Development and Psychopathology (2026), 1–20
doi:10.1017/S0954579426101850

CAMBRIDGE UNIVERSITY PRESS

Reviews

Efficacy and effectiveness of parent training program as a transdiagnostic intervention: A meta-analysis of its impact on internalizing and externalizing problems in children

Seo-Hui Lee, Seol-Hye Yoo, Yu-Na Kim and Jung-Kwang Ahn
Chungbuk National University, Republic of Korea

Abstract

Parent training programs (PTPs) aim to improve parenting skills and reduce children's behavioral and emotional problems. Given that recent research has extended PTPs' application from externalizing difficulties to internalizing symptoms – problem domains that frequently overlap in children – evaluating their effects together can clarify PTPs' broader impact. This meta-analysis synthesized findings from 34 randomized controlled trials involving children aged 3–12 years to examine the efficacy of PTPs and identify factors influencing treatment outcomes. Across studies, PTPs significantly reduced both internalizing ($g = 0.28$) and externalizing ($g = 0.37$) problems, yielding effect sizes comparable to those reported in prior parent training research. Importantly, PTPs also demonstrated significant cross-domain effects, indicating that programs targeting externalizing problems may also reduce internalizing problems, and vice versa. Moderator analyses indicated that only children's clinical diagnoses significantly predicted externalizing outcomes. These findings suggest that PTPs may be implemented flexibly across varying delivery conditions. Despite small overall effects, heterogeneity, and publication bias, the findings support the effectiveness and adaptability of PTPs. Future research should employ mechanism-informed, scalable designs to enhance accessibility and optimize treatment efficiency.

Keywords: child psychopathology; externalizing problem; internalizing problem; meta-analysis; parent training program

(Received 20 December 2025 UTC; revised 9 July 2026 UTC; accepted 10 July 2026 UTC)

Parent training as an effective treatment for psychopathology in children

Parenting is a critical skill, and parent training programs (PTPs) have served various purposes for decades. Although underpinned by different theoretical models, all PTPs share the common goal of addressing children's problematic behavior, primarily by enhancing parenting skills through structured curricula and manuals (traditional: Dreikurs & Grey, 1970; psychodynamic: Marvin et al., 2002; humanistic: Gordon, 1970; behavioral: Kazdin et al., 1990; Patterson et al., 2016; mindful parenting approach: Bögels et al., 2014). PTPs aim to help caregivers deal effectively with children's problems by successfully changing their parenting behaviors and attitudes toward children (Rapee et al., 2005; Santacruz et al., 2006).

PTPs are generally implemented to prevent or reduce externalizing problems in children (Ansar et al., 2022; Beelmann et al., 2023; Helander et al., 2024; Mingebach et al., 2018) that often increase parental stress and negatively affect parent–child interactions. PTPs have been shown to alleviate aggression and rule-breaking behaviors (Ansar et al., 2022), antisocial behaviors (e.g., aggression, violence, and delinquency; Beelmann et al., 2023), and behavioral problems related to attention-deficit/hyperactivity disorder, with effects that are maintained in the long term (Doffer et al., 2023).

Although less extensively studied than in externalizing disorders, PTPs also address internalizing problems in children (Bloss et al., 2022; Buchanan-Pascall et al., 2018; Jewell et al., 2022). Some systematic reviews and meta-analyses suggest that PTPs effectively reduce internalizing symptoms (Bloss et al., 2022; Yap et al., 2016; Zarakoviti et al., 2021), whereas others argue that such effects have not been consistently identified (Ansar et al., 2022; Buchanan-Pascall et al., 2018).

Despite mixed findings, examining both externalizing and internalizing problems is crucial because psychological issues in children are often less differentiated than in adults, as symptom manifestations and boundaries between domains are blurred (Cicchetti & Rogosch, 2002; Ghizzoni et al., 2025). Furthermore, children with externalizing symptoms are at high risk of developing internalizing symptoms (Polier et al., 2012; Stalk et al., 2015), and nearly half of those with one disorder have a comorbid condition, often including internalizing problems (Egger & Angold, 2006; Patterson & Capaldi, 1990; Wichstrøm et al., 2012). Given this intertwining of externalizing and internalizing domains, it is important to investigate whether PTPs produce transdiagnostic benefits across both emotional and behavioral problems in children.

Corresponding author: Jung-Kwang Ahn; Email: jkahn@cbnu.ac.kr
Cite this article: Lee, S-H, Yoo, S-H, Kim, Y-N, & Ahn, J-K. (2026). Efficacy and effectiveness of parent training program as a transdiagnostic intervention: A meta-analysis of its impact on internalizing and externalizing problems in children. *Development and Psychopathology*, 1–20, https://doi.org/10.1017/S0954579426101850

© The Author(s), 2026. Published by Cambridge University Press. This is an Open Access article, distributed under the terms of the Creative Commons Attribution licence (https://creativecommons.org/licenses/by/4.0/), which permits unrestricted re-use, distribution and reproduction, provided the original article is properly cited.

https://doi.org/10.1017/S0954579426101850 Published online by Cambridge University Press

Previous studies have validated the effects of PTPs on both internalizing and externalizing problems in children (Ansar et al., 2022; Caiado et al., 2022; Canário et al., 2025; Evans et al., 2020), and reviews have examined their effects on internalizing problems among children with and without externalizing symptoms (Bloss et al., 2022; Buchanan-Pascall et al., 2018; Schleider & Weisz, 2017; Wergeland et al., 2021; Yap & Jorm, 2015; Yap et al., 2014, 2016; Zarakoviti et al., 2021). These findings are in line with recent clinical trends such as the transdiagnostic approach, which emphasizes unified treatments that address diverse symptoms across diagnostic categories (Forbes et al., 2024; Sawrikar et al., 2022; Schaeuffele et al., 2021). From this standpoint, adopting a transdiagnostic perspective that captures the shared mechanisms underlying symptom domains may be particularly useful for understanding and treating child psychopathology. PTPs primarily seek to modify everyday parenting practices that shape children's emotional and behavioral development (e.g., supportive responses to children's emotions, consistent limit-setting). Changes in these caregiving patterns may therefore contribute to improvements across both internalizing and externalizing problems (Kazdin, 1997; Morris et al., 2007). Building on prior evidence that PTPs can reduce symptoms in both domains, we regarded them as transdiagnostic interventions and included studies that either (a) targeted both internalizing and externalizing problems or (b) focused primarily on one domain but reported outcomes for the other. We further examined whether interventions originally developed for one domain could yield improvements across domains, thereby evaluating their transdiagnostic potential. To this end, we categorized studies based on their primary target (internalizing or externalizing) as reported by the original authors.

Given that transdiagnostic models conceptualize psychopathology along continua rather than categorical diagnoses, dimensional frameworks such as the Hierarchical Taxonomy of Psychopathology (HiTOP; Kotov et al., 2017) are particularly relevant to this perspective. Accordingly, the HiTOP framework was applied to define the internalizing and externalizing spectra and guide the inclusion of representative disorders within each domain. To maintain conceptual coherence, disorders typically classified within these spectra (e.g., anxiety, depression, conduct problems, ADHD, etc.) were included, and neurodevelopmental disorders primarily associated with cognitive or intellectual impairments (e.g., autism spectrum disorder, intellectual disability) excluded, since their placement within the HiTOP model remains less established. This framework ensured conceptual clarity and consistency in delineating both domains in children.

Heterogeneity in the effects of PTPs

Although PTPs have demonstrated efficacy across different symptom domains, the findings have been inconsistent. PTPs' effects on children's internalizing and externalizing problems have been reported to differ among studies, and significant heterogeneity in effect sizes has been consistently observed (Bloss et al., 2022; Buchanan-Pascall et al., 2018; Canário et al., 2025; Korest & Carlson, 2022). Several potential moderators have been identified that may account for the heterogeneity in treatment effects: for example, the severity of child behavior (Korest & Carlson, 2022), treatment format (Bloss et al., 2022), and risk of bias (Buchanan-Pascall et al., 2018). Nevertheless, such moderators have not been consistently observed across studies. Therefore, the present study examined potential moderators to better understand the sources of heterogeneity observed across studies. Specifically, we investigated whether the treatment effects of PTPs differ according to several study- and intervention-related factors, including child participation (a factor contributing to variability in outcomes and an indicator of the effectiveness of parent-only interventions), treatment format (e.g., online vs. face-to-face), treatment dosage (i.e., total duration and number of sessions), risk of bias, and whether the participating children had a clinical diagnosis.

The current meta-analysis evaluated the effects of PTPs on both externalizing and internalizing problems in children. The analysis focused on children aged 3–12 years, as this range encompasses early and middle childhood, developmental periods during which parenting practices play a central role in children's emotional and behavioral regulation (National Research Council & Institute of Medicine, 2000). Specifically, we tested the following hypotheses. First, we hypothesized that PTPs would significantly reduce symptoms, regardless of whether the primary target was internalizing or externalizing problems. However, because PTPs were originally developed to address behavioral problems, we anticipated larger effect sizes for externalizing outcomes than for internalizing outcomes. Second, we examined potential moderators to better understand the heterogeneity in treatment effects, including factors such as child participation, treatment format, treatment dosage, primary treatment target, risk of bias, and clinical status of participating children.

Methods

Search strategy

This meta-analysis was preregistered in PROSPERO (CRD42023457373) and followed the PRISMA guidelines (Moher et al., 2009). An electronic search was conducted in April 2025 to identify studies on PTPs for parents of children with internalizing and externalizing problems. All studies published from January 2000 to April 2025 were included. From the 2000s, changing parenting roles and the adoption of evidence-based interventions have led to an increase in systematic reviews on PTPs. Therefore, this meta-analysis examined studies from 2000 onward to better reflect the efficacy and effectiveness of PTPs in contemporary contexts. The databases searched included Cochrane, Embase, Scopus, Medline, OVID, PsycArticles, CINAHL, and Google Scholar. The search terms used were "(child* OR preschool) AND (internali* OR depressi* OR anxiety OR mood dysregulation OR OCD OR panic OR phobia OR Separat* OR dysthymia OR GAD OR MDD OR PTSD) AND (externali* OR behavior* problem OR ODD OR ADHD) NOT (adolesc* OR adult*) AND (parent* program* OR parent* intervent* OR parent* management training OR parent* nurture OR parent* education OR parent* early intervention OR parent* coach*)."

Inclusion and exclusion criteria

This meta-analysis considered studies on parent training program that addressed internalizing or externalizing or both problems in children, or in which parents reported related concerns. Studies were included if they met the following criteria: (a) focused on children aged 3–12 years, omitting studies targeting infants or adolescents because these developmental stages involve distinct intervention targets and developmental processes (National Research Council & Institute of Medicine, 2000). Specifically, adolescence is characterized by increased autonomy and greater salience of peer contexts, which may alter the mechanisms through which PTPs exert their effects (Steinberg & Morris, 2001);

https://doi.org/10.1017/S0954579426101850 Published online by Cambridge University Press

(b) assessed internalizing or externalizing or both problems in children through clinical interviews, standardized measures, or parental reports of concern; (c) implemented and evaluated PTPs; (d) followed a randomized controlled trial (RCT) design, comparing the intervention group with a control group (e.g., waitlist, treatment as usual, or active controls); (e) measured internalizing and externalizing problems in children pre- and post-intervention; and (f) were published in English-language journals. Studies were excluded if (a) the targeted problems or disorders did not align with the patient/problem–intervention–comparison–outcome (PICO) framework (e.g., autism spectrum disorder) and (b) the intervention focused solely on children, excluding parents. To supplement our database search, we screened the reference lists of Bloss et al. (2022) and Buchanan-Pascall et al. (2018); further, to address the limited number of internalizing behavior-focused interventions, Bolton et al.'s (2023) and Yap et al.'s (2016) references were reviewed. This process led to the inclusion of 17 studies that had not been retrieved through the database search. SL, SY, and YK independently selected studies on the basis of these inclusion and exclusion criteria. In cases of disagreement between the authors, JA reviewed the study to resolve the conflict.

Data extraction

Data extraction was completed by SL, SY, and YK, all of whom reviewed the extracted data for completeness and accuracy (i.e., means, standard deviations, the number of treated individuals, and treatment characteristics such as total treatment time). For 27 studies that did not specify the data required for the meta-analysis, we contacted the authors to request the information. Eleven studies were excluded from the final analysis because the required data could not be obtained.

Assessment of study quality: risk of bias

The risk of bias for each study was primarily assessed by a single author using the Cochrane Risk of Bias 2 tool (Higgins et al., 2019). To ensure objectivity, the assessment was cross-checked by two independent investigators who were not involved in this study. In the case of a disagreement between the author and the two independent researchers, JA made the final decision. Each study was evaluated on six domains – "randomization process," "timing of identification or recruitment of participants," "deviations from intended interventions," "missing outcome data," "measurement of the outcome," and "selection of the reported result" – and categorized as "low risk," "some concerns," or "high risk" of bias.

Data items and summary measures

Standardized mean differences were calculated using the R package *metafor*, specifically the *escalc* function (version 3.8-1). Mean differences between the pre- and post-data of the treatment and control groups were divided by the pooled standard deviation of the two groups. The positive bias in the standardized mean difference was automatically corrected within the function, resulting in Hedges' g (Hedges, 1981).

Synthesis of results and meta-analysis

Given that the data included multiple outcome measures, we used robust variance estimation (RVE) for the main analysis to test the first hypothesis, which considered the effects of PTPs on internalizing and externalizing outcomes separately. This method allows for the inclusion of dependent effect sizes in meta-analysis, even when the dependence structure is unknown (Pustejovsky & Tipton, 2022). A correlated-effects working model was employed to estimate the marginal variance-covariance matrix of effect sizes within each study, with the required correlation ρ set at .80 (Fisher et al., 2017). This model was also used to calculate the standard errors of effect sizes, with which we determined the weights of multiple effect sizes and performed significance tests (Hedges et al., 2010; Pustejovsky & Tipton, 2022). Publication bias was evaluated using Egger's test to detect funnel plot asymmetry, and a trim-and-fill procedure was applied when significant bias was detected (Duval & Tweedie, 2000). Additionally, sensitivity analyses were conducted to identify studies that exerted an unusually large influence on the basis of influence diagnostics such as studentized residuals (outlier detection), dffits (influence on model fit), Cook's distance (overall influence of each effect size), and changes in τ^2 and QE when individual effect sizes were removed (impact on heterogeneity).

