment system for child (BASC-2)	Outcomes for the EBCI shows significant main effect for time but not when interaction was analysed between group x time for the intensity subscale. The BASC shows that there was a significant effect for within and between groups on all subscales which shows that PCIT reduces ASD typical behaviours and general negative externalising behaviours
(Scudder et al., 2019)	Randomised (stratified), wait-list control	23 dyads, 2-7 years old, USA	11.5% Female	89.5% Caucasian 5.3% African-American 5.3% Asian	Met ASD criteria based on Autism Diagnostic Observation Schedule-2 (Lord et al., 2012) and	Eyberg child behaviour inventory (ECBI) Social Responsiveness Scale-2 (SRS-2)	Outcomes for ECBI show significant effect for group x time interaction suggesting the intervention group had a greater decrease in Intensity score from pre to post scores. For problem scale the group x time interaction was not statistically significant although in the right direction. Scores from SRS-2 were not statistically significant but also in the right direction with large effect size.

					DSM-5 criteria (American Psychiatric Association, 2013) conducted during the screening session.		
(Parladé et al., 2020)	Non-randomised with control	36 dyads, 3-7years old, USA	100% male	75% Caucasian	Clinical diagnosis according to DSM-5 or DSM-IV-TR. Met ASD criteria based on Autism Diagnostic Observation Schedule-2 (Lord et al., 2012)	Eyberg child behaviour inventory (ECBI) Behavior Assessment System for Children, Second Edition, Parent Rating Scale (BASC-2 PRS) Social Responsiveness Scale-2 (SRS-2)	Outcomes for ECBI intensity score had a statistically significant time effect suggesting children in both groups showed less intensity in negative behaviour. For the BASC-2 there was a significant time effect both groups again. Over all this suggests that in both groups over time negative behaviours reduced after taking part in PCIT. Scores from the SRS-2 had a total significant effect and likewise on the BASDC adaptive scales which suggests PCIT may be effective in reducing autistic related behaviours.
(Allen et al., 2023)	Randomised control group (wait list)	55 dyads, 4-10years old, USA	85.5% Male	65.5% White, 16.4% Black, 9.1% Latinx, 9.1% Other	Diagnosed by health professional and confirmed with Child Autism Rating Scale (CARS)	Eyberg child behaviour inventory (ECBI) Behavior Assessment System for Children, Second Edition, Parent Rating Scale (BASC-2 PRS)	PCIT showed to have a statistically significant impact on externalised behaviours according to ECBI problems and intensity score for both groups ASD and non-ASD. Likewise, for BASC-2.

(Solomon et al., 2008)	Wait-list control design	19 dyads, 5-12years old, USA	100% male	No data	Met criteria for autism according to DSM-IV-TR, ADOS-G, ADI-R	Eyberg child behaviour inventory (ECBI) Behaviour Assessment System for Children, Second Edition, Parent Rating Scale (BASC-2 PRS)	A statistically significant main effect of time and group X time interaction was found for EBCI problem score. There was no significance for group x time effect for the intensity score but there was significance for time which suggests PCIT is effective at reducing externalising behaviours in children with ASD. There was no significant group x time interaction effect however the mean score from pre to post treatment were significant
(Quetsch et al., 2022)	Non-randomised with control group	2.433 dyads, 4-7 years old, USA	62.5% male	45.5% White 7.5% Hispanic 1.6% Black 0.4%Asian/pacific islander 42.1% Unknown American Indian/alaskative native 2 Unknown 37	Diagnosis identified from billing records	Eyberg child behaviour inventory (ECBI)	There was a significant effect on all groups which shows a decrease in reported disruptive behaviour. Significant effects on within-group time were found in ECBI intensity with no group X time interaction found. The problem scale yielded a significant effect for time but similarly no group X time effect

Appendix C: Weight of Evidence A

In this review the APA Kratochwill protocol (2003) was used to weigh the methodology of each study. Below in table 1 you will find the rationale for modifications to the protocol, as only what was relevant to the weight of Evidence A was used.