Regarding testing of the second hypothesis, subgroup analyses were performed to examine differences in treatment effects based on study- and intervention-related factors, including child participation (present vs. absent), delivery mode (face-to-face, online, or hybrid), and risk of bias. In addition, we assessed cross-domain effects by comparing interventions that primarily targeted internalizing rather than externalizing domains. Because only one study targeted internalizing symptoms alone (Özyurt et al., 2019), it was combined with those addressing both domains, yielding a comparison between combined or internalizing behavior-focused and externalizing behavior-focused interventions. Meta-regression analyses were then performed to investigate whether total treatment time and the number of sessions influenced the treatment effects.

All analyses were conducted under a random-effects model using *R* (version 4.3.3; R Foundation for Statistical Computing, Vienna, Austria). The main analyses were performed in RStudio with the *robumeta* package with a small-sample adjustment. Subgroup analyses and meta-regression were conducted using *metafor* and sensitivity analyses with the *meta* package.

Results

Literature search

Figure 1 depicts the PRISMA flow diagram outlining the process of selecting studies to be included in the literature review. Initially, 3,356 records were identified through database searches, of which 198 duplicate records were excluded. After title and abstract screening, 2,751 records were excluded. Consequently, 424 articles were selected for a full-text review. During the full-text review, 390 articles were excluded for not meeting the inclusion and exclusion criteria, and 34 studies were selected for inclusion in this meta-analysis (including 17 studies identified through prior meta-analyses: 11 from Bloss et al., 2022, and 6 from Buchanan-Pascall et al., 2018).

Study characteristics

Tables 1 and 2 summarize the characteristics of the 34 studies included in the meta-analysis. Among these, four studies were conducted in the United States; five in Australia; four in Turkey; three each in the Netherlands, Norway, and Germany; two each in Belgium and the United Kingdom; and one each in Brazil, Denmark, Finland, Ireland, Japan, New Zealand, Switzerland, and Sweden. All studies were designed as RCTs. Most studies compared treatment groups with a waitlist, whereas a few compared them with a control

https://doi.org/10.1017/S0954579426101850 Published online by Cambridge University Press

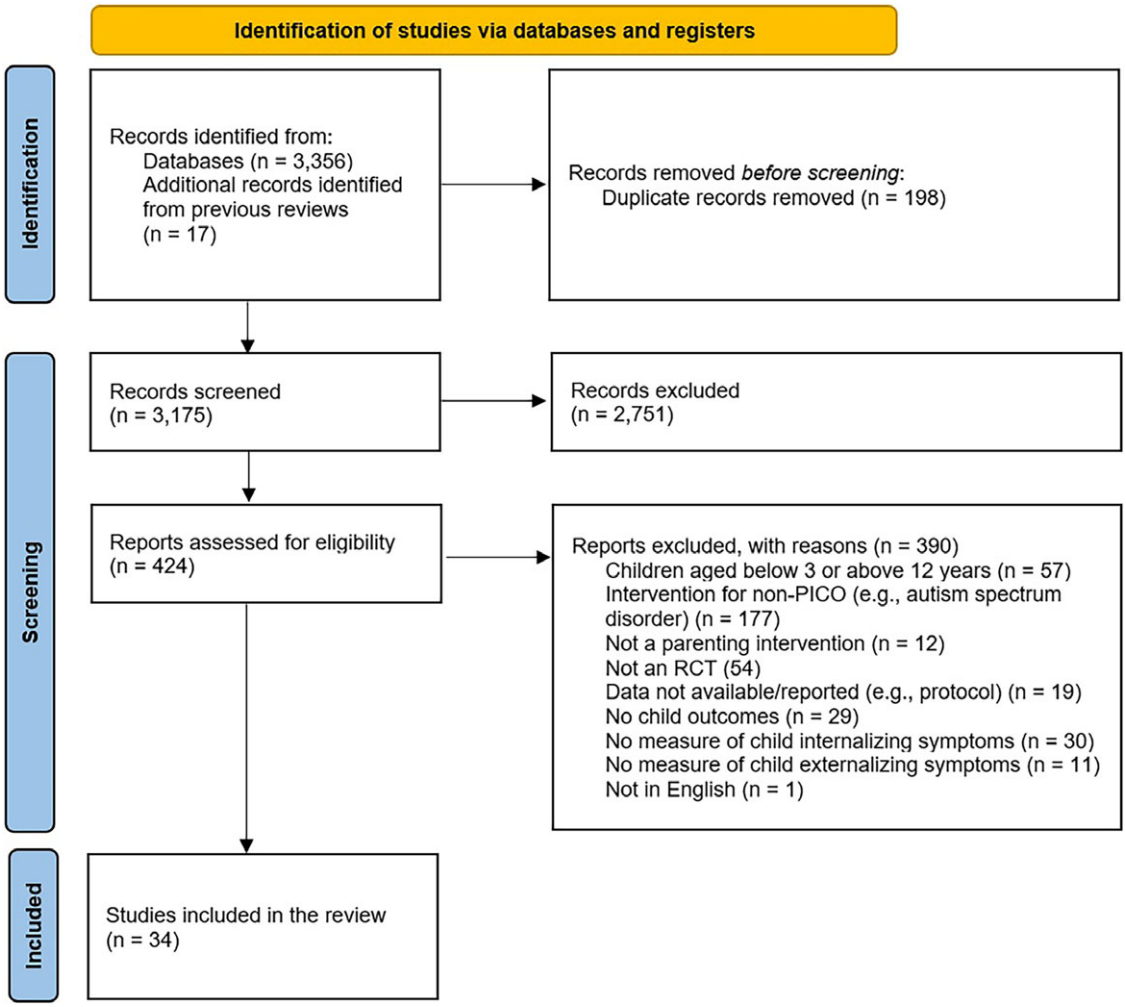


Figure 1. PRISMA flow diagram.

group (e.g., treatment as usual or an education control). All studies included children between the ages of 3 and 12 years. Outcome variables were typically assessed using standardized behavioral measures of children's emotional and behavioral problems, including the Child Behavior Checklist (CBCL), the Eyberg Child Behavior Inventory (ECBI), the Social Competence and Behavior Evaluation scales (SCBE), and the Strengths and Difficulties Questionnaire (SDQ); in some studies, these instruments were also used to identify children within the clinical range. Nine of the 34 PTPs involved parents and children, while the remaining studies included only parents. Moreover, of the 34 PTPs, 10 were individual therapies, 20 were group therapies, and 4 were combined individual and group therapies. Among the 10 individual therapy studies, parents and children visited therapy rooms in three of them; one involved the therapist making home visits, and two were non-face-to-face PTPs wherein parents read a parenting book and the therapist conducted phone consultations. All studies reported the number of weekly treatment sessions, which ranged from 1 to 28. Twenty-six of the 34 studies reported the total treatment time, ranging from 130 minutes to 4,200 minutes.

Risk of bias in studies

According to the risk of bias assessment, 9 studies were rated as low risk, 19 as having some concerns, and 6 as high risk (Figure 2; Table 1). Regarding individual domains, most studies demonstrated low risk in the randomization process, which evaluates whether the allocation sequence was adequately randomized and concealed (17 were low, 14 had some concerns, 3 was high), and in the timing of participant identification or recruitment, which assesses whether participants were identified and recruited prior to randomization (29 were low, 4 had some concerns, 1 was high). Similarly, low risk was observed in the domains assessing deviations from intended interventions, which evaluates participant blinding and adherence to assigned conditions (27 were low, 6 had some concerns, 1 was high), and in missing outcome data, which examines the extent and potential impact of missing data (30 were low, 4 had some concerns). For the measurement of the outcome, which assesses the appropriateness of outcome measurement methods and the potential for measurement bias, most studies were rated as low risk (20 were low, 13 had some concerns, 1 was high). Likewise, in the selection of the reported result domain, which evaluates the risk of selective outcome reporting, the majority of studies demonstrated low risk or some concerns, with relatively few rated as high risk (18 were low, 15 had some concerns, 1 was high). For studies incorporated from previous review articles, risk of bias ratings was based on the evaluations reported in those reviews.

https://doi.org/10.1017/S0954579426101850 Published online by Cambridge University Press

https://doi.org/10.1017/S0954579426101850 Published online by Cambridge University Press

Table 1. Summary of study characteristics

Study	Country	Parenting training program	Participants	Child diagnosis	Child involvement	Delivery format	Total number of interventions	ROB
Altafim & Linhares (2019)	Brazil	ACT Raising Kids Safe Parenting Program	Parents of children aged 3–8 years with elevated behavioral problems	No	No	Group, offline	8 sessions × 2 hours	Low
Axberg and Broberg (2012)	Sweden	Incredible Years Parenting Program (IY)	Parents of children aged 4–8 years with ODD	Yes	No	Group, offline	12–14 sessions × 2 hours	Some concerns
Braet et al. (2009)	Belgium	Parent Management Training (PMT)	Parents of children aged 4–7 years exhibiting problematic or externalizing behavior	No	No	Group, offline	11 sessions × 2 hours	High
Burkhardt et al. (2024)	Switzerland	Tuning in to Kids (TIK)	Parents of children aged 3–6 years, no clinical-level behavior problems	No	No	Group, online (interactive webinar)	6 sessions (no time-related information)	Some concerns
Elliot et al. (2002)	Australia	The "pre-reading skills program (for children)" is designed to teach phonemic awareness, which is an essential pre-reading skill The "parenting program (for parents)" is designed to assist parents in increasing their child's positive and adaptive behavior	4-year-old children with behavioral and pre-reading skills problem and their parents	No	Yes	Group + Individual, offline	8 sessions (6 group sessions + 2 individual sessions), phone consultation six months post-treatment	Some concerns
Grolnick et al. (2021)	USA	The intervention is designed to facilitate adaptive parenting, increase autonomous self-regulation, and decrease behavior problems in children	Children aged 8–12 years with internalizing symptoms and behavioral problems and their parents	No	Yes	Individual, offline	2 sessions × 1.5 hours	High
Hahlweg et al. (2008)	Germany	The telephone-assisted, self-directed parent training is designed to introduce parents to the causes of problem behaviors, teach strategies for promoting children's social competence and for dealing with challenging behavior	Children aged 3–6 years with internalizing and externalizing symptoms and their parents	No	No	Individual, online (book and telephone base)	10 weeks, parents read books, completed weekly assignments, and received phone calls once a week (average of 15 minutes) for 7 weeks	Some concerns
Hahlweg et al. (2010)	Germany	Triple P: Positive Parenting Program (TP)	Children aged 3–6 years from preschools, including both two-parent and single-parent households	No	No	Group, offline	4 sessions, one per week for 4 weeks (2 hours average)	Some concerns
Halfon et al. (2025)	Turkey	The "Mentalization-Based Treatment for Children" is designed to enhance emotional regulation and mentalization in children, with parallel sessions supporting parenting skills	Children aged 5–12 years with clinical levels of internalizing, externalizing, or co-occurring problems, and their parents	No	Yes	Group + Individual, offline	12 sessions, one per week for 12 weeks (no time-related information)	Low
Hand et al. (2013)	Ireland	Parents Plus Children's Program (PPCP)	Self-selected parents of children aged 6–11 years and families identified by school staff as most in need	No	No	Group, offline	8 sessions × 2.5 hours	High
Havighurst et al. (2024)	Australia	Tuning in to Kids OnLine (TIKOL)	Parents of children aged 4–10 years with challenging behavior	No	No	Individual, online (video base)	1 session × 2.5 hours (10 modules × 5–15 minutes)	Some concerns
Işık & Demircioğlu (2022)	Turkey	The intervention is designed to develop strategies and improve skills to cope with a child's problem behavior	Children aged 4–6 years with internalizing and behavioral problems assessed with the PKBS-2, and their parents	No	Yes	Group, offline	11 sessions, one per week for 11 weeks (2.5 hours average)	High

(*Continued*)

https://doi.org/10.1017/S0954579426101850 Published online by Cambridge University Press

Table 1. (*Continued*)

Study	Country	Parenting training program	Participants	Child diagnosis	Child involvement	Delivery format	Total number of interventions	ROB
Keown et al. (2018)	New Zealand	Low intensity culturally adapted Triple P-Positive Parenting Program (Te Whānau Pou Toru)	Parents of children aged 3–7 years referred over behavioral concerns	No	No	Group, offline	2 sessions × 2 hours	Low
Kierfeld et al. (2013)	Germany	The intervention is designed to define problem situations, implement family rules, communicate demands effectively, use positive reinforcement of appropriate child behavior and negative consequences of inappropriate child behavior, and work on difficult parenting situations	Preschoolers aged 3–6 years with internalizing symptoms and externalizing problems, as well as their parents	No	Yes	Individual, online (book and telephone base)	For 11 weeks, parents read a 305-page book with 11 chapters and received 11 individual phone calls per week (up to 20 minutes per call)	Some concerns
Kjøbli and Ogden (2012)	Norway	Brief Parent Training (BPT)	Parents of children aged 3–12 years at an early stage of problem behavior development or had developed conduct problems	No	No	Individual, offline	3–5 sessions × 3–5 hours	Some concerns
Kjøbli et al. (2013)	Norway	Parent Management Training, the Oregon model (PMTO)	Parents of children aged 3–12 years who exhibited conduct problems	No	No	Group	12 sessions × 2.5 hours	Low
Larsson et al. (2009)	Norway	Incredible Years Parenting Program (IY)	Parents of children aged 4–8 years with a subthreshold or formal diagnosis of ODD and/or CD	Yes	Yes	Group	12–14 weeks, 2 hours	Some concerns
Little et al. (2012)	UK	Triple P: Positive Parenting Program (TP)	Parents of children aged 4–9 years whose symptoms indicated a potential social, emotional, or behavioral disorder	No	No	Group, offline + individual phone consultations	4 sessions × 2.5 hours, 4 individual phone consultation × 15–30 min	High
Mersky et al. (2016)	USA	Parent–Child Interaction Therapy (PCIT)	Foster parents of children aged 3–6 years in the clinical range for externalizing problems on the ECBI	No	Yes	Group, offline (additional phone consultations)	Two full day PCIT, 8 weeks of phone consultation, 6 weeks consultation for extended PCIT	Some concerns
Morawska & Sanders (2009)	Australia	Triple P: Positive Parenting Program (TP)	Parents of gifted children aged 3–10 years who reported concerns about their children's behavior	No	No	Group, offline (additional phone consultations)	Five weeks × 2 hours, 3 weeks × 15 min phone consultations, Final session × 2 hours	Some concerns
Nobel et al. (2020)	Netherlands	The intervention is designed to teach regular behavior management techniques and relationship-enhancing strategies	Children aged 6–13 years diagnosed with ADHD and in the clinical range on the ECBI, as well as having internalizing problems assessed with the CBCL, and their parent	Yes	Yes	Individual, offline (a therapist visited the homes)	One home visit per week for four months, totaling 14–16 sessions 1.5–2 hours per session	Low
Özyurt et al. (2019)	Turkey	Triple P: Positive Parenting Program (TP)	Children aged 8–12 years diagnosed with anxiety disorder according to DSM-IV-TR and behavioral problems assessed with the SDQ, as well as their parents	Yes	No	Group, offline	5 sessions × 2 hours and 3 sessions of phone consultation (15–30 minutes per session)	Low
Parra-Cardona et al. (2017)	USA	The "CAPAS" and "CAPAS-Enhanced" programs are culturally adapted parenting interventions for Latina/o immigrant families, aiming to improve parenting and reduce child behavior problems; CAPAS-Enhanced adds focus on immigration-related stressors	Children aged 4–12 exhibiting mild-to-moderate behavioral problems and their parents	No	No	Group, offline	12 sessions, one per week for 12 weeks (2 hours average)	Some concerns

https://doi.org/10.1017/S0954579426101850 Published online by Cambridge University Press

Scavenius et al. (2020)	Denmark	Parent Management Training, the Oregon model (PMTO)	Parents of children aged 4–12 years who were referred for behavioral problems	No	No	Individual, offline	23 sessions × 1 hour	Some concerns
Scott et al. (2010)	UK	Incredible Years Parenting Program (IY)	Parents of children aged 5–6 years from the screened population who scored above the cut-off for ODD symptoms or conduct problems	No	No	Group, offline	28 weeks × 2.5 hours (parent group program + literacy program)	Low
Shimabukuro et al. (2020)	Japan	"Well Parent Japan" is designed to reduce parenting stress and parent-reported symptoms of ADHD, aggression, and internalizing problems and to improve parenting practices and parenting self-esteem	Children aged 6–12 years displaying marked symptoms of ADHD and having internalizing problems assessed with the CBCL, as well as their parents	Mixed (some diagnosed)	No	Group, offline	13 sessions × 2 hours	Low
Sourander et al. (2016)	Finland	Triple P: Positive Parenting Program Online (TPOL)	Parents of 4-year-old children who had exhibited behavioral problems	No	No	Individual, online	11 sessions × 45 minutes	Low
Thomas & Zimmer-Gembeck (2012)	Australia	Parent–Child Interaction Therapy (PCIT)	Parents of children aged 3–7 years who were at high risk of, or had engaged in, maltreatment, and whose children exhibited significant behavioral problems	No	No	Individual, offline	12–16 sessions, 2 assessment sessions (no time-related information)	Some concerns
van den Hoofdakker et al. (2007)	Netherlands	Behavioral parent training (BPT)	Parents of children aged 4–12 years with ADHD who had been referred to an outpatient mental health clinic by their general practitioner	Yes	No	Group, offline	12 sessions × 2 hours	Some concerns
Van Holen et al. (2017)	Belgium	The "foster parent intervention" is designed to teach the social interaction perspective on the development of behavioral problems and associated parenting skills	Children aged 3–12 years with externalizing problems that are borderline or in the clinical range on the CBCL, and internalizing symptoms assessed with the CBCL	No	No	Individual, offline	10 sessions (no time-related information)	Some concerns
Vliek et al. (2019)	Netherlands	"The topper training" is designed to foster social interaction skills (positive intentions and motivation to behave prosocially)	Children aged 8–11 years with internalizing and externalizing problems in social interactions, as well as their parents	No	Yes	Group, offline	10 sessions × 1.5 hours	Some concerns
Webster-Stratton et al. (2011)	USA	Incredible Years Parenting Program (IY)	Parents of children aged 4–6 years with ADHD (predominantly hyperactive/impulsive or inattentive presentation)	Yes	No	Group, offline	20 sessions × 2 hours	Some concerns
Wiggins et al. (2009)	Australia	Pathways Triple P: Positive Parenting Program (PTP)	Parents of children (4–10 years) with parent–child relationship issues and parent-reported emotional/behavioral problems	No	No	Group, offline	9 sessions × 2 hours	High
Yusuf et al. (2019)	Turkey	Triple P: Positive Parenting Program (TP)	Parents of children aged 7–12 years with diagnosed ADHD	Yes	No	Group, offline + individual phone consultations	5 sessions × 2 hours (group), 3 sessions × 15–30 min (phone)	Some concerns

ACT = Adults and Children Together; ADHD = Attention-Deficit/Hyperactivity Disorder; CBCL = Child Behavior Check List; CD = Conduct Disorder; ECBI = Eyberg Child Behavior Inventory; ODD = Oppositional Defiant Disorder; SCBE = Social Competence and Behavior Evaluation; SDQ = Strengths and Difficulties Questionnaire; PKBS-2 = Preschool and Kindergarten Behavior Scales-Second Edition; ROB = Risk Of Bias.

Table 2. Summary of child outcomes across studies

Study	Primary target	Conditions	Child externalizing problem outcomes	Child internalizing problem outcomes
Altafim & Linhares (2019)	Behavioral problems	Intervention ($n = 61$) Waitlist ($n = 61$)	ACT > WLC (pre–post) SDQ externalizing problems ($\eta^2 = 0.08$, $p = .01$)	ACT = WLC (pre–post) SDQ internalizing problems ($\eta^2 = 0.03$, $p = .15$)
Axberg and Broberg (2012)	Disruptive behavior problems	Intervention ($n = 37$) Waitlist ($n = 24$)	Incredible Years > WLC (pre–post) ECBI behavior intensity ($d = 1.17$, $p = .001$) ECBI behavior problems ($d = 1.26$, $p = .003$)	Incredible Years = WLC (pre–post) SDQ internalizing problems ($d = 0.00$, $p = .993$)
Braet et al. (2009)	Antisocial behavior	Intervention ($n = 34$) Waitlist ($n = 30$)	PMT = WLC (pre–post) CBCL total problem behavior ($d = 0.66$, *ns*) CBCL externalizing behavior ($d = 0.91$, *ns*) CBCL aggressive behavior ($d = 0.81$, *ns*) CBCL delinquent behavior ($d = 0.63$, *ns*)	PMT = WLC (pre–post) CBCL internalizing problem ($d = 0.23$, *ns*)
Burkhardt et al. (2024)	Child behavior (internalizing and externalizing)	Intervention ($n = 66$) Waitlist ($n = 59$)	TIK > WLC (pre–post-3months FU) SDQ externalizing problems ($\eta^2 = 0.04$, $p = .01$)	TIK > WLC (pre–post-3months FU) SDQ internalizing problems ($\eta^2 = 0.04$, $p = .01$)
Elliot et al. (2002)	Behavioral problems	Intervention ($n = 164$) Control group[a] ($n = 122$)	Combined PTP > CG (pre–post) PBQ hyperactive-distractable (*ES* not reported, *ns*) PBQ hostile–aggressive (*ES* not reported, *ns*)	Combined PTP > CG (pre–post) PBQ anxious–fearful problems (*ES* not reported, $p < .01$)
Grolnick et al. (2021)	Behavioral problems	Intervention ($n = 31$) Waitlist ($n = 26$)	PTP = WLC (pre–1month FU) BASC-2 aggression ($\eta^2_p = .003$, $p = .71$) BASC-2 conduct problems ($\eta^2_p = .026$, $p = .27$) PTP > WLC (pre–1month FU) Child Hostility Scale externalizing ($\eta^2_p = .095$, $p = .04$)	PTP = WLC (pre–1month FU) BASC-2 depression ($\eta^2_p = .009$, $p = .53$) BASC-2 anxiety ($\eta^2_p = .002$, $p = .76$)
Hahlweg et al. (2008)	Externalizing behavior	Intervention ($n = 32$) Waitlist ($n = 31$)	PTP > WLC (Mothers, pre–post) CBCL externalizing ($d = 0.72$, p not reported; significant) PTP = WLC (Fathers, pre–post) CBCL externalizing ($d = 0.32$, p not reported; *ns)*	PTP > WLC (Mothers, pre–post) CBCL internalizing ($d = 0.46$, p not reported; significant) PTP = WLC (Fathers, pre–post) CBCL internalizing ($d = 0.23$, p not reported; *ns*)
Hahlweg et al. (2010)	Internalizing and externalizing problems	Intervention ($n = 186$) Waitlist ($n = 94$)	PTP > WLC (Mothers, pre–post-1year FU-2years FU) CBCL externalizing ($d = 0.30$; $p = .03$) PTP = WLC (Fathers, pre–post-1year FU-2years FU) CBCL externalizing ($d = 0.00$; *ns*) PTP = WLC (Single-parent mothers) CBCL externalizing ($d = -0.75$; *ns*)	PTP > WLC (Mothers, pre–post-1year FU-2years FU) CBCL internalizing ($d = 0.29$; $p < .01$) PTP = WLC (Fathers, pre–post-1year FU-2years FU) CBCL internalizing ($d = 0.00$; *ns*) PTP = WLC (Single-parent mothers) CBCL internalizing ($d = -0.30$; *ns*)
Halfon et al. (2025)	Internalizing and externalizing problems	Intervention ($n = 111$) Control group[b] $n = 111$)	MBT-C = CG (pre–post) CBCL externalizing ($d = 0.01$; *ns*)	MBT-C = CG (pre–post) CBCL internalizing ($d = 0.15$; *ns*)
Hand et al. (2013)	Internalizing and externalizing problems	Intervention ($n = 44$) No treatment ($n = 31$)	PPCP > CG (pre–post) SDQ total difficulties ($d = 0.32$, $p < .01$) SDQ hyperactivity problems ($d = 0.31$, $p < .01$) SDQ conduct problems ($d = 0.41$, $p < .01$) PPCP = CG SDQ peer problems ($p > .05$)	PPCP = CG (pre–post) SDQ Emotional symptoms ($p > .05$)

(*Continued*)

https://doi.org/10.1017/S0954579426101850 Published online by Cambridge University Press

Table 2. (*Continued*)

Study	Primary target	Conditions	Child externalizing problem outcomes	Child internalizing problem outcomes
Havighurst et al. (2024)	Challenging behavior (internalizing and externalizing)	Intervention ($n = 78$) Waitlist ($n = 73$)	TIKOL = WLC (pre–6months FU) ECBI intensity ($d = 0.09$, $p = .47$) ECBI problem ($d = 0.22$, $p = .19$) SESBI-R behavior intensity ($d = 0.25$, $p = .11$)	TIKOL > WLC (pre–6months FU) SCAS Child Anxiety ($d = 0.44$, $p = .003$)
Işık et al (2022)	Behavior problems. (internalizing and externalizing).	Intervention ($n = 38$) Control group[c] ($n = 38$)	PTP > CG (pre–post) PKBS-2 externalization ($d = 1.07$, $p = .000$)	PTP > CG (pre–post) PKBS-2 internalization ($d = 1.04$, $p = .000$)
Keown et al. (2018)	Conduct-related problems	Intervention ($n = 41$) Waitlist ($n = 29$)	PTP > WLC (pre–post) ECBI intensity ($d = 0.60$, $p = .018$)ECBI problem ($d = 0.63$, $p = .003$)	PTP = CG (pre–post) SDQ emotional symptoms ($d = 0.45$, $p = .117$) SDQ peer problems ($d = 0.35$, $p = .368$)
Kierfeld et al. (2013)	Externalizing problem behavior	Intervention ($n = 26$) Waitlist ($n = 22$)	PTP > WLC (pre–post) CBCL externalizing problems ($d = 1.22$, $p < .001$)	PTP > WLC (pre–post) CBCL internalizing problems ($d = 1.01$, $p < .001$)
Kjøbli and Ogden (2012)	Conduct problems	Intervention ($n = 108$) Control group[d] ($n = 108$)	BPT > CG (pre–post) ECBI intensity ($d = 0.43$, $p = .002$) ECBI problem ($d = 0.35$, $p = .01$)	BPT > CG (pre–post) CBCL anxiety/depression ($d = 0.29$, $p = .04$)
Kjøbli et al. (2013)	Conduct problems	Intervention ($n = 72$) Waitlist ($n = 65$)	PMTO > WLC (pre–post) ECBI intensity ($d = 0.42$, $p = .02$) ECBI problem ($d = 0.34$, $p = .05$)	PMTO = WLC (pre–post) CBCL anxiety/depression ($d = 0.26$, $p = .13$)
Larsson et al. (2009)	Oppositional defiant and conduct problems	Intervention ($n = 51$) Intervention + Child therapy ($n = 55$) Waitlist ($n = 30$)	PTP > WLC (Mothers, pre–post) ECBI intensity ($d = 0.65$, $p = .003$) ECBI problems ($d = 0.47$, $p > .05$) CBCL aggression ($d = 0.58$, $p = .007$) PTP > WLC (Fathers, pre–post) ECBI intensity ($d = 0.80$, $p = .009$) ECBI problems ($d = 0.75$, $p = .015$) CBCL aggression ($d = 0.40$, $p > .05$)	PTP > WLC (Mothers, pre–post) CBCL internalizing ($d = 0.57$, $p = .012$) PTP > WLC (Fathers, pre–post) CBCL internalizing ($d = -0.07$, $p > .05$)
Little et al. (2012)	Conduct problems	Intervention ($n = 73$) Waitlist + Services as usual ($n = 73$)	Triple P = WLC (pre–6months FU) ECBI intensity ($p = .40$) ECBI problems ($p = .10$) SDQ conduct problems ($p = .65$) SDQ hyperactivity ($p = .54$) SDQ total difficulties ($p = .83$)	Triple P = WLC (pre–6months FU) SDQ emotion problems ($p = .83$)
Mersky et al. (2016)	Externalizing behaviors	Extended PCIT ($n = 19$) Brief PCIT ($n = 39$) Waitlist ($n = 33$)	Extended PCIT + Brief PCIT > WLC (pre–post) ECBI intensity ($R^2 = .03$, $p = .060$) ECBI problem ($R^2 = .06$, $p = .006$) CBCL externalizing ($R^2 = .09$, $p < .001$)	Extended PCIT + Brief PCIT > WLC (pre–post) CBCL internalizing ($R^2 = .08$, $p = .002$)
Morawska & Sanders (2009)	Behavioral and emotional adjustment	Intervention ($n = 37$) Waitlist ($n = 38$)	Triple P > WLC (pre–post) ECBI intensity ($d = 0.30$, $p < .001$) ECBI problem ($d = 0.42$, $p < .001$) SDQ hyperactivity ($p = .001$) Triple P = WLC (pre–post) SDQ conduct problems ($p = .278$)	Triple P = WLC (pre–post) SDQ emotional symptoms ($p = .925$)
Nobel et al. (2020)	Externalizing behaviors (oppositional, conduct, ADHD-type)	Intervention ($n = 26$) Waitlist ($n = 23$)	BPTG@HOME > WLC (pre–post) ECBI intensity ($ES = 0.75$, $p = .048$) SNAP ADHD ($ES = 0.89$, $p = .001$) SNAP ODD ($ES = 0.65$, $p = .028$) BPTG@HOME = WLC (pre–post) ECBI problem (ES not reported, $p = .167$)	BPTG@HOME > WLC (pre–post) CBCL internalizing ($ES = 0.60$, $p = .011$)
Özyurt et al, (2019)	Anxiety disorder severity	Intervention ($n = 26$) Waitlist ($n = 29$)	Triple P = WLC (pre–post) SDQ conduct/behavior problems ($d = 0.12$, $p = .624$) SDQ attention/hyperactivity ($d = 1.40$, $p = .32$)	Triple P > WLC (pre–post) SDQ emotional problems ($d = 0.94$, $p = .001$) SCARED child ($d = 0.96$, $p < .001$) SCARED parent ($d = 1.06$, $p < .001$)