Table 1

Amendments made to Kratochwill (2003) Coding protocol

Sections	**Sections removed/modified**	**Rationale**
General Study Characteristics	A1 – A5	Discussed in literature review
Data Analysis	Section modified C1-C3 C7-C9	Data described in literature review and some information is reporting in the Mapping the field table. Secondary outcomes are not relevant to review question.
Research Methodology	Whole section removed	Stated in Mapping of Fields table
Measurement	Section modified B4 – B7	Data added within literature review
Primary/Secondary Outcomes are	D1 – D6	Primary outcomes are discussed in literature review. Secondary outcomes are not applicable to

		review question as children outcomes are being looked at
Statistically Significance	E, F, G & H	Discussed in literature review and section H not relevant to review of methodological quality
Implementation Fidelity	J4.1-J4.12	Review of an evidence-based intervention that has a manualised approach
Implementation fidelity context	K & L	Review of an evidence-based intervention that has a manualised approach that must be implemented by a qualified practitioner trained in the intervention. Discussed in literature review.

Appendix D: Kratochwill (2003) Coding protocol Weight of Evidence A

Adapted from the Procedural Manual of the Task Force on Evidence-Based Interventions in School Psychology, American Psychology Association, Kratochwill, T.R. (2003)]

Coding Protocol

Date: ____12/02/2023_____

Full Study Reference in proper format: Paper 1

Han, R. C., Naguib, S., Owen, C. K., Druskin, L. R., Keen, K. R., Piper, R., Holbert, S. N., Shank, S. D., Victory, E. J., & McNeil, C. B. (2022). An Effectiveness Trial of PCIT for Children with and without Autism Spectrum Disorder in a Private Practice Setting. *Evidence-Based Practice in Child & Adolescent Mental Health*, *7*(1), 125–141. Child Development & Adolescent Studies. https://doi.org/10.1080/23794925.2021.1993109

Intervention Name: Parent-child Interaction therapy

Study ID Number: https://doi.org/10.1080/23794925.2021.1993109

☐ Type of Publication:
☐ Book/Monograph
☒ Journal Article
☐ Book Chapter
☐ Other (specify):

1. **General Characteristics**

A. General Design Characteristics

A1. Random assignment designs (if random assignment design, select one of the following)

☐ Completely randomized design

☐ Randomized block design (between participants, e.g., matched classrooms)

☐ Randomized block design (within participants)

☐ Randomized hierarchical design (nested treatments

A2. Nonrandomized designs (if non-random assignment design, select one of the following)

☐ Nonrandomized design

☒ Nonrandomized block design (between participants)

☐ Nonrandomized block design (within participants)

☐ Nonrandomized hierarchical design

☐ Optional coding for Quasi-experimental designs

A3. Overall confidence of judgment on how participants were assigned (select one of the following)

☐ Very low (little basis)

☐ Low (guess)

☐ Moderate (weak inference)

☐ High (strong inference)

☒ Very high (explicitly stated)

☐ N/A

☐ Unknown/unable to code

B. Participants

Total size of sample (start of study): __22____

Intervention group sample size: ___11____

Control group sample size: ____11____

C. Type of Program

☐ Universal prevention program
☐ Selective prevention program
☐ Targeted prevention program
☒ Intervention/Treatment
☐ Unknown

D. Stage of Program

☐ Model/demonstration programs
☐ Early stage programs
☒ Established/institutionalized programs
☐ Unknown

E. Concurrent or Historical Intervention Exposure

☒ Current exposure
☐ Prior exposure
☐ Unknown

2. Key Features for Coding Studies and Rating Level of Evidence/Support

(Rating Scale: 3= Strong Evidence, 2=Promising Evidence, 1=Weak Evidence, 0=No Evidence)

A. Measurement (Estimating the quality of the measures used to establish effects)

A1 The use of the outcome measures produce reliable scores for the majority of the primary outcomes

☒Yes

☐No

☐Unknown/unable to code

A2 Multi-method (at least two assessment methods used)

☒ Yes

☐ No

☐ N/A

☐ Unknown/unable to code

A3 Multi-source (at least two sources used self-reports, teachers etc.)

☒ Yes

☐ No

☐ N/A

☐ Unknown/unable to code

A4 Validity of measures reported (well-known or standardized or norm-referenced are considered good, consider any cultural considerations)

☒ Yes validated with specific target group

☐ In part, validated for general population only

☐ No

☐ Unknown/unable to code

Overall Rating for measurement__3_

3= Strong Evidence 2=Promising Evidence 1=Weak Evidence 0=No Evidence

B. Comparison Group

B1 Type of Comparison Group (Select one of the following)

- ☒ Typical intervention (typical intervention for that setting, without additions that make up the intervention being evaluated)
- ☐ Attention placebo
- ☐ Intervention element placebo
- ☐ Alternative intervention
- ☐ Pharmacotherapy
- ☐ No intervention
- ☐ Wait list/delayed intervention
- ☐ Minimal contact
- ☐ Unable to identify type of comparison

B2 Overall confidence of judgment on type of comparison group

- ☐ Very low (little basis)
- ☐ Low (guess)
- ☐ Moderate (weak inference)
- ☐ High (strong inference)
- ☒ Very high (explicitly stated)
- ☐ Unable to identify comparison group

B3 Counterbalancing of change agent (participants who receive intervention from a single therapist/teacher etc were counter-balanced across intervention)

☐ By change agent

☐ Statistical (analyse includes a test for intervention)

☒ Other

☐ Not reported/None

B4 Group equivalence established (select one of the following)

☐ Random assignment

☒ Posthoc matched set

☐ Statistical matching

☐ Post hoc test for group equivalence

B5 Equivalent mortality

☒ Low attrition (less than 20 % for post)

☒ Low attrition (less than 30% for follow-up)

☐ Intent to intervene analysis carried out?

Finding: no statistic differences between group

Overall rating for Comparison group _3___

3= Strong Evidence 2=Promising Evidence 1=Weak Evidence 0=No Evidence

C. Appropriate Statistical Analysis

Analysis 1__ Eyberg child behaviour inventory_(ECBI)_____

☒ Appropriate unit of analysis

☒ Familywise/experimenter wise error rate controlled when applicable

☐ Sufficiently large N

Overall rating for Statistical Analysis __2__

3= Strong Evidence 2=Promising Evidence 1=Weak Evidence 0=No Evidence

D. Implementation Fidelity

D1. Evidence of Acceptable Adherence (answer J1.1 through J1.3)

D1.1 ☒Ongoing supervision/consultation

D1.2 ☐Coding intervention sessions/lessons or procedures

D1.3 ☐Audio/video tape implementation (select J1.3.1 or J1.3.2):

J1.3.1 ☒ Entire intervention

J1.3.2 ☐Part of intervention

D2. Manualization (select all that apply)

D2.1 ☐Written material involving a detailed account of the exact procedures and the

sequence in which they are to be used

D2.2 ☒Formal training session that includes a detailed account of the exact

procedures and the sequence in which they are to be used

D2.3 ☒Written material involving an overview of broad principles and a description of

the intervention phases

D2.4 ☒Formal or informal training session involving an overview of broad principles

and a description of the intervention phases

D3. Adaptation procedures are specified (select one) ☐yes ☒no ☐unknown

Rating for Implementation Fidelity (select 0, 1, 2, or 3): ☒3 ☐2 ☐1 ☐0

Summary of Evidence

Indicator	**Overall evidence rating 0-3**	**Description of evidence Strong Promising Weak No/limited evidence Or Descriptive ratings**
General Characteristics		
Design		Promising
Type of programme		Strong
Stage of programme		Strong
Concurrent/ historical intervention exposure		Promising
Key features		
Measurement	3	strong
Comparison group	3	Strong
Appropriate Statistical Analysis	2	promising
Implementation fidelity	3	Strong

Appendix E: Weight of Evidence A

- Below you will find the criteria, ratings and rationale for Weight of Evidence A, all of which has been used from Kratochwill (2003) protocol and adapted for relevance to this review question. Table 1.1 is the rationale and ratings for key features of each study
- Table 1.2 is the breakdown of ratings given to each study on one table
- Table 1.3 is the WoE A average rating scores

Table 1.1

WoE A: Rationale and ratings. Studies must meet all the criteria in each rating to achieve that ratings.