(*Continued*)

https://doi.org/10.1017/S0954579426101850 Published online by Cambridge University Press

Table 2. (*Continued*)

Study	Primary target	Conditions	Child externalizing problem outcomes	Child internalizing problem outcomes
Parra-Cardona et al. (2017)	Internalizing and externalizing behaviors	CAPAS ($n = 36$) CAPAS-Enhanced ($n = 35$) Waitlist ($n = 32$)	CAPAS-Enhanced = WLC (Mothers, pre–post) CBCL externalizing ($d = 0.10$, $p > .05$) CAPAS-Enhanced > WLC (Fathers, pre–post) CBCL externalizing ($d = 0.70$, $p < .05$)	CAPAS-Enhanced = WLC (Mothers, pre–post) CBCL internalizing ($d = 0.30$, $p > .05$) CAPAS-Enhanced > WLC (Fathers, pre–post) CBCL internalizing ($d = 0.76$, $p < .05$)
Scavenius et al. (2020)	Behavioral problems	Intervention ($n = 64$) Service as usual ($n = 62$)	PMTO = SAU (pre–post) SDQ externalizing ($d = 0.64$, $p > .05$)	PMTO = SAU (pre–post) SDQ internalizing ($d = 0.34$, $p > .05$)
Scott et al. (2010)	Antisocial/conduct problems	Intervention ($n = 61$) Control group (Telephone helpline, $n = 51$)	SPOKES > CG (pre–post) PACS antisocial behavior ($d = 0.52$, $p < .001$) PACS ADHD symptoms ($d = 0.44$, $p = .002$) ECBI total ($d = 0.34$, $p = .016$)	SPOKES = WLC (pre–post) PACS emotional symptoms ($d = 0.10$, $p = .60$)
Shimabukuro (2020)	ADHD symptoms	Intervention ($n = 26$) Waitlist ($n = 20$)	PTP > WLC (pre–post) CBCL aggression ($d = 0.62$, $p = .042$) SNAP inattention ($d = 0.51$, $p = .038$) PTP = WLC (pre–post) SNAP hyperactivity ($d = 0.26$, $p = .379$) SNAP ODD ($d = 0.44$, $p = .141$)	PTP > WLC (pre–post) CBCL internalizing ($d = 0.77$, $p = .012$)
Sourander et al., (2016)	Disruptive Behavior	Strongest Families Smart Website Intervention ($n = 232$) Education control ($n = 232$)	SFSW > CG (pre–6months FU) CBCL externalizing ($d = 0.34$, $p < .001$)	SFSW > EC (pre–6months FU) CBCL internalizing ($d = 0.35$, $p < .001$)
Thomas and Zimmer-Gembeck (2012)	Externalizing behavior	Intervention ($n = 61$) Waitlist ($n = 91$)	S/PCIT > WLC (pre–post) CBCL externalizing ($d = 0.38$, $p < .001$) ECBI intensity ($d = 0.27$, $p = .019$)ECBI problem ($d = 0.61$, $p < .001$)	S/PCIT > WLC (pre–post) CBCL internalizing ($d = 0.30$, $p = .014$)
van den Hoofdakker et al. (2007)	ADHD symptoms and behavioral problems	Intervention ($n = 47$) Routine clinical care ($n = 47$)	BPT + RCC > RCC (pre–post) CBCL externalizing ($d = 0.56$, $p = .021$)	
Van Holen et al. (2017)	Externalizing problem behavior	Intervention ($n = 30$) Treatment as usual ($n = 33$)	PTP > TAU (pre–post) CBCL externalizing problems ($d = 0.56$, $p = .021$) PTP = TAU (pre–post) CPRS-R ADHD-index (d = 0.51, $p = .161$)	PTP > TAU (pre–post) CBCL internalizing problems ($d = 0.33$, $p = .042$)
Vliek (2019)	Emotional problems and conduct problems	Intervention ($n = 77$) Waitlist ($n = 55$)	PTP = WLC (pre–post) SDQ conduct problems ($d = 0.20$, $p = .228$) PTP > WLC (pre–post) SDQ impact of problems ($d = 0.59$, $p = .004$)	PTP > WLC (pre–post) SDQ emotional symptoms ($d = 0.70$, $p < .001$) SDQ peer relationship problems ($d = 0.41$, $p = .025$)
Webster-Stratton et al. (2011)	ADHD and ODD symptoms	Intervention ($n = 49$) Waitlist ($n = 50$)	Incredible Years > WLC (pre–post) CBCL externalizing (Mothers: $\eta^2_p = .06$, $p < .05$; Fathers: $\eta^2_p = .06$, $p < .05$) CPRS-R oppositional (Mothers: $\eta^2_p = .11$, $p < .001$; Fathers: $\eta^2_p = .05$, $p < .05$) CPRS-R inattentive (Mothers: $\eta^2_p = .07$, $p < .01$; Fathers: $\eta^2_p = .06$, $p < .05$) CPRS-R hyperactive (Mothers: $\eta^2_p = .13$, $p < .01$; Fathers: $\eta^2_p = .06$, $p < .05$) ECBI intensity (Mothers: $\eta^2_p = .22$, $p < .001$; Fathers: $\eta^2_p = .16$, $p < .001$) ECBI problem (Mothers: $\eta^2_p = .24$, $p < .001$; Fathers: $\eta^2_p = .16$, $p < .001$)	Incredible Years = WLC (pre–post) CBCL internalizing (Mothers: $\eta^2_p = .02$, *ns*; Fathers: $\eta^2_p < .01$, *ns*)
Wiggins et al. (2009)	Externalizing and internalizing behavior problems	Intervention ($n = 30$) Waitlist ($n = 30$)	Pathways Triple P > WLC (pre–post) CBCL externalizing ($\eta^2_p = .128$, $p = .005$)	Pathways Triple P > WLC (pre–post) CBCL internalizing ($\eta^2_p = .084$, $p = .025$)

(*Continued*)

https://doi.org/10.1017/S0954579426101850 Published online by Cambridge University Press

Table 2. (*Continued*)

Study	Primary target	Conditions	Child externalizing problem outcomes	Child internalizing problem outcomes
Yusuf et al. (2019)	ADHD symptoms	Intervention ($n = 30$) Waitlist ($n = 30$)	Triple P > WL (pre–post) DuPaul AD ($d = 1.84$, $p < .001$) DuPaul HA ($d = 1.39$, $p < .001$) Triple P = WL (pre–post) SDQ behavior problems ($d = 0.40$, $p = .221$)	Triple P > WL (pre–post) SDQ emotional problems ($d = 0.99$, $p = .004$)

ACT = Adults and Children Together; ADHD = attention-deficit/hyperactivity disorder; BASC-2 = Behavior Assessment System for Children, Second Edition; BPT = Brief/Behavioral Parent Training; BPTG@HOME = Behavioral Parent Training Groningen At Home; CAPAS = Criando con Amor, Promoviendo Armonía y Superación; CBCL = Child Behavior Check List; CD = Conduct Disorder; CG = Control Group; CPRS-R = Conners' Parent Rating Scale Revised; DuPaul AD = DuPaul ADHD Scale - Attention/Deficit; DuPaul HA = DuPaul ADHD Scale – Hyperactivity; EC = Education Control; ECBI = Eyberg Child Behavior Inventory; MBT-C = Mentalization-Based Treatment for Children; ODD = Oppositional Defiant Disorder; PACS = Parental Account of Childhood Symptoms; PBQ = Preschool Behavior Questionnaire; PCIT = Parent–Child Interaction Therapy; PKBS-2 = Preschool and Kindergarten Behavior Scales-Second Edition; PMT = Parent Management Training; PMTO = Parent Management Training, the Oregon model; PPCP = Parents Plus Children's Program; PTP = Parent Training Program; RCC = Routine Clinical Care; S/PCIT = Standard Parent–Child Interaction; SAU = Service As Usual; SCARED = Screen for Anxiety-Related Emotional Disorders; SCAS = Spence Child Anxiety Scale-Parent version; SCBE = Social Competence and Behavior Evaluation; SDQ = Strengths and Difficulties Questionnaire; SESBI-R = Sutter-Eyberg Student Behavior Inventory Revised; SFSW = Strongest Families Smart Website; SNAP = Swanson, Nolan, and Pelham Rating Scale; SPOKES = Supporting Parents On Kids Education in Schools; TAU = Treatment As Usual; TIK = Tuning In to Kids; TIKOL = Tuning In to Kids Online; WLC = Waitlist Control.

[a]This group received the universal intervention based on advice from consultations with local community resources and preschool teachers.

[b]This group received a manualized 12-week parenting and child social skills intervention.

[c]This group had access to routine care, such as external mental health services.

[d]This group received regular services in primary care setting.

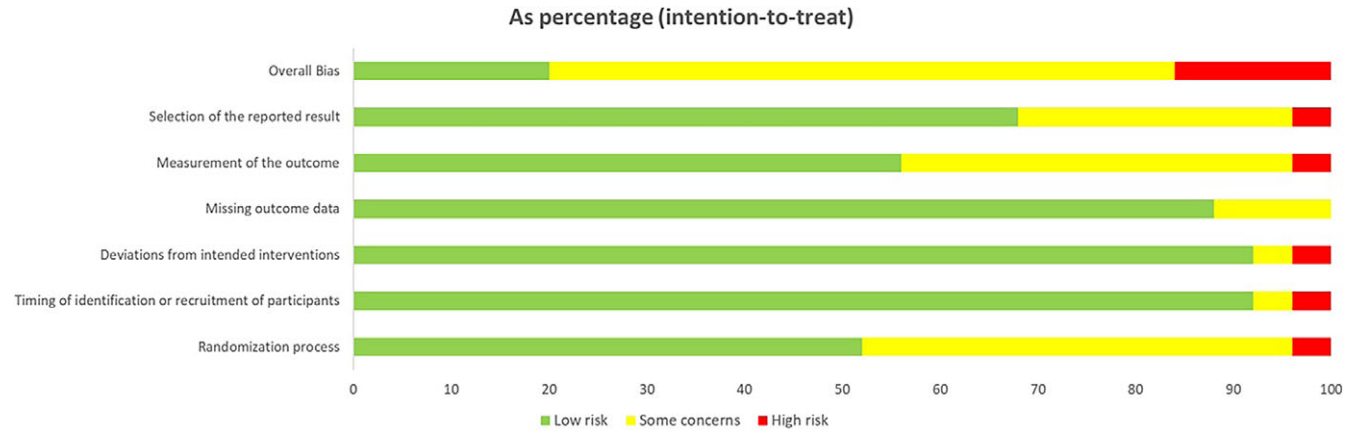


Figure 2. Risk of bias graph.

Meta-analysis of treatment effects of PTP on externalizing and internalizing outcomes

Main effect

Thirty-four studies reporting post-treatment internalizing and externalizing problem outcomes were included in the meta-analysis to assess the treatment effects of PTP, compared with control groups (Table 3). RVE results for the random-effects meta-analysis showed a more significant treatment effect of PTP compared with the control group, with small effect sizes for internalizing ($g = 0.28$, 95% CI [0.178 0.347], $p < .001$) and externalizing problem outcomes ($g = 0.37$, 95% CI [0.284, 0.462], $p < .001$). No significant difference was found between the two types of outcomes in the RVE analyses ($Q(1) = 0.81$, $p = .367$). Heterogeneity was moderate for internalizing ($I^2 = 42.9\%$, $Q(33) = 57.80$, $p = .005$) and externalizing problem outcomes ($I^2 = 31.3\%$, $Q(33) = 48.02$, $p = .044$). This level of heterogeneity suggests that treatment effects varied across studies, indicating that the impact of PTPs may differ depending on study characteristics or implementation context, which should be considered when making clinical decisions regarding PTP deployment.

Publication bias and sensitivity analysis

Examination of the funnel plot (Figures 3 and 4) and Egger's test revealed significant evidence of publication bias for internalizing and externalizing problems outcomes (internalizing: $t(32) = 2.64$, $p = .013$; externalizing: $t(31) = 4.05$, $p = .000$). We adjusted the results for both problem outcomes using the trim-and-fill method, and the effect size remained significant (internalizing: $g = 0.17$, $p = .008$; externalizing: $g = 0.25$, $p < .001$).

As shown in Supplementary Figures S1 and S2, sensitivity analyses indicated that the pooled effect size for internalizing outcomes varied when certain effect sizes were removed, particularly for studies using the SDQ emotional problems subscale (Özyurt et al., 2019; Yusuf et al., 2019). For externalizing outcomes, the effect size based on the SDQ attention-deficit and hyperactivity problems subscale reported in Özyurt et al. (2019) showed a comparatively stronger influence on the pooled estimate than other measures. These findings suggest that a small number of specific effect sizes produced relatively larger shifts in the pooled estimates, although they do not fundamentally alter the overall pattern of results.

https://doi.org/10.1017/S0954579426101850 Published online by Cambridge University Press

Table 3. Summary of overall and moderator effects

Variables	Subgroups	*k*	*g*	95% CI	I^2	*Q*	*p*
Overall							
internalizing		34	0.28	[0.178, 0.374]	48.9%		
externalizing		34	0.37	[0.284, 0.462]	51.1%	0.81	.367
Moderators							
Internalizing outcomes							
Primary target of PTPs	Internalizing/both	11	0.29	[0.077, 0.499]	56.6%		
	Externalizing	23	0.26	[0.137, 0.381]	36.7%	0.07	.793
Child participation	Child involved	9	0.36	[0.094, 0.636]	57.4%		
	Parents only	25	0.24	[0.131, 0.356]	37.6%	0.88	.349
Child clinical diagnosis	Yes	8	0.46	[0.099, 0.325]	58.1%		
	No	26	0.23	[0.126, 0.325]	31.7%	2.12	.146
Risk of bias	Low	9	0.27	[0.056, 0.474]	43.1%		
	Some	19	0.30	[0.152, 0.451]	48.5%		
	High	6	0.17	[−0.160, 0.499]	34.8%	0.81	.666
Treatment format	Online	6	0.30	[0.130, 0.344]	22.9%		
	Offline	24	0.24	[0.032, 0.572]	51.8%		
	Offline + additional phone consolation	4	0.47	[−0.551, 1.490]	82.4%	0.77	.681
Treatment dose	Time (min)	26	−0.00	[−0.002, 0.000]	57.2%		
	Number of sessions	34	−0.01	[−0.027, 0.009]	49.3%		
Externalizing outcomes							
Primary target of PTPs	Internalizing	11	0.33	[0.088, 0.568]	57.9%		
	Externalizing	23	0.37	[0.285, 0.458]	0.0%	0.14	.704
Child participation	Child involved	9	0.46	[0.113, 0.815]	66.3%		
	Parents only	25	0.33	[0.243, 0.407]	0.9%	0.78	.377
Child clinical diagnosis	Yes	8	0.55	[0.353, 0.750]	0.0%		
	No	26	0.30	[0.203, 0.395]	29.8%	6.92	.009
Risk of bias	Low	9	0.34	[0.182, 0.494]	13.1%		
	Some	19	0.36	[0.232, 0.490]	35.4%		
	High	6	0.34	[−0.090, 0.814]	54.2%	0.07	.997
Treatment format	Online	6	0.36	[−0.016, 0.726]	65.6%		
	Offline	24	0.34	[0.234, 0.440]	17.2%		
	Offline + additional Phone consolation	4	0.49	[0.050, 0.937]	27.7%	1.12	.571
Treatment dose	Time (min)	26	0.00	[−0.000, 0.000]	50.3%		
	Number of sessions	34	0.01	[−0.007, 0.025]	50.7%		

Q represents the test of between-group heterogeneity, and *p* indicates the *p*-value associated with *Q*.

Moderator analysis

To examine whether treatment effects varied according to the primary target of PTPs, we conducted additional subgroup analyses for each outcome domain (Figures 5 and 6; Table 3). PTPs targeting externalizing problems also produced significant improvements in internalizing symptoms ($g = 0.26$, 95% CI [0.014, 0.381]; $Q(1) = 0.07$, $p = .793$). Similarly, interventions targeting internalizing or combined problems yielded significant reductions in externalizing symptoms ($g = 0.33$, 95% CI [0.088, 0.568], $Q(1) = 0.14$, $p = .704$).

In the moderator analysis, children's clinical diagnosis status demonstrated a notable moderating effect for externalizing outcomes: PTPs produced significantly larger effects among clinically diagnosed children ($g = 0.55$, 95% CI [0.353, 0.750]) than among non-diagnosed samples ($g = 0.30$, 95% CI [0.203, 0.395]) ($Q(1) = 6.92$, $p = .009$), whereas no significant subgroup difference was observed for internalizing outcomes ($Q(1) = 2.12$, $p = .146$).

Other moderators did not yield significant subgroup differences. Specifically, no significant subgroup differences were observed for child participation (internalizing: $Q(1) = 0.88$, $p = .349$; externalizing: $Q(1) = 0.78$, $p = .377$), delivery mode (face-to-face, online, or hybrid; internalizing: $Q(2) = 0.77$, $p = .681$; externalizing: $Q(2) = 1.12$, $p = .571$), or risk of bias (internalizing: $Q(2) = 0.81$, $p = .666$; externalizing: $Q(2) = 0.07$, $p = .997$). Meta-

https://doi.org/10.1017/S0954579426101850 Published online by Cambridge University Press

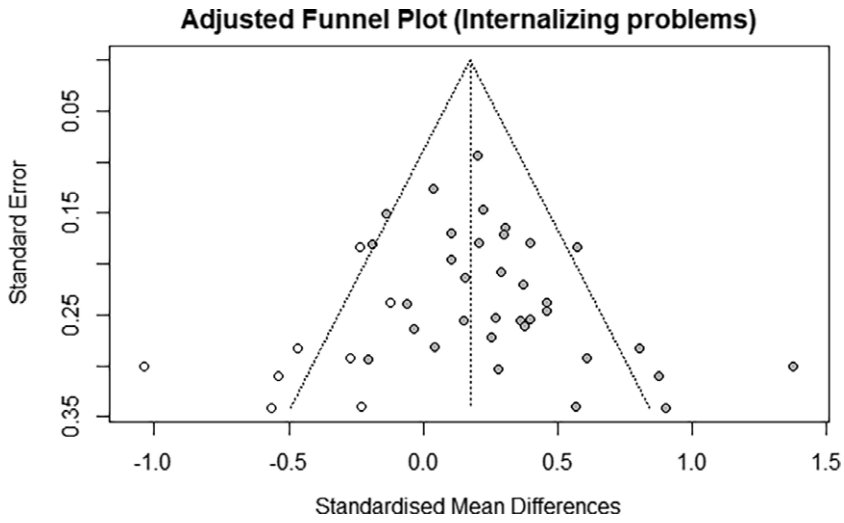


Figure 3. Adjusted funnel plot of internalizing problem outcomes.

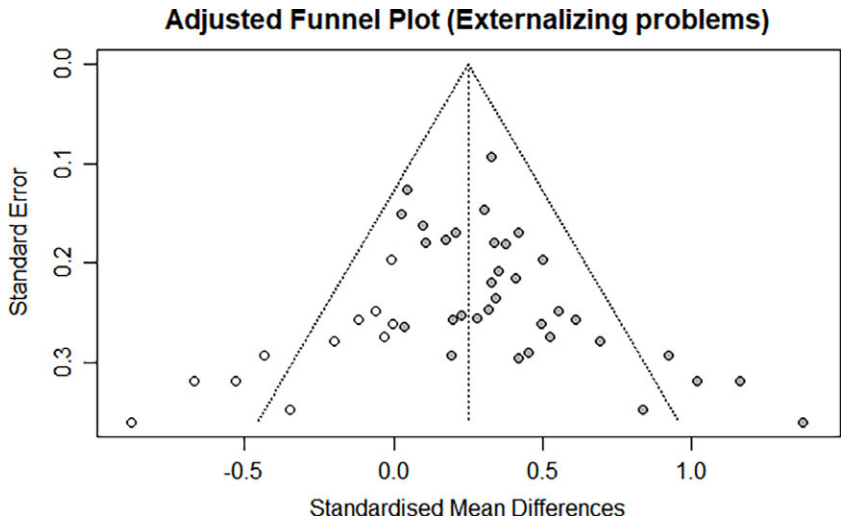


Figure 4. Adjusted funnel plot of externalizing problem outcomes.

regression analyses further revealed that neither total treatment time (internalizing: $g = -0.00$, $p = .429$; externalizing: $g = 0.00$, $p = .145$) nor the total number of sessions (internalizing: $g = -0.00$, $p = .292$; externalizing: $g = 0.00$, $p = .208$) significantly moderated treatment outcomes.

Taken together, these findings suggest that, while PTPs are broadly effective across formats and dosage, they may yield greater benefits for clinically diagnosed children with externalizing problems.

Discussion

This meta-analysis aimed to provide evidence on the treatment effects of PTPs on internalizing and externalizing problems in children aged 3–12 years. Across 34 studies, PTPs significantly reduced these problems, compared with those in control groups, although the effect sizes were small. This finding aligns with previous meta-analyses reporting reductions in internalizing and externalizing symptoms following participation in PTPs (Bloss et al., 2022; Buchanan-Pascall et al., 2018). A trim-and-fill analysis following Egger's test indicated that, although the treatment effects decreased slightly after adjusting for potential publication bias, they remained statistically significant for both problem outcomes. Although these effects were modest in magnitude, even small statistical improvements may still have meaningful clinical implications when interventions are implemented at a population level or within preventive contexts, as these benefits can accumulate over time.

Besides demonstrating the overall efficacy of PTPs, this study extends prior findings by clarifying how treatment effects differ according to intervention targets. Specifically, significant cross-domain effects emerged, suggesting that PTPs designed primarily for externalizing problems also reduced internalizing symptoms, and vice versa. These findings indicate that the benefits of PTPs are not confined to the initially targeted symptom domain but instead extend across internalizing and externalizing spectra, serving as empirical support for the transdiagnostic applicability of PTPs. Crucially, it is necessary to distinguish between interventions that are transdiagnostic by design and those that are transdiagnostic in effect. Preventive parenting interventions are often transdiagnostic by design, as they are designed to address broader developmental risk processes and may therefore target a wide range of behavioral and emotional difficulties (Sandler et al., 2015). Conversely, given that the overall effect sizes were modest, other PTPs may be transdiagnostic in effect; the findings may partly reflect broader therapeutic processes – such as changes in general parenting practices (e.g., more consistent caregiving) – that operate across

https://doi.org/10.1017/S0954579426101850 Published online by Cambridge University Press

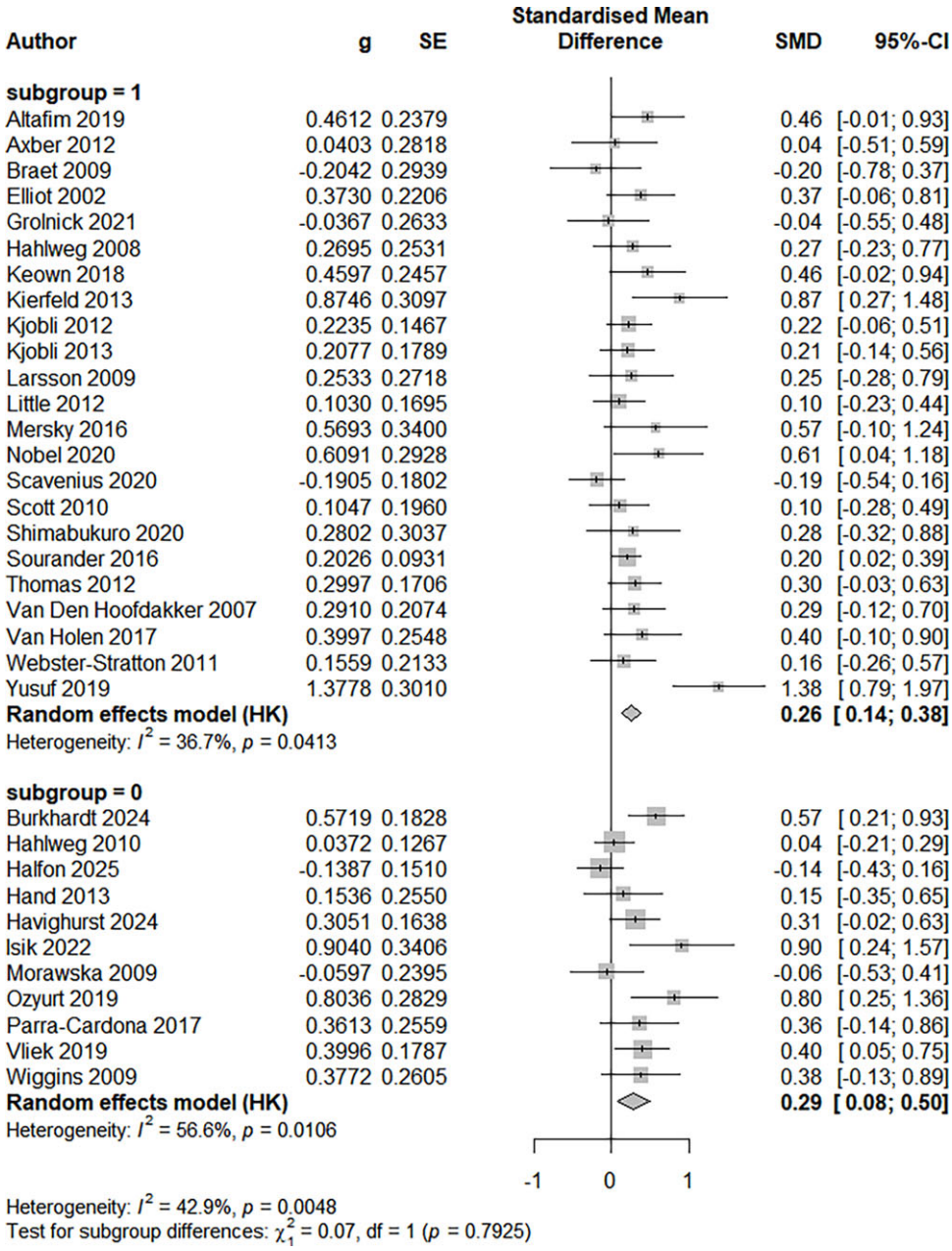


Figure 5. Forest plot of internalizing/Combined problem outcomes by primary treatment target. *Note.* 0 = combined/internalizing-focused interventions; 1 = externalizing-focused interventions.

multiple symptom domains despite an initial symptom-specific focus. More specifically, improvements in consistent limit-setting and reductions in coercive parent–child interaction may reduce behavioral dysregulation while also increasing the predictability of the caregiving environment, thereby indirectly reducing children's emotional distress (Smith et al., 2014). Similarly, increases in parental warmth, emotion coaching, and supportive responses to children's distress may strengthen children's emotion regulation capacities, which may in turn reduce both internalizing symptoms and behavior problems (Morris et al., 2007). Thus, the observed cross-domain effects suggest that PTPs may influence internalizing and externalizing outcomes through overlapping, rather than entirely separate, parenting processes.

Additional analyses indicated evidence of heterogeneity and publication bias for both internalizing and externalizing outcomes. This may be because PTPs yield relatively small or inconsistent effect sizes when outcomes across both domains are assessed simultaneously, and their effects on internalizing symptoms have not been consistently supported (Bloss et al., 2022; Buchanan-Pascall et al., 2018; Jewell et al., 2022). The observed variability across studies, particularly in treatment dose, may also reflect the broad implementation contexts in which PTPs are delivered, an issue that has similarly been examined through moderator analyses in previous meta-analyses (Bloss et al., 2022; Buchanan-Pascall et al., 2018); therefore, more fine-grained investigation of this issue is warranted. Importantly, this heterogeneity may reflect not only methodological variation but also differences in the parenting processes emphasized across programs. Programs that primarily focused on behavioral management may be more directly linked to externalizing outcomes, whereas those emphasizing parental sensitivity, emotion socialization, or supportive responses to children's distress may be more directly relevant to internalizing outcomes. Such variability in intervention focus may help explain why effects appear smaller and more heterogeneous when broad

https://doi.org/10.1017/S0954579426101850 Published online by Cambridge University Press

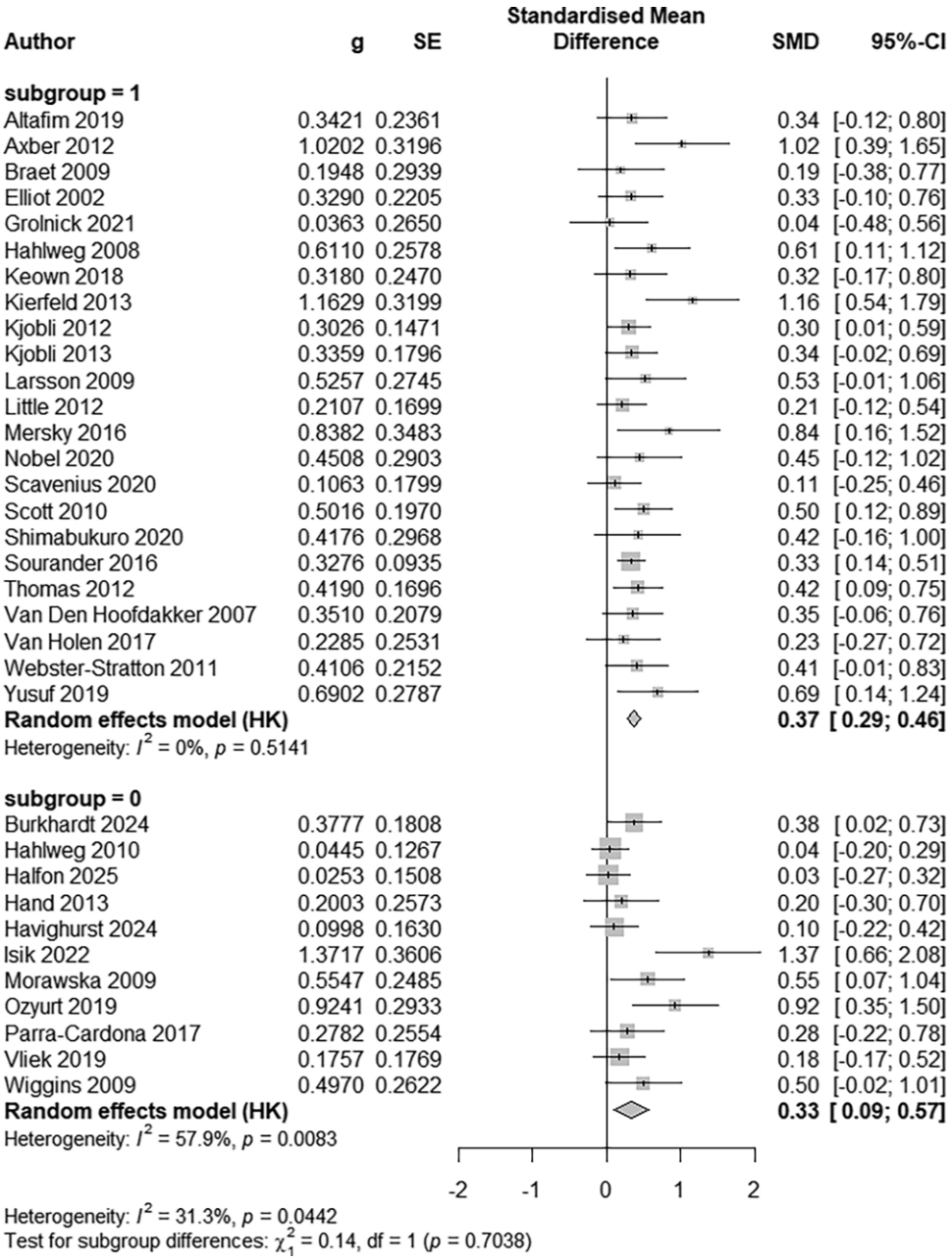


Figure 6. Forest plot of externalizing problem outcomes by primary treatment target. *Note.* 0 = combined/internalizing-focused interventions; 1 = externalizing-focused interventions.

outcome domains are examined together. When meta-analytic targets are more specific (e.g., only internalizing outcomes or single behavioral dimensions such as disruptive behavior), treatment effects tend to be larger; indeed, recent studies have shown medium to large effect sizes of PTPs for particular internalizing or externalizing problems (attention-deficit/hyperactivity disorder: Hornstra et al., 2023; anxiety: Jewell et al., 2022). This pattern may partly explain the relatively small overall effect sizes observed in the present meta-analysis. Furthermore, PTPs encompass not only treatment-oriented interventions but also prevention-oriented programs (e.g., Triple P; Sanders, 1999; ACT Raising Safe Kids; Portwood et al., 2011). Preventive parenting interventions are often designed to address broader developmental risk processes and may therefore target a wide range of behavioral and emotional difficulties (Sandler et al., 2015). The inclusion of both prevention- and treatment-focused programs in the present meta-analysis may represent an additional factor contributing to the relatively modest overall effect sizes and the heterogeneity observed across studies, as preventive approaches may yield more diffuse, cross-domain improvements compared to symptom-specific treatments. Therefore, given the high comorbidity between internalizing and externalizing problems in children, researchers should consider how PTPs might be further refined to address both domains effectively. Similar to well-established disorder-specific treatments, dismantling studies are needed to identify the most potent components of PTPs, and research examining how these components may be applied according to intervention purpose (preventive vs. therapeutic) would also be informative.

Moreover, because both analyses revealed evidence of publication bias, the observed treatment effects may, to some extent, reflect selective reporting. Future research should employ transparent methodologies and report both significant and non-significant outcomes. Expanding datasets that include both internalizing and externalizing outcomes would also help clarify

https://doi.org/10.1017/S0954579426101850 Published online by Cambridge University Press

treatment effects and inform more targeted, sequential intervention strategies.

Taken together, the presence of heterogeneity and publication bias highlights the need to advance PTP research toward mechanism-focused approaches that clarify the underlying processes driving treatment effects. In particular, the cross-domain effects and variability observed in the present study suggest that different components of PTPs may contribute to internalizing and externalizing outcomes in highly complex and interconnected ways. Identifying these specific active ingredients could help refine PTPs to more effectively target specific symptom domains, reducing reliance on "one-size-fits-all" programs. Consequently, future studies should adopt flexible, scalable designs – such as brief or modular interventions – to directly address this heterogeneity, enabling clinicians to tailor treatments to a child's unique transdiagnostic profile. Additionally, incorporating longitudinal or micro-level assessments will help capture mechanisms of change more precisely, ultimately advancing the field toward more personalized, efficient, and reproducible clinical care.

Second, moderator analyses indicated that the only significant effect was children's clinical diagnosis status on externalizing outcomes, whereas other variables were not associated with significant differences in treatment effects. This finding suggests that PTPs may be particularly beneficial for clinically diagnosed children with externalizing problems (e.g., oppositional or conduct problems). Despite variation across studies in delivery formats and intervention dosage, these factors were not significantly associated with treatment outcomes. This pattern indicates that PTPs can be implemented flexibly across various contexts. Given the considerable costs and resources required for treatment implementation – and in light of the present findings together with prior evidence on treatment dosage (Bloss et al., 2022; Buchanan-Pascall et al., 2018; Canário et al., 2025; Korest & Carlson, 2022) – developing more cost-efficient and accessible delivery formats may be advantageous.

Brief, focused, and online versions of PTPs could enhance accessibility while maintaining therapeutic benefits. Such scalable adaptations may help reduce treatment barriers and costs, particularly for families with limited resources or logistical constraints. Moreover, the tendency for disorder-specific interventions to yield larger effect sizes may underscore the need for mechanism-focused, transdiagnostic approaches capable of addressing more blurred and overlapping symptom presentations in children. Finally, parent-only interventions may represent another promising and resource-efficient option, particularly when children show low motivation or difficulty participating in therapy. Future studies should examine whether parent-focused formats can produce treatment effects comparable to those of standard PTPs (Helander et al., 2024; Jewell et al., 2022; Lebowitz et al., 2014). In addition, assessing short-term efficacy and evaluating outcomes according to children's symptom severity could provide further insights for refining stepwise and mechanism-based intervention strategies.

Limitations

This study has some limitations. First, because the number of eligible studies was limited, we broadly included studies involving children with internalizing or externalizing problems or both and those studies wherein caregivers reported related concerns. Despite these broad criteria, only one study exclusively targeted internalizing symptoms; thus, during the estimation of effect sizes by primary target, this study was grouped with those with combined interventions addressing both domains. In particular, the grouping of the single internalizing-only study with combined interventions limits the strength of inferences regarding domain-specific effects and warrants interpretive caution when interpreting the cross-domain patterns observed in this meta-analysis.

Second, the information available from the included studies was insufficient to fully assess the sources of heterogeneity and potential publication bias, which may have influenced the observed effect sizes. Variability in outcome measures and informants likely contributed to this heterogeneity (e.g., SDQ-based effect sizes showed relatively greater influence in sensitivity analyses). Additionally, the relatively small number of studies in certain subgroup analyses may have limited the statistical power to detect potential moderator effects. Future studies would benefit from more rigorous reporting practices, including preregistered protocols and transparent reporting of null findings, to improve the interpretability and cumulative value of evidence in this area.

Third, although the risk-of-bias assessment included cross-checking procedures, the initial ratings were conducted by a single primary reviewer, which may have introduced bias and could have affected the consistency of the evaluations. As some of the included studies overlap with those in prior meta-analyses, these factors highlight the importance of interpreting the present findings cautiously in relation to the existing body of evidence.

Fourth, neurodevelopmental disorders were excluded to maintain conceptual consistency with the HiTOP framework; however, this decision may limit the generalizability of the findings to broader clinical populations in which such conditions frequently co-occur. Cultural and contextual factors were also not systematically coded in the present meta-analysis, although parenting practices and the effectiveness of PTPs may vary across cultural and social contexts. Future studies should therefore examine the effectiveness of PTPs across more diverse clinical populations and cultural contexts. In addition, identifying practical and therapeutic factors that contribute to treatment outcomes, such as parental involvement in symptom-specific interventions, may help clarify how these programs produce change. Finally, meta-analyses based on dismantling studies or comparable research designs could further help clarify potential mechanisms and moderators underlying treatment effects.

Conclusion

This meta-analysis provides comprehensive evidence that PTPs are effective in reducing both internalizing and externalizing problems in children, although the overall effects are small. Importantly, significant cross-domain effects were observed, suggesting that the benefits of PTPs extend beyond their primary targets, thereby supporting their transdiagnostic applicability. Moderator analyses indicated that PTPs are broadly effective across different delivery formats and dosages, with greater benefits observed among clinically diagnosed children with externalizing problems. These findings highlight the flexibility and generalizability of PTPs, while also underscoring the need for future research to refine their efficiency and accessibility through internet-delivered, brief, and parent-focused formats. Developing mechanism-based, transdiagnostic models of parent training may further enhance their capacity to address complex and overlapping symptom profiles in children.

Supplementary material. The supplementary material for this article can be found at https://doi.org/10.1017/S0954579426101850.

https://doi.org/10.1017/S0954579426101850 Published online by Cambridge University Press

Acknowledgements. The authors gratefully acknowledge Sun-Jung Kim, Su-Been Kim, and Heon-Jin Lee, members of the S.A.L.T. Lab, for their assistance with this study.

Author contributions. Seo-Hui Lee, Seol-Hye Yoo, and Yu-Na Kim performed data extraction and analysis and drafted the manuscript. Jung-Kwang Ahn conceptualized and supervised the study and critically revised the manuscript. All authors reviewed and approved the final manuscript.

Funding statement. This work was supported by the National Research Foundation of Korea (NRF) grant funded by the Korea government (MSIT) (RS-2022-00166444).

Competing interests. The authors declare none.

Pre-registration statement

- Active link: This meta-analysis was preregistered in PROSPERO (PROSPERO 2023 CRD42023457373. Available from https://www.crd.york.ac.uk/PROSPERO/view/CRD42023457373).
- Date stamped: 04 September 2023.
- Deviation
- Search Update: The literature search was updated through April 2025 to reflect recent developments during the extended review and submission process.
- Eligibility Criteria: The eligible age range was restricted from ≤12 years to 3–12 years to exclude infants, whose developmental characteristics and intervention targets differ from those of older children.
- Supplementary Search: Reference lists of key prior reviews were screened, identifying 17 additional eligible studies not retrieved through the electronic database search.
- Statistical Analysis: Robust variance estimation with a correlated-effects working model ($\rho = .80$) was used within a random-effects framework to account for dependent effect sizes within studies.

Data availability statement

- Availability of Data: The extracted dataset is available from the corresponding author upon reasonable request.
- Availability of Code: The analysis code is available from the corresponding author upon reasonable request.
- Availability of Methods/material: The methods are described in the manuscript, and additional materials are available from the corresponding author upon reasonable request.

GenAI use disclosure statement. The authors used generative AI solely to enhance the clarity and readability of the manuscript. All AI-assisted revisions were reviewed and revised by the authors, who take full responsibility for the manuscript.

References

Altafim, E. R., & Linhares, M. B. M. (2019). Preventive intervention for strengthening effective parenting practices: A randomized controlled trial. *Journal of Applied Developmental Psychology*, *62*, 160–172. https://doi.org/10.1016/j.appdev.2019.03.003

Ansar, N., Nissen Lie, H. A., Zahl-Olsen, R., Bertelsen, T. B., Elliott, R., & Stiegler, J. R. (2022). Efficacy of emotion-focused parenting programs for children's internalizing and externalizing symptoms: A randomized clinical study. *Journal of Clinical Child and Adolescent Psychology*, *51*(6), 923–939. https://doi.org/10.1080/15374416.2022.2079130

Axberg, U., & Broberg, A. G. (2012). Evaluation of "the incredible years" in Sweden: The transferability of an American parent-training program to Sweden. *Scandinavian Journal of Psychology*, *53*(3), 224–232. https://doi.org/10.1111/j.1467-9450.2012.00955.x

Beelmann, A., Arnold, L. S., & Hercher, J. (2023). Parent training programs for preventing and treating antisocial behavior in children and adolescents: A comprehensive meta-analysis of international studies. *Aggression and Violent Behavior*, *68*, 101798. https://doi.org/10.1016/j.avb.2022.101798

Bloss, C., Brown, S., & Sawrikar, V. (2022). Does behavioural parent training reduce internalising symptoms (or not) among children with externalising problems? systematic review and meta-analysis. *European Child & Adolescent Psychiatry*, *33*(8), 2485–2501. https://doi.org/10.1007/s00787-022-02122-3

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

Bolton, B., Rooney, R. M., Hughes, A., Hopkins, A., & Mancini, V. O. (2023). Systematic review and meta-analysis of the prevention of internalizing disorders in early childhood. *Frontiers in Psychology*, *14*, 1061825. https://doi.org/10.3389/fpsyg.2023.1061825

Braet, C., Meerschaert, T., Merlevede, E., Bosmans, G., Van Leeuwen, K., & De Mey, W. (2009). Prevention of antisocial behaviour: Evaluation of an early intervention programme. *European Journal of Developmental Psychology*, *6*(2), 223–240. https://doi.org/10.1080/17405620601033194

Buchanan-Pascall, S., Gray, K. M., Gordon, M., & Melvin, G. A. (2018). Systematic review and meta-analysis of parent group interventions for primary school children aged 4-12 years with externalizing and/or internalizing problems. *Child Psychiatry and Human Development*, *49*(2), 244–267. https://doi.org/10.1007/s10578-017-0745-9

Burkhardt, S. C. A., Röösli, P., & Müller, X. (2024). The tuning in to kids parenting program delivered online improves emotion socialization and child behavior in a first randomized controlled trial. *Scientific Reports*, *14*, Article 4979. https://doi.org/10.1038/s41598-024-55689-z

Caiado, B., Góis, A., Pereira, B., Canavarro, M. C., & Moreira, H. (2022). The unified protocol for transdiagnostic treatment of emotional disorders in children (UP-C) in Portugal: Feasibility study results. *International Journal of Environmental Research & Public Health*, *19*(3), 1782. https://doi.org/10.3390/ijerph19031782

Canário, A. C., Pinto, R., Silva-Martins, M., Rienks, K., Akik, B. K., Stanke, K. M., David, O., Kızıltepe, R., Melendez-Torres, G. J., Thongseiratch, T., & Leijten, P. (2025). Online parenting programs for children's behavioral and emotional problems: A network meta-analysis. *Prevention Science*, *26*(4), 592–609. https://doi.org/10.1007/s11121-024-01735-1

Cicchetti, D., & Rogosch, F. A. (2002). A developmental psychopathology perspective on adolescence. *Journal of Consulting & Clinical Psychology*, *70*(1), 6–20. https://doi.org/10.1037/0022-006x.70.1.6

Doffer, D. P. A., Dekkers, T. J., Hornstra, R., van der Oord, S., Luman, M., Leijten, P., Hoekstra, P. J., van den Hoofdakker, B. J., & Groenman, A. P. (2023). Sustained improvements by behavioural parent training for children with attention-deficit/hyperactivity disorder: A meta-analytic review of longer-term child and parental outcomes. *JCPP Advances*, *3*(3), e12196. https://doi.org/10.1002/jcv2.12196

Dreikurs, R., & Grey, L. (1970). *A parents' guide to child discipline*. Hawthorn Books.

Duval, S., & Tweedie, R. (2000). Trim and fill: A simple funnel-plot–based method of testing and adjusting for publication bias in meta-analysis. *Biometrics*, *56*(2), 455–463. https://doi.org/10.1111/j.0006-341x.2000.00455.x

Egger, H. L., & Angold, A. (2006). Common emotional and behavioral disorders in preschool children: Presentation, nosology, and epidemiology. *Journal of Child Psychology & Psychiatry*, *47*(3–4), 313–337. https://doi.org/10.1111/j.1469-7610.2006.01618.x

Elliot, J., Prior, M., Merrigan, C., & Ballinger, K. (2002). Evaluation of a community intervention programme for preschool behaviour problems. *Journal of Paediatrics and Child Health*, *38*(1), 41–50. https://doi.org/10.1046/j.1440-1754.2002.00713.x

Evans, S. C., Weisz, J. R., Carvalho, A. C., Garibaldi, P. M., Bearman, S. K., Chorpita, B. F., & Research Network on Youth Mental Health. (2020). Effects of standard and modular psychotherapies in the treatment of youth with severe irritability. *Journal of Consulting & Clinical Psychology*, *88*(3), 255–268. https://doi.org/10.1037/ccp0000456

Fisher, Z., Tipton, E., & Zhipeng, H. (2017). *Robumeta: Robust variance meta-regression* (Version 2.0) [Computer software]. https://github.com/zackfisher/robumeta

Forbes, M. K., Ringwald, W. R., Allen, T., Cicero, D. C., Clark, L. A., DeYoung, C. G., Eaton, N., Kotov, R., Krueger, R. F., Latzman, R. D., Martin, E. A., Naragon-Gainey, K., Ruggero, C. J., Waldman, I. D., Brandes, C., Fried, E. I., Goghari, V. M., Hankin, B., Sperry, S., ... Wright, A. G. C. (2024). Principles and procedures for revising the hierarchical taxonomy of psychopathology. *Journal of Psychopathology and Clinical Science*, *133*(1), 4–19. https://doi.org/10.1037/abn0000886

Ghizzoni, G., Mirandi, M., Garofalo, C., Mazzeschi, C., & Delvecchio, E. (2025). A systematic review comparing four transdiagnostic programmes for School-Age children. *Clinical Psychology and Psychotherapy*, *32*(3), e70072-n/a. https://doi.org/10.1002/cpp.70072

Gordon, T. (1970). *P.E.T.: Parent effectiveness training*. Peter H. Wyden, Inc.

Grolnick, W. S., Levitt, M. R., Caruso, A. J., & Lerner, R. E. (2021). Effectiveness of a brief preventive parenting intervention based in self-determination theory. *Journal of Child and Family Studies*, *30*(4), 905–920. https://doi.org/10.1007/s10826-021-01908-4

Hahlweg, K., Heinrichs, N., Kuschel, A., Bertram, H., & Naumann, S. (2010). Long-term outcome of a randomized controlled universal prevention trial through a positive parenting program: Is it worth the effort? *Child and Adolescent Psychiatry and Mental Health*, *4*(1), 14. https://doi.org/10.1186/1753-2000-4-14

Hahlweg, K., Heinrichs, N., Kuschel, A., & Feldmann, M. (2008). Therapist-assisted, self-administered bibliotherapy to enhance parental competence: Short- and long-term effects. *Behavior Modification*, *32*(5), 659–681. https://doi.org/10.1177/0145445508317131

Halfon, S., Beşiroğlu, B., Bulut, P., Epözdemir, Ş., Aydın, G.İ., Koç, H. B., Sözüer, B., Özsoy, Ö., Tulum, O., Tülü, S., & Midgley, N. (2025). The efficacy of mentalization-based treatment for children with internalizing and externalizing problems: A randomized controlled trial. *Journal of the American Academy of Child and Adolescent Psychiatry*, *64*(11), 1266–1280. https://doi.org/10.1016/j.jaac.2024.12.006

Hand, A., McDonnell, E., Honari, B., & Sharry, J. (2013). A community led approach to delivery of the parents plus children's programme for the parents of children aged 6-11. *International Journal of Clinical and Health Psychology*, *13*(2), 87–90. https://doi.org/10.1016/S1697-2600(13)70011-5

Havighurst, S. S., Mangelsdorf, S. N., Boswell, N., Little, J., Zhang, A., Gleeson, K., Hussain, A., Harley, A., Radovini, A., & Kehoe, C. E. (2024). A self-paced online emotion socialization intervention for parents of children with challenging behavior: Tuning in to Kids OnLine. *Frontiers in Psychology*, *15*, Article 1393708. https://doi.org/10.3389/fpsyg.2024.1393708

Hedges, L. V. (1981). Distribution theory for glass's estimator of effect size and related estimators. *Journal of Educational Statistics*, *6*(2), 107–128. https://doi.org/10.3102/10769986006002107

Hedges, L. V., Tipton, E., & Johnson, M. C. (2010). Robust variance estimation in meta-regression with dependent effect size estimates. *Research Synthesis Methods*, *1*(1), 39–65. https://doi.org/10.1002/jrsm.5

Helander, M., Asperholm, M., Wetterborg, D., Öst, L. G., Hellner, C., Herlitz, A., & Enebrink, P. (2024). The efficacy of parent management training with or without involving the child in the treatment among children with clinical levels of disruptive behavior: A meta-analysis. *Child Psychiatry and Human Development*, *55*(1), 164–181. https://doi.org/10.1007/s10578-022-01367-y

Higgins, J. P. T., Savović, J., Page, M. J., Elbers, R. G., & Sterne, J. A. C. (2019). *Assessing risk of bias in a randomized trial*. In J. P. T. Higgins, J. Thomas, J. Chandler, M. Cumpston, T. Li, M. J. Page, & V. A. Welch (Eds.), *Cochrane handbook for systematic reviews of interventions* (pp. 205–228). John Wiley & Sons.

Hornstra, R., Groenman, A. P., Oord, S., Luman, M., Dekkers, T. J., Veen-Mulders, L., Hoekstra, P. J., & van den Hoofdakker, B. J. (2023). Review: Which components of behavioral parent and teacher training work for children with ADHD? – A metaregression analysis on child behavioral outcomes. *Child and Adolescent Mental Health*, *28*(2), 258–268. https://doi.org/10.1111/camh.12561

Işık, E., & Demircioğlu, H. (2022). Examining the effects of the parenting program on preschool children's behavioral problems. *Child & Family Behavior Therapy*, *44*(2), 89–112. https://doi.org/10.1080/07317107.2021.2024717

Jewell, C., Wittkowski, A., & Pratt, D. (2022). The impact of parent-only interventions on child anxiety: A systematic review and meta-analysis. *Journal of Affective Disorders*, *309*, 324–349. https://doi.org/10.1016/j.jad.2022.04.082

Kazdin, A. E. (1997). Parent management training: Evidence, outcomes, and issues. *Journal of the American Academy of Child & Adolescent Psychiatry*, *36*(10), 1349–1356. https://doi.org/10.1097/00004583-199710000-00016

Kazdin, A. E., Bass, D., Ayers, W. A., & Rodgers, A. (1990). Empirical and clinical focus of child and adolescent psychotherapy research. *Journal of Consulting & Clinical Psychology*, *58*(6), 729–740. https://doi.org/10.1037/0022-006X.58.6.729

Keown, L. J., Sanders, M. R., Franke, N., & Shepherd, M. (2018). Te whānau pou toru: A randomized controlled trial (RCT) of a culturally adapted low-intensity variant of the triple P-positive parenting program for indigenous Māori families in New Zealand. *Prevention Science*, *19*(7), 954–965. https://doi.org/10.1007/s11121-018-0886-5

Kierfeld, F., Ise, E., Hanisch, C., Görtz-Dorten, A., & Döpfner, M. (2013). Effectiveness of telephone-assisted parent-administered behavioural family intervention for preschool children with externalizing problem behaviour: A randomized controlled trial. *European Child & Adolescent Psychiatry*, *22*(9), 553–565. https://doi.org/10.1007/s00787-013-0397-7

Kjøbli, J., Hukkelberg, S., & Ogden, T. (2013). A randomized trial of group parent training: Reducing child conduct problems in real-world settings. *Behaviour Research & Therapy*, *51*(3), 113–121. https://doi.org/10.1016/j.brat.2012.11.006

Kjøbli, J., & Ogden, T. (2012). A randomized effectiveness trial of brief parent training in primary care settings. *Prevention Science*, *13*(6), 616–626. https://doi.org/10.1007/s11121-012-0289-y

Korest, R., & Carlson, J. S. (2022). A meta-analysis of the current state of evidence of the incredible years teacher-classroom management program. *Children (Basel)*, *9*(1), 24. https://doi.org/10.3390/children9010024

Kotov, R., Krueger, R. F., Watson, D., Achenbach, T. M., Althoff, R. R., Bagby, R. M., Brown, T. A., Carpenter, W. T., Caspi, A., Clark, L. A., Eaton, N. R., Forbes, M. K., Forbush, K. T., Goldberg, D., Hasin, D., Hyman, S. E., Ivanova, M. Y., Lynam, D. R., Markon, K., & Zimmerman, M. (2017). The hierarchical taxonomy of psychopathology (HiTOP): A dimensional alternative to traditional nosologies. *Journal of Abnormal Psychology (1965)*, *126*(4), 454–477. https://doi.org/10.1037/abn0000258

Larsson, B., Fossum, S., Clifford, G., Drugli, M. B., Handegård, B. H., & Mørch, W.-T. (2009). Treatment of oppositional defiant and conduct problems in young Norwegian children: Results of a randomized controlled trial. *European Child & Adolescent Psychiatry*, *18*(1), 42–52. https://doi.org/10.1007/s00787-008-0702-z

Lebowitz, E. R., Omer, H., Hermes, H., & Scahill, L. (2014). Parent training for childhood anxiety disorders: The SPACE program. *Cognitive and Behavioral Practice*, *21*(4), 456–469. https://doi.org/10.1016/j.cbpra.2013.10.004

Little, M., Berry, V., Morpeth, L., Blower, S., Axford, N., Taylor, R., Bywater, T., Lehtonen, M., & Tobin, K. (2012). The impact of three evidence-based programmes delivered in public systems in Birmingham, UK. *International Journal of Conflict and Violence*, *6*(2), 260–272. https://doi.org/10.4119/ijcv-2917

Marvin, R., Cooper, G., Hoffman, K., & Powell, B. (2002). The circle of security project: Attachment-based intervention with caregiver-pre-school child dyads. *Attachment & Human Development*, *4*(1), 107–124. https://doi.org/10.1080/14616730252982491

Mersky, J. P., Topitzes, J., Grant-Savela, S. D., Brondino, M. J., & McNeil, C. B. (2016). Adapting Parent–Child Interaction Therapy to foster care: Outcomes from a randomized trial. *Research on Social Work Practice*, *26*(2), 157–167. https://doi.org/10.1177/1049731514543023

Mingebach, T., Kamp-Becker, I., Christiansen, H., & Weber, L. (2018). Meta-meta-analysis on the effectiveness of parent-based interventions for the treatment of child externalizing behavior problems. *PloS One*, *13*(9), e0202855. https://doi.org/10.1371/journal.pone.0202855

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & Group, P. R. I. S. M. A. (2009). Preferred reporting items for systematic reviews and meta-analyses:

https://doi.org/10.1017/S0954579426101850 Published online by Cambridge University Press

The PRISMA statement. *Annals of Internal Medicine*, *151*(4), 264–269. https://doi.org/10.7326/0003-4819-151-4-200908180-00135

Morawska, A., & Sanders, M. (2009). An evaluation of a behavioural parenting intervention for parents of gifted children. *Behaviour Research & Therapy*, *47*(6), 463–470. https://doi.org/10.1016/j.brat.2009.02.008

Morris, A. S., Silk, J. S., Steinberg, L., Myers, S. S., & Robinson, L. R. (2007). The role of the family context in the development of emotion regulation. *Social Development*, *16*(2), 361–388. https://doi.org/10.1111/j.1467-9507.2007.00389.x

National Research Council & Institute of Medicine. (2000). *From neurons to neighborhoods: The science of early childhood development*. National Academy Press. https://doi.org/10.17226/9824

Nobel, E., Hoekstra, P. J., Brunnekreef, J. A., Messink-De Vries, D. E. H., Fischer, B., Emmelkamp, P. M. G., & van den Hoofdakker, B. J. (2020). Home-Based parent training for school-aged children with attention-deficit/hyperactivity disorder and behavior problems with remaining impairing disruptive behaviors after routine treatment: A randomized controlled trial. *European Child & Adolescent Psychiatry*, *29*(3), 395–408. https://doi.org/10.1007/s00787-019-01375-9

Özyurt, G., Gencer, Ö., Özturk, Y., & Özbek, A. (2019). Is triple P effective in childhood anxiety disorder? A randomized controlled study. *Psychiatry and Clinical Psychopharmacology*, *29*(4), 570–578. https://doi.org/10.1080/24750573.2018.1483790

Parra-Cardona, J. R., Bybee, D., Sullivan, C. M., Rodríguez, M. M. D., Dates, B., Tams, L., & Bernal, G. (2017). Examining the impact of differential cultural adaptation with Latina/o immigrants exposed to adapted parent training interventions. *Journal of Consulting & Clinical Psychology*, *85*(1), 58–71. https://doi.org/10.1037/ccp0000160

Patterson, G. R., & Capaldi, D. M. (1990). A mediational model for boys' depressed mood. In J. Rolf, A. S. Masten, D. Cicchetti, K. H. Nüchterlein, & S. Weintraub (Eds.), *Risk and protective factors in the development of psychopathology* (pp. 141163). Cambridge University Press. https://doi.org/10.1017/CBO9780511752872.010

Patterson, G. R., Chamberlain, P., & Reid, J. B. (2016). A comparative evaluation of a parent-training program – republished article. *Behavior Therapy*, *47*(6), 804–811. https://doi.org/10.1016/j.beth.2016.11.004

Polier, G. G., Vloet, T. D., Herpertz-Dahlmann, B., Laurens, K. R., & Hodgins, S. (2012). Comorbidity of conduct disorder symptoms and internalising problems in children: Investigating a community and a clinical sample. *European Child & Adolescent Psychiatry*, *21*(1), 31–38. https://doi.org/10.1007/s00787-011-0229-6

Portwood, S. G., Lambert, R. G., Abrams, L. P., & Nelson, E. B. (2011). An evaluation of the adults and children together (ACT) against violence parents raising safe kids program. *Journal of Primary Prevention*, *32*(3–4), 147–160. https://doi.org/10.1007/s10935-011-0249-5

Pustejovsky, J. E., & Tipton, E. (2022). Meta-analysis with robust variance estimation: Expanding the range of working models. *Prevention Science*, *23*(3), 425–438. https://doi.org/10.1007/s11121-021-01246-3

Rapee, R. M., Kennedy, S., Ingram, M., Edwards, S., & Sweeney, L. (2005). Prevention and early intervention of anxiety disorders in inhibited preschool children. *Journal of Consulting & Clinical Psychology*, *73*(3), 488–497. https://doi.org/10.1037/0022-006X.73.3.488

Sanders, M. R. (1999). Triple P-positive parenting program: Towards an empirically validated multilevel parenting and family support strategy for the prevention of behavior and emotional problems in children. *Clinical Child and Family Psychology Review*, *2*(2), 71–90. https://doi.org/10.1023/A:1021843613840

Sandler, I., Ingram, A., Wolchik, S., Tein, J., & Winslow, E. (2015). Long-term effects of parenting-focused preventive interventions to promote resilience of children and adolescents. *Child Development Perspectives*, *9*(3), 164–171. https://doi.org/10.1111/cdep.12126

Santacruz, I., Méndez, F. J., & Sánchez-Meca, J. (2006). Play therapy applied by parents for children with darkness phobia: Comparison of two programmes. *Child & Family Behavior Therapy*, *28*(1), 19–35. https://doi.org/10.1300/J019v28n01_02

Sawrikar, V., Macbeth, A., Gillespie-Smith, K., Brown, M., Lopez-Williams, A., Boulton, K., Guestella, A., & Hickie, I. (2022). Transdiagnostic clinical staging for childhood mental health: An adjunctive tool for classifying internalizing and externalizing syndromes that emerge in children aged 5-11 years. *Clinical Child and Family Psychology Review*, *25*(3), 613–626. https://doi.org/10.1007/s10567-022-00399-z

Scavenius, C., Chacko, A., Lindberg, M. R., Granski, M., Vardanian, M. M., Pontoppidan, M., Hansen, H., & Eiberg, M. (2020). Parent management training Oregon model and family-based services as usual for behavioral problems in youth: A national randomized controlled trial in Denmark. *Child Psychiatry and Human Development*, *51*(5), 839–852. https://doi.org/10.1007/s10578-020-01028-y

Schaeuffele, C., Schulz, A., Knaevelsrud, C., Renneberg, B., & Boettcher, J. (2021). CBT at the crossroads: The rise of transdiagnostic treatments. *International Journal of Cognitive Therapy*, *14*(1), 86–113. https://doi.org/10.1007/s41811-020-00095-2

Schleider, J. L., & Weisz, J. R. (2017). Family process and youth internalizing problems: A triadic model of etiology and intervention. *Development and Psychopathology*, *29*(1), 273–301. https://doi.org/10.1017/S095457941600016X

Scott, S., Sylva, K., Doolan, M., Price, J., Jacobs, B., Crook, C., & Landau, S. (2010). Randomised controlled trial of parent groups for child antisocial behaviour targeting multiple risk factors: The SPOKES project. *Journal of Child Psychology & Psychiatry*, *51*(1), 48–57. https://doi.org/10.1111/j.1469-7610.2009.02127.x

Shimabukuro, S., Daley, D., Thompson, M., Laver-Bradbury, C., Lovern, K., & Tripp, G. (2020). Supporting Japanese mothers of children at risk for attention deficit hyperactivity disorder (ADHD): A small scale randomized control trial of Well Parent Japan. *Journal of Child and Family Studies*, *29*(6), 1604–1616. https://doi.org/10.1007/s10826-020-01704-6

Smith, J. D., Dishion, T. J., Shaw, D. S., Wilson, M. N., Winter, C. C., & Patterson, G. R. (2014). Coercive family process and early-onset conduct problems from age 2 to school entry. *Development and Psychopathology*, *26*(4pt1), 917–932. https://doi.org/10.1017/S0954579414000169

Sourander, A., McGrath, P. J., Ristkari, T., Cunningham, C., Huttunen, J., Lingley-Pottie, P., Hinkka-Yli-Salomäki, S., Kinnunen, M., Vuorio, J., Sinokki, A., Fossum, S., & Unruh, A. (2016). Internet-assisted parent training intervention for disruptive behavior in 4-year-old children: A randomized clinical trial. *JAMA Psychiatry*, *73*(4), 378–387. https://doi.org/10.1001/jamapsychiatry.2015.3411

Stalk, H., Love, A. R., & Mueller, C. W. (2015). Age of conduct disorder onset and comorbid anxiety and depression. *The Journal of Forensic Psychiatry & Psychology*, *26*(3), 337–350. https://doi.org/10.1080/14789949.2015.1017593

Steinberg, L., & Morris, A. S. (2001). Adolescent development. *Annual Review of Psychology*, *52*(1), 83–110. https://doi.org/10.1146/annurev.psych.52.1.83

Thomas, R., & Zimmer-Gembeck, M. J. (2012). Parent–Child interaction therapy: An evidence-based treatment for child maltreatment. *Child Maltreatment*, *17*(3), 253–266. https://doi.org/10.1177/1077559512459555

Van Den Hoofdakker, B. J., Van Der Veen-Mulders, L., Sytema, S., Emmelkamp, P. M. G., Minderaa, R. B., & Nauta, M. H. (2007). Effectiveness of behavioral parent training for children with ADHD in routine clinical practice: A randomized controlled study. *Journal of the American Academy of Child and Adolescent Psychiatry*, *46*(10), 1263–1271. https://doi.org/10.1097/chi.0b013e3181354bc2

Van Holen, F., Vanschoonlandt, F., & Vanderfaeillie, J. (2017). Evaluation of a foster parent intervention for foster children with externalizing problem behaviour. *Child & Family Social Work*, *22*(3), 1216–1226. https://doi.org/10.1111/cfs.12338

Vliek, L., Overbeek, G., & Orobio de Castro, B. (2019). Effects of Topper Training on psychosocial problems, self-esteem, and peer victimisation in Dutch children: A randomised trial. *PLOS ONE*, *14*(11), e0225504. https://doi.org/10.1371/journal.pone.0225504

Webster-Stratton, C. H., Reid, M. J., & Beauchaine, T. (2011). Combining parent and child training for young children with ADHD. *Journal of Clinical Child and Adolescent Psychology*, *40*(2), 191–203. https://doi.org/10.1080/15374416.2011.546044

Wergeland, G. J. H., Riise, E. N., & Öst, L. G. (2021). Cognitive behavior therapy for internalizing disorders in children and adolescents in routine clinical care: A systematic review and meta-analysis. *Clinical Psychology Review*, *83*, 101918. https://doi.org/10.1016/j.cpr.2020.101918

Wichstrøm, L., Berg-Nielsen, T. S., Angold, A., Egger, H. L., Solheim, E., & Sveen, T. H. (2012). Prevalence of psychiatric disorders in preschoolers.

https://doi.org/10.1017/S0954579426101850 Published online by Cambridge University Press

Journal of Child Psychology & Psychiatry, *53*(6), 695–705. https://doi.org/10.1111/j.1469-7610.2011.02514.x

Wiggins, T. L., Sofronoff, K., & Sanders, M. R. (2009). Pathways Triple P–Positive Parenting Program: Effects on parent–child relationships and child behavior problems. *Family Process*, *48*(4), 517–530. https://doi.org/10.1111/j.1545-5300.2009.01299.x

Yap, M. B. H., & Jorm, A. F. (2015). Parental factors associated with childhood anxiety, depression, and internalizing problems: A systematic review and meta-analysis. *Journal of Affective Disorders*, *175*, 424–440. https://doi.org/10.1016/j.jad.2015.01.050

Yap, M. B. H., Morgan, A. J., Cairns, K., Jorm, A. F., Hetrick, S. E., & Merry, S. (2016). Parents in prevention: A meta-analysis of randomized controlled trials of parenting interventions to prevent internalizing problems in children from birth to age 18. *Clinical Psychology Review*, *50*, 138–158. https://doi.org/10.1016/j.cpr.2016.10.003

Yap, M. B. H., Pilkington, P. D., Ryan, S. M., & Jorm, A. F. (2014). Parental factors associated with depression and anxiety in young people: A systematic review and meta-analysis. *Journal of Affective Disorders*, *156*, 8–23. https://doi.org/10.1016/j.jad.2013.11.007

Yusuf, Ö., Gonka, Ö., & Pekcanlar Aynur, A. (2019). The effects of the triple P-positive parenting programme on parenting, family functioning and symptoms of attention-deficit/hyperactivity disorder. A randomized controlled trial. *Psychiatry and Clinical Psychopharmacology*, *29*(4), 665–673. https://doi.org/10.1080/24750573.2018.1542189

Zarakoviti, E., Shafran, R., Papadimitriou, D., & Bennett, S. D. (2021). The efficacy of parent training interventions for disruptive behavior disorders in treating untargeted comorbid internalizing symptoms in children and adolescents: A systematic review. *Clinical Child and Family Psychology Review*, *24*(3), 542–552. https://doi.org/10.1007/s10567-021-00349-1

https://doi.org/10.1017/S0954579426101850 Published online by Cambridge University Press