Key features	Rating	Rationale
Measurement	3 (High)	- Reliability coefficient of .85 or higher - Data collected using multiple methods, and collected from multiple sources - measures used to assess primary outcomes
	2 (Medium)	- Reliability coefficient of .7 or higher - Multiple measurement sources OR Multiple measurement methods used
	1 (Low)	- Reliability coefficient of .5 or higher - One source or one method of data is used
Comparison group	3 (High)	- One type of "active" comparison group - Group equivalency must be established - Change agents were counterbalanced - Must meet the criteria for equivalent mortality and low attrition at post
	2 (Medium)	- A "no intervention group" type of comparison must have been used - Evidence for at least two: (1) counterbalancing of change agents, (2) group equivalence established, or (3) equivalent mortality with low attrition.
	1 (Low)	- Evidence for at least one : (1) counterbalancing of change agents, (2) group equivalence established, or (3) equivalent mortality with low attrition
Appropriate statistical analysis	3 (High)	- statistical analysis must have been conducted with appropriate units of analysis - must show significant primary outcomes for at least 75% of the total primary outcome measures

		- Measured outcomes must also reflect a moderate effect size
	2 (Medium)	- statistical analysis must have been conducted with appropriate units of analysis - must show significant and primary outcomes for at least 50% to 74% of the total primary outcome measures
	1 (Low)	- statistical analysis must have been conducted with appropriate units of analysis - must show significant and primary outcomes for between 25% and 49% of the total primary outcome measures
Implementing Fidelity	3 (High)	- at least two of the following: ongoing supervision/consultation, coding sessions, or audio/video tapes, and use of a manual. - Information must have been provided to the implementers using either: (1) written materials involving a detailed account of the exact procedures and the sequence in which they are to be used or (2) a formal training session that includes a detailed account of the exact procedures and the sequence in which they are to be used.
	2 (Medium)	- Evidence that acceptable adherence was followed - At least one of the following used: (1) written materials involving an overview of broad principles and a description of the intervention phases, or (2) a formal or informal training session involving an overview of broad principles and a description of the intervention phases.
	1 (Low)	- Evidence of acceptable adherence measured - At least one of the above criteria or use of a manual.

Table 1.2

WoE A: Ratings given from Kratochwill (2003) coding protocol

Study	Measures	Comparison	Analysis	Fidelity	Overall weight
Han et al., 2022	3	3	3	2	2.75 (High)
Zlomke & Jeter., 2020	3	3	2	3	2.75 (High)
Scudder et al., 2019	3	2	2	3	2.5 (High)
Parladé et al., 2020	3	3	3	3	3 (High)
Allen et al., 2022	2	2	2	3	2.25 (Medium)

Solomon et al., 2008	2	3	3	3	2.75 (High)
Quetsch et al., 2022	3	2	3	2	2.5 (High)

Table 1.3*WoE A: Overall score range*

Quality descriptors	Average score
High	≥ 2.5
Medium	1.5 – 2.4
Low	≤ 1.4

Appendix F: Weight of Evidence B

In this section you will find the criteria, rational and ratings for Weight of Evidence B according to the hierarchy of evidence (Petticrew, 2003). This will give an indication of the appropriateness of study design used by each study (Gough, 2007).

- Table 1.1 is the evidence hierarchy of method design and their ratings according to Petticrew (2003)
- Table 1.2 is the criteria and rational used to give ratings
- Table 1.3 is the Weight of Evidence B given to studies

Table 1.1

WoE B: Evidence of hierarchy and ratings

Method design	WoE B rating
Randomised control - **Pre & post test data collection** - **Control group**	High (3)
Quasi-experimental - **Pre & post test data collection** - **Non-randomised** - **Control group**	Medium (2)
Non-experimental - **No pre & post condition** - **Single-variable research** - **Correlational** - **Qualitative studies** - **No control group**	Low (1)

Table 1.2

WoE B: Criteria and rational used to give ratings to studies

	Criteria	Rating	Rationale
Type of design	Randomised control design	3	According to Petticrew (2003) design types have a hierarchal order to evaluate which design types are superior for measuring "effectiveness" in a study
	Quasi Experimental design	2	
	Non-experimental design	1	

Table 1.3

WoE B: Overall Rating

Studies	**Design method**	**WoE B rating**
Han et al., 2022	Non-randomised with control group	Medium (2)
Zlomke & Jeter., 2020	Non-randomised with control group	Medium (2)
Scudder et al., 2019	Randomised (stratified), wait-list control	High (3)
Parladé et al., 2020	Non-randomised with control group	Medium (2)
Allen et al., 2022	Randomised control group (wait list)	High (3)
Solomon et al., 2008	Randomised control group (wait-list)	High (3)
Quetsch et al., 2022	Non-randomised with control group	Medium (2)

Appendix G: Weight of Evidence C

Below you will find the criteria, rationale and ratings given for Weight of Evidence C as described by Gough (2007) This will give an overall judgement on the relevance of evidence for the specific review question.

- Table 1.1 is the criteria and rational used to give a rating to each study based on some review question characteristics
- Table 1.2 is the average Weight of Evidence C rating given to studies
- Table 1.3 is the overall score range

Table 1.1

WoE C: Criteria and rationale

Review question characteristics	**Criteria**	**Rationale**
Diagnosis of ASD	3 – Diagnosis given by professional according to DSM-5 2 – Diagnosis given according to Autism rating scale 1 – No official diagnosis for ASD	Focus of study is looking at the effectiveness of PCIT on children with Autism in particular.
Delivery of intervention	3 – Delivered by professionals trained to deliver PCIT and has supervision during the intervention 2 – Delivered by professionals trained to deliver PCIT but had no supervision during the intervention 3 - Professional not trained in PCIT delivering intervention	Delivery of intervention to ensure fidelity should be conducted by a trained professional who is qualified in PCIT training. Supervision during delivery of PCIT reduces differences in delivery of intervention from different professionals
PCIT intervention	3 – Follows manualised PCIT protocol with no deference 2 – Follows manualised PCIT protocol with some adaptation 3- Does not follow manualised PCIT protocol	Study reports the how PCIT is delivered and if there is any modification
Outcome measure	3 – Child outcomes for externalised behaviour is the focus of study	This study is focusing on the child outcomes of the parent-child participating in PCIT

	2 – Child outcomes not relevant to negative behaviour measured e.g. socialness 1 – Outcomes measuring negative child behaviour not measured
	0 – if nothing reported on the matter

Table 1.2

WoE C: Ratings given

Studies	**Review question characteristic rating**				**Overall Rating for WoE C**
	Diagnosis of ASD	Delivery of intervention	PCIT intervention	Outcome measure	
Han et al, 2022	3	3	3	3	3 (High)
Zlomke &Jeter., 2020	2	3	3	3	3 (High)
Scudder et al., 2019	3	3	3	3	3 (High)
Parladé et al., 2020	3	3	3	3	3 (High)
Allen et al., 2022	3	3	3	3	3 (High)
Solomon et al., 2008	3	3	2	3	2.75 (High)
Quetsch et al., 2022	3	3	3	3	3 (High)

Table 1.3

WoE C: Overall rating range

Quality descriptors	**Average score**
High	≥ 2.5
Medium	1.5 – 2.4
Low	≤ 1.